

'90

11/90

Panasonic Electronic Components

光半導体素子〔可視発光ダイオード編〕
ユニット商品
Optoelectronic Devices
〔Visible LED'S/Unit Products〕

Panasonic Electronic Components 3

パナソニック半導体ハンドブック

可視発光ダイオード／ユニット商品

形名一覧表	
製品早見表	
解 説	
可視発光ダイオード	丸 形
	角 形
	三 角 形
	小 形
	双 頭 形
	超高輝度 GaAlAs (赤色)
	二色発光
	テーピング(丸形・角形・小形・二色)
	面 発 光
	レベルメータ
	数字表示
ユニット商品	パネルディスプレイユニット
	屋外用大型ランプ
	LEDライン光源
	ホトセンサユニット
参考資料	発光素子・受光素子・光複合素子・光ファイバユニット





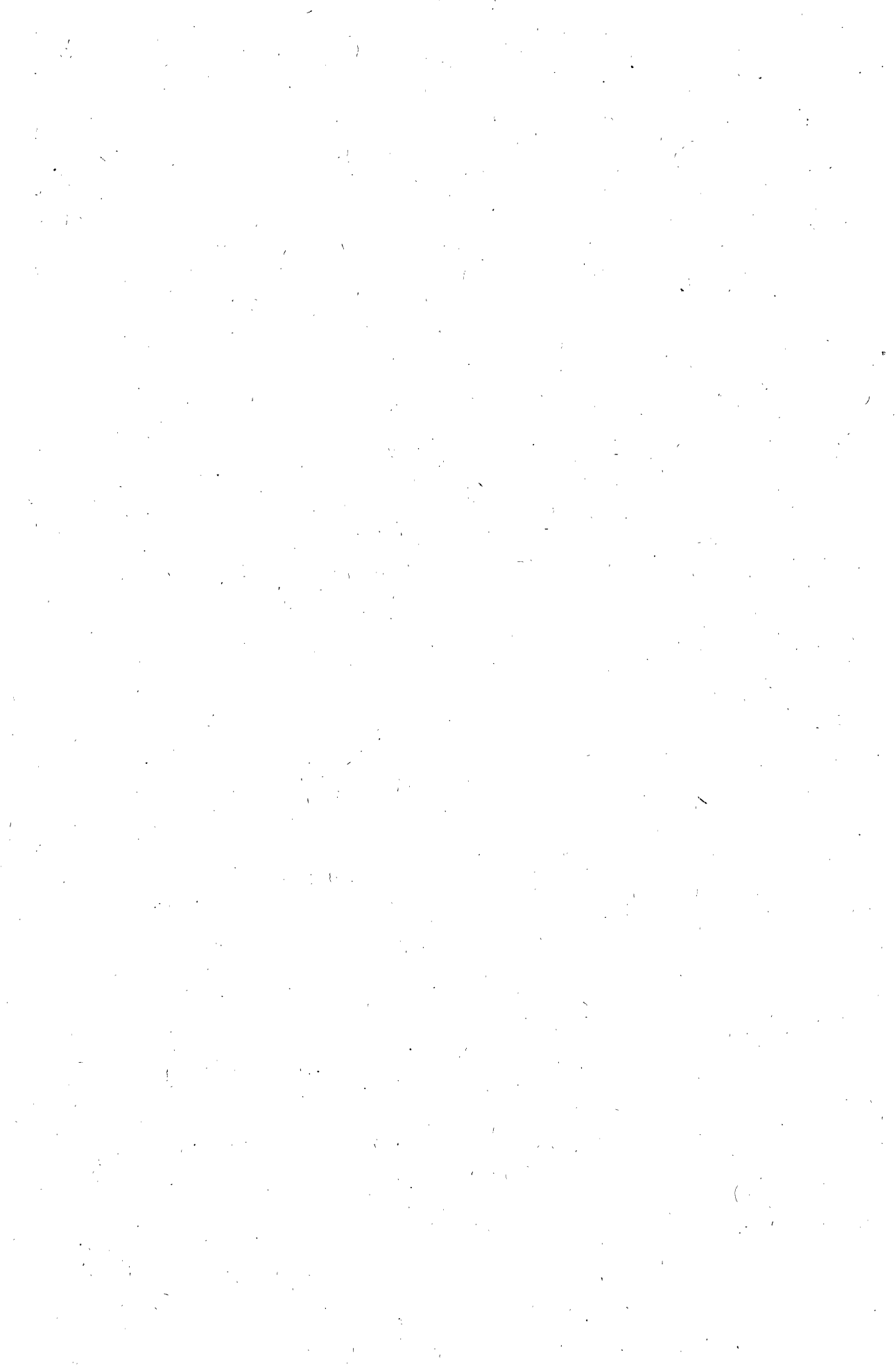
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LN0204RP8	265	LN11WP23	211	LN21CAL(UQPS)	196	LN233RP	166
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LN04302P	274	LN1361C-(TR)	257	LN21RPH-(TA)	233	LN244RP	189
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LN0501172UN	381	LN1451C	185	LN21RPSL	59	LN247RP	183
LN0501199UN	382	LN1451C-(TL)	256	△LN21RPSLX	67	LN248RP	141
LN0501229UN	383	LN1451C-(TR)	255	△LN21RPSLX-(TDA)	235	LN248RPH	142
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△LN252RPX	125	LN29CPP	77	LN324GPL	162	△LN368GPH	165
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LN2561171UNA4H4	368	LN29RPP	77	LN326GPH	173	△LN375GPX	155
LN2561232UNA	364	LN29RPX	81	LN327GP	175	△LN375GPX-(TT)	250
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LN256166UNA	360	LN29WP	74	LN328GP	174	△LN376GCPX-(TA)	238
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LN526OK	319	LN543RKHN3	332	LN882RPX-(TA)	247		
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△LN528GA	322	LN803108UN-A4	396	LN88RPP	93		
△LN528GK	322	LN803169UNA-A4	394	LN88RPPN	94		
△LN528OA	323	LN810RP	131	LN89RCPX	79		
△LN528OK	323	LN810WP	132	LN89RPP	79		
△LN528RA	322	LN813RP	133	LN963106UN-B4	400		
LN528RK	322	LN816RP	126	LN963185UNA-B4	398		
△LN528YA	323	LN816RPH	127	ON1501	409		
△LN528YK	323	LN819RP	135	ON1501S	409		
LN533GAMG	324	LN81CPH	64	ON1503	411		
LN533GKMG	324	LN81CPHL	58	△ON1517HA-(A)	413		
△LN533OAMO	325	LN81RCPH	64	ON1517HA2-(J)	416		
△LN533OKMO	325	LN81RCPHL	58	ON1517HH-(A)	419		
△LN533RAMR	324	LN81RPH	64	ON1517HO-(J)2	422		
△LN533RKMR	324	LN81RPH-(TA)	233	ON1517HO-(M)	425		
LN533YAMY	325	LN81RPH-(TA2)	234	ON1517LA-(A)	413		
LN533YKMY	325	LN81RPH-(TD)	236	△ON1517LA2-(J)	416		
LN534GAMG	326	LN81RPHL	58	△ON1517LH-(A)	419		
△LN534GKMG	326	LN81RPL	65	△ON1517LO-(J)2	422		
△LN534OAMO	327	△LN81WPH	64	ON1517LO-(M)	425		
LN534OKMO	327	LN81WPHL	58	△ON1531HA-(A)	428		
LN534RAMR	326	LN820RP	153	△ON1531HA-(M)	430		
LN534RKMR	326	△LN820RPH	154	△ON1531HA2-(A)4	432		
△LN534YAMY	327	LN830RPP	113	△ON1531HC-(A)	435		
△LN534YKMY	327	LN831RP	104	△ON1531HD-(A)	438		
△LN5361GAMG	330	LN833WP	166	ON1531LA-(A)	428		
△LN5361GKMG	330	△LN833WPH	167	ON1531LA-(M)	430		
LN5361RAMR	330	LN838RPH	100	ON1531LA2-(A)4	432		
△LN5361RKMR	330	LN840CP	72	ON1531LC-(A)	435		
△LN5361YAMY	331	LN840RCP	72	ON1531LD-(A)	438		

△暫定規格/Tentative Specification

製品早見表/SELECTION GUIDE

■可視発光ダイオード/Visible Light Emitting Diodes

○点発光(丸形)/Point Lighting Diodes (Round Type)

Type	Lens Color	Red			Green			Amber			Orange			
		Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page	
φ 5.0mm		LN21RPHL	Red Diffused	55	LN31GPHL	Green Diffused	56	LN41YPHL	Amber Diffused	57	LN81RPHL	Red Diffused	58	
		LN21RCPHL	Red Clear	55	LN31GPHL(G)	Green Diffused	56	LN41YCPHL	Amber Clear	57	LN81RCPHL	Red Clear	58	
		LN21WPHL	White Diffused	55	LN31GCPHL	Green Clear	56				LN81WPHL	White Diffused	58	
		LN21CPHL	Clear	55	LN31GCPHL(G)	Green Clear	56	LN41CPHL	Clear	57	LN81CPHL	Clear	58	
		LN21RPH	Red Diffused	61	LN31GPH	Green Diffused	62	LN41YPH	Amber Diffused	63	LN81RPH	Red Diffused	64	
		LN21RCPH	Red Clear	61	LN31YPH	Yellow Diffused	62	LN41YCPH	Amber Clear	63	LN81RCPH	Red Clear	64	
		LN21WPH	White Diffused	61	LN31GCPH	Green Clear	62				△LN81WPH	White Diffused	64	
		LN21CPH	Clear	61	LN31YCPH	Yellow Clear	62				LN81CPH	Clear	64	
		LN21RPL	Red Diffused	65	LN31GPL	Green Diffused	65	LN41YPL	Amber Diffused	65	LN81RPL	Red Diffused	65	
		LN21RPSL	Red Diffused	59	LN31GPSL	Green Diffused	60	LN41YPSL	Amber Diffused	60				
		LN21RCPSL	Red Clear	59	LN31GCPSL	Green Clear	60	LN41YCPSL	Amber Clear	60				
		LN21WPSL	White Diffused	59										
		LN21CPSL	Clear	59										
		LN21RPX	Red Diffused	66	LN31GPX	Green Diffused	66	LN41YPX	Amber Diffused	66				
		△LN21RPXLX	Red Diffused	67	△LN31GPSLX	Green Diffused	67	△LN41YPSLX	Amber Diffused	67				
φ 4.8mm		LN264CP	Clear	70	LN364GCP	Green Clear	70	LN464YCP	Amber Clear	70	LN864RCP	Red Clear	70	
		LN21RCPSS	Red Clear	69	LN31GCPSS	Green Clear	69	LN41YCPS	Amber Clear	69				
φ 4.4mm		△LN240RCP	Red Clear	71	LN340GCP	Green Clear	71	LN440YCP	Amber Clear	72	LN840RCP	Red Clear	72	
		LN240CP	Clear	71	LN340CP	Clear	71	LN440CP	Clear	72	LN840CP	Clear	72	
		△LN240RPX	Red Diffused	73	△LN340GPX	Green Diffused	73	△LN440YPX	Amber Diffused	73				
φ 4.0mm		LN29RP	Red Diffused	74	LN39GP	Green Diffused	75	LN49YP	Amber Diffused	76				
		LN29RCP	Red Clear	74	LN39GCP	Green Clear	75	LN49YCP	Amber Clear	76				
		LN29WP	White Diffused	74	LN39WP	White Diffused	75	LN49WP	White Diffused	76				
		LN29CP	Clear	74	LN39CP	Clear	75	LN49CP	Clear	76				
		LN29RPP	Red Diffused	77	LN39GPP	Green Diffused	78	LN49YPP	Amber Diffused	79	LN89RPP	Red Diffused	79	
		LN29RCPP	Red Clear	77	LN39GCPP	Green Clear	78	LN49YCPP	Amber Clear	79	LN89RCPP	Red Clear	79	
		△LN29WPP	White Diffused	77										
		LN29CPP	Clear	77	LN39CPP	Clear	78							
		LN29RPL	Red Diffused	80	LN39GPL	Green Diffused	80	LN49YPL	Amber Diffused	80				
		LN29RPX	Red Diffused	81	LN39GPX	Green Diffused	81	LN49YPP	Amber Diffused	81				
φ 3.7mm		LN253RP	Red Diffused	82	LN353GP	Green Diffused	82	LN453YP	Amber Diffused	82				
φ 3.2mm		△LN276RCPX	Red Clear	86	△LN376GCPX	Green Clear	86	△LN476YCPX	Amber Clear	86	△LN876RCPX	Red Clear	86	
		LN28RP	Red Diffused	87	LN38GP	Green Diffused	88	LN48YP	Amber Diffused	89				
φ 3.0mm		LN28RCP	Red Clear	87	LN38GCP	Green Clear	88	LN48YCP	Amber Clear	89				
		LN28WP	White Diffused	87	LN38WP	White Diffused	88	LN48WP	White Diffused	89				
		LN28CP	Clear	87	LN38CP	Clear	88	LN48CP	Clear	89				
		LN28RPP	Red Diffused	90	LN38GPP	Green Diffused	91	LN48YPP	Amber Diffused	92	LN88RPP	Red Diffused	93	
		LN28RCPP	Red Clear	90	LN38GCPP	Green Clear	91	LN48YCPP	Amber Clear	92	LN88RCPP	Red Clear	93	
		LN28WPP	White Diffused	90										
		LN28CPP	Clear	90	△LN38CPP	Clear	91	LN48CPP	Clear	92	LN88CPP(S)	Clear	93	
		LN28RPH	Red Diffused	96	LN38GPH	Green Diffused	96	LN48YPH	Amber Diffused	97	LN88RPH	Red Diffused	97	
		LN28RCPH	Red Clear	96	LN38GCPH	Green Clear	96							
		LN28RPL	Red Diffused	95	LN38GPL	Green Diffused	95	LN48YPL	Amber Diffused	95				
		LN28RPX	Red Diffused	98	LN38GPX	Green Diffused	98	LN48YPX	Amber Diffused	98				
		LN277RPX	Red Diffused	99	LN377GPX	Green Diffused	99	LN477YPX	Amber Diffused	99				
	φ 5.0mm		LN21RPXN	Red Diffused	68	LN31GPXN	Green Diffused	68	LN41YPXN	Amber Diffused	68			
			LN28RPPN	Red Diffused	94	LN38GPPN	Green Diffused	94	LN48YPPN	Amber Diffused	94	LN88RPPN	Red Diffused	94
		φ 3.0mm	LN235SRP(H)	Red Diffused	101	LN33SGP(H)	Green Diffused	101	LN43SYP	Amber Diffused	101			
LN235SCP(H)			Clear	102	LN33SCP(H)	Clear	102	LN43SCP(H)	Clear	102				

△暫定規格/Tentative Specification

■可視発光ダイオード/Visible Light Emitting Diodes

○点発光 (丸形) /Point Lighting Diodes (Round Type)

Type	Radiation Color Lens Color Lens Dimensions	Red			Green			Amber			Orange		
		Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
●	φ 2.8mm	LN263CPP	Clear	103	LN363GCPP	Green Clear	103	LN463YCPP	Amber Clear	103	LN863RCPP	Red Clear	103
		φ 3.0mm	LN238RPH	Red Diffused	100	LN338GPH	Green Diffused	100	LN438YPH	Amber Diffused	100	LN838RPH	Red Diffused
	φ 2.6mm	LN221RP	Red Diffused	105	LN321GP	Green Diffused	105	LN421YP	Amber Diffused	105			
		LN221RPH	Red Diffused	106	LN321GPH	Green Diffused	106	LN421YPH	Amber Diffused	106			
		△LN221RPX	Red Diffused	107	△LN321GPX	Green Diffused	107	△LN421YPX	Amber Diffused	107			
	φ 2.0mm										LN831RP	Red Diffused	104
		LN230RPP	Red Diffused	113	LN330GPP	Green Diffused	113	LN430YPP	Amber Diffused	113	LN830RPP	Red Diffused	113
		LN222RP	Red Diffused	109	LN322GP	Green Diffused	109	LN422YP	Amber Diffused	109			
		LN222WP	White Diffused	110	LN322WP	White Diffused	110	LN422WP	White Diffused	110			
		LN222RPH	Red Diffused	111	LN322GPH	Green Diffused	111	LN422YPH	Amber Diffused	111			
		LN222RPT	Red Diffused	112	LN322GPT	Green Diffused	112	△LN422YPT	Amber Diffused	112			
	△LN282RPX	Red Diffused	114	△LN382GPX	Green Diffused	114	△LN482YPX	Amber Diffused	114	LN882RPX	Red Diffused	114	
☐	φ 3.5mm	LN258RP	Red Diffused	83	LN358BP	Blue Diffused	84	LN458YP	Amber Diffused	85	LN858RP	Red Diffused	85
		LN258CP	Clear	83	LN358GP	Green Diffused	84	LN458YCP	Amber Clear	85	LN858RCP	Red Clear	85
		LN258RP	Red Diffused	83	LN358BP	Blue Diffused	84	LN458YP	Amber Diffused	85	LN858RP	Red Diffused	85
		LN258WP	White Diffused	83	LN358GP	Green Diffused	84						
☐	φ 2.4mm	LN266RP	Red Diffused	108	LN366BP	Blue Diffused	108	LN466YP	Amber Diffused	108			

○点発光 (角形) /Point Lighting Diodes (Square Type)

Type	Radiation Color Lens Color Lens Dimensions	Red			Green			Amber			Orange		
		Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
■	□ 5.0×5.0mm	LN250RP	Red Diffused	117	LN350GP	Green Diffused	117	LN450YP	Amber Diffused	117	LN850RP	Red Diffused	117
		LN250RPH	Red Diffused	118	LN350GPH	Green Diffused	118	LN450YPH	Amber Diffused	118	△LN850RPH	Red Diffused	118
		△LN250RPX	Red Diffused	119	△LN350GPX	Green Diffused	119	△LN450YPX	Amber Diffused	119	△LN850RPX	Red Diffused	119
	□ 4.0×4.0mm	LN252RP	Red Diffused	123	LN352GP	Green Diffused	123	LN452YP	Amber Diffused	123			
		LN252RPH	Red Diffused	124	LN352GPH	Green Diffused	124	LN452YPH	Amber Diffused	124			
	□ 3.0×7.0mm	△LN252RPX	Red Diffused	125	△LN352GPX	Green Diffused	125	△LN452YPX	Amber Diffused	125			
		LN216RP	Red Diffused	126	LN316GP	Green Diffused	126	LN416YP	Amber Diffused	126	LN816RP	Red Diffused	126
	□ 2.7×5.7mm	LN216RPH	Red Diffused	127	LN316GPH	Green Diffused	127	LN416YPH	Amber Diffused	127	LN816RPH	Red Diffused	127
		LN249RP	Red Diffused	128	LN349GP	Green Diffused	128	LN449YP	Amber Diffused	128	LN849RP	Red Diffused	128
LN249RPH		Red Diffused	129	LN349GPH	Green Diffused	129	LN449YPH	Amber Diffused	129	LN849RPH	Red Diffused	129	
□ 2.5×5.0mm	△LN249RPX	Red Diffused	130	△LN349GPX	Green Diffused	130	△LN449YPX	Amber Diffused	130	△LN849RPX	Red Diffused	130	
	LN213RP	Red Diffused	133	LN313GP	Green Diffused	133	LN413YP	Amber Diffused	133	LN813RP	Red Diffused	133	
	LN213RPP	Red Diffused	134	LN313GPP	Green Diffused	134	LN413YPP	Amber Diffused	134				
□ 2.0×5.0mm	LN219RP	Red Diffused	135	LN319GP	Green Diffused	135	LN419YP	Amber Diffused	135	LN819RP	Red Diffused	135	
	LN248RP	Red Diffused	141	LN348GP	Green Diffused	141	LN448YP	Amber Diffused	141	LN848WP	White Diffused	141	
□ 1.8×5.3mm	LN248RPH	Red Diffused	142	LN348GPH	Green Diffused	142	LN448YPH	Amber Diffused	142	LN848WPH	White Diffused	142	
	LN217RP	Red Diffused	147	LN317GP	Green Diffused	147	LN417YP	Amber Diffused	147				
□ 1.8×3.5mm	LN217RPH	Red Diffused	148	LN317GPH	Green Diffused	148	LN417YPH	Amber Diffused	148				
	LN211RP	Red Diffused	149	LN311GP	Green Diffused	149	LN411YP	Amber Diffused	149				
□ 1.8×1.8mm	LN211WP	White Diffused	150	LN311WP	White Diffused	150	LN411WP	White Diffused	150				
	LN265RP	Red Diffused	151	LN365GP	Green Diffused	151	△LN465YP	Amber Diffused	151				
□ 1.75×7.0mm	LN265RPH	Red Diffused	152	LN365GPH	Green Diffused	152	LN465YPH	Amber Diffused	152				
	LN220RP	Red Diffused	153	LN320GP	Green Diffused	153	LN420YP	Amber Diffused	153	LN820RP	Red Diffused	153	
□ 1.5×5.0mm	LN220RPH	Red Diffused	154	LN320GPH	Green Diffused	154	LN420YPH	Amber Diffused	154	△LN820RPH	Red Diffused	154	
	LN229RP	Red Diffused	156	LN329GP	Green Diffused	156	LN429YP	Amber Diffused	156				
□ 1.0×5.0mm	LN229RPH	Red Diffused	157	LN329GPH	Green Diffused	157	LN429YPH	Amber Diffused	157				
	△LN248RPX	Red Diffused	163	△LN324GPX	Green Diffused	163	△LN424YPX	Amber Diffused	163				

△暫定規格/Tentative Specification

■可視発光ダイオード/Visible Light Emitting Diodes

○点発光 (角形) /Point Lighting Diodes (Square Type)

Radiation Color		Red			Green			Amber			Orange		
Type	Lens Color Lens Dimensions	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
□	1.0×5.0mm	LN224RP	Red Diffused	158	LN324GP	Green Diffused	158	LN424YP	Amber Diffused	158			
		LN224WP	White Diffused	159	LN324WP	White Diffused	159	LN424WP	White Diffused	159			
		LN224RPH	Red Diffused	160	LN324GPH	Green Diffused	160	LN424YPH	Amber Diffused	160			
		△LN224WPH	White Diffused	161	LN324WPH	White Diffused	161	△LN424WPH	White Diffused	161			
		LN224RPL	Red Diffused	162	LN324GPL	Green Diffused	162	△LN424YPL	Amber Diffused	162			
		LN268RP	Red Diffused	164	LN368GP	Green Diffused	164	△LN468YP	Amber Diffused	164			
		△LN268RPH	Red Diffused	165	△LN368GPH	Green Diffused	165	△LN468YPH	Amber Diffused	165			
□	1.0×4.0mm	LN233RP	Red Diffused	166	LN333GP	Green Diffused	166	LN433YP	Amber Diffused	166	LN833WP	White Diffused	166
		LN233RPH	Red Diffused	167	△LN333GPH	Green Diffused	167	△LN433YPH	Amber Diffused	167	△LN833WPH	White Diffused	167
□	1.0×2.0mm	△LN281RPX	Red Diffused	168	△LN381GPX	Green Diffused	168	△LN481YPX	Amber Diffused	168	△LN881RPX	Red Diffused	168
□	5.0×5.0mm	LN273RP	Red Diffused	120	LN373GP	Green Diffused	120	LN473YP	Amber Diffused	120	LN873RP	Red Diffused	120
		LN273RPH	Red Diffused	121	LN373GPH	Green Diffused	121	LN473YPH	Amber Diffused	121	△LN873RPH	Red Diffused	121
		△LN273RPX	Red Diffused	122	△LN373GPX	Green Diffused	122	△LN473YPX	Amber Diffused	122	△LN873RPX	Red Diffused	122
□	2.5×5.0mm	LN210RP	Red Diffused	131	LN310GP	Green Diffused	131	LN410YP	Amber Diffused	131	LN810RP	Red Diffused	131
		LN210WP	White Diffused	132	LN310WP	White Diffused	132	LN410WP	White Diffused	132	LN810WP	White Diffused	132
	2.0×5.0mm	LN242RP	Red Diffused	136	LN342GP	Green Diffused	136	LN442YP	Amber Diffused	136	LN842RP	Red Diffused	136
		LN242RCP	Red Clear	137	LN342GCP	Green Clear	137	LN442YCP	Amber Clear	137			
		LN242RPH	Red Diffused	138	LN342GPH	Green Diffused	138	LN442YPH	Amber Diffused	138	LN842RPH	Red Diffused	138
		LN242RPL	Red Diffused	139	LN342GPL	Green Diffused	139	LN442YPL	Amber Diffused	139			
		△LN242RPX	Red Diffused	140	LN342GPX	Green Diffused	140	△LN442YPX	Amber Diffused	140	△LN842RPX	Red Diffused	140
2.0×4.0mm	LN251RPP	Red Diffused	143	LN351GPP	Green Diffused	143	△LN451YPP	Amber Diffused	143	LN851RPP	Red Diffused	143	
	LN251RCPP	Red Clear	144	LN351GCPP	Green Clear	144	LN451YCPP	Amber Clear	144	LN851RCPP	Red Clear	144	
2.0×3.0mm	LN260RCPP	Red Clear	145	LN360GCPP	Green Clear	145	LN460YCPP	Amber Clear	145				
	△LN260RCPX	Red Clear	146	△LN360GCPX	Green Clear	146	LN460YCPX	Amber Clear	146				
□	1.75×3.9mm	LN275RPX	Red Diffused	155	△LN375GPX	Green Diffused	155	△LN475YPX	Amber Diffused	155			

○点発光 (三角形) /Point Lighting Diodes (Triangle Type)

Radiation Color		Red			Green			Amber		
Type	Lens Color Lens Dimensions	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
▶	△ 4.0×4.5mm	LN212RP	Red Diffused	171	LN312GP	Green Diffused	171	LN412YP	Amber Diffused	171
◀	△ 3.5×5.0mm	LN226RP	Red Diffused	172	LN326GP	Green Diffused	172	LN426YP	Amber Diffused	172
		LN226RPH	Red Diffused	173	LN326GPH	Green Diffused	173	LN426YPH	Amber Diffused	173
◀	△ 3.5×5.0mm	LN228RP	Red Diffused	174	LN328GP	Green Diffused	174	LN428YP	Amber Diffused	174
◀	△ 2.5×5.0mm	LN227RP	Red Diffused	175	LN327GP	Green Diffused	175	LN427YP	Amber Diffused	175
		LN227RPH	Red Diffused	176	LN327GPH	Green Diffused	176	△LN427YPH	Amber Diffused	176
▶	△ 2.0×2.5mm	△LN235RP	Red Diffused	177	LN335GP	Green Diffused	177	△LN435YP	Amber Diffused	177
		LN235RPH	Red Diffused	178	LN335GPH	Green Diffused	178	LN435YPH	Amber Diffused	178

○点発光 (小型) /Point Lighting Diodes (Small Type)

Radiation Color		Red			Green			Amber			Orange		
Type	Lens Color Lens Dimensions	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
■	Mini Bright	LN01201C(Q)	Clear	181	LN01301C(Q)	Clear	181	LN01401C(Q)	Clear	181	LN01801C(Q)	Clear	181
		LN01201C(Q)(L)	Clear	182	△LN01301C(Q)(L)	Clear	182	△LN01401C(Q)(L)	Clear	182	△LN01801C(Q)(L)	Clear	182
●	Double End	LN247RP	Red Diffused	183	LN347GP	Green Diffused	183	LN447YP	Amber Diffused	183			
□	Glass Sealed	LN2G	Clear	184	LN3G	Clear	184	△LN4G	Clear	184			
■	Chip LED	LN1251C	Clear	185	LN1351C	Clear	185	LN1451C	Clear	185	LN1851C	Clear	185
■	Chip LED	LN1261C	Clear	186	LN1361C	Clear	186	LN1461C	Clear	186	LN1861C	Clear	186

△暫定規格/Tentative Specification

■可視発光ダイオード/Visible Light Emitting Diodes

○点発光(双頭形)/Point Lighting Diodes (Two Head Type)

Radiation Color		Red			Green			Amber		
Type	Lens Color Lens Dimensions	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
□	2-1.9×1.9mm	LN244RP	Red Diffused	189	LN344GP	Green Diffused	189	LN444YP	Amber Diffused	189
		LN244RPH	Red Diffused	190	LN344GPH	Green Diffused	190	△LN444YPH	Amber Diffused	190
	2-1.0×2.0mm	LN245RP	Red Diffused	191	LN345GP	Green Diffused	191	LN445YP	Amber Diffused	191
		LN245RPH	Red Diffused	192	LN345GPH	Green Diffused	192	△LN445YPH	Amber Diffused	192

○点発光(GaAlAs) Point Lighting Diodes (GaAlAs)

Radiation Color		GaAlAs(Red)								
Type	Lens Color Lens Dimensions	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
●	φ 5.0mm	LN21RAL(U)	Red Diffused	194	LN21RAL(UR)	Red Diffused	195	LN21CAL(US)	Clear	196
		LN21RCAL(U)	Red Clear	194	LN21RCAL(UR)	Red Clear	195	LN21CAL(URS)	Clear	196
		LN21WAL(U)	White Diffused	194				LN21CAL(UQS)	Clear	196
		LN21CAL(U)	Clear	194	LN21CAL(UR)	Clear	195	LN21CAL(UQPS)	Clear	196
		LN261CAL(UR)	Clear	197						
		LN240CALF(U)	Clear	198						
	φ 4.4mm	LN28RAL(US)	Red Diffused	199						
		LN28RCAL(US)	Red Clear	199						
		LN28WAL(US)	White Diffused	199						
		LN28CAL(US)	Clear	199	LN28CAL(URS)	Clear	200			
		LN277WALX	White Diffused	201	△LN277CALX	Clear	201			
□	2.0×5.0mm	LN242RAL(U)	Red Diffused	202						
	2.0×4.0mm	LN251CAL(U)	Clear	204						
□	2.0×5.0mm	LN248WAL(U)	White Diffused	203						
●	Double End	LN247RCAL(U)	Red Clear	205						
●	Mini Bright	LN01201CAL(U)	Clear	206						
■	Chip LED	LN1251CAL	Clear	207						
■	Chip LED	LN1261CAL	Clear	208						

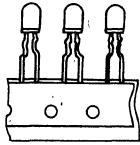
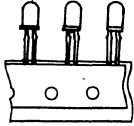
○点発光(二色発光)/Point Lighting Diodes (Two Color Lighting)

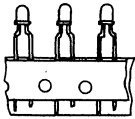
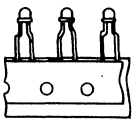
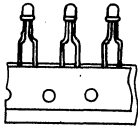
Radiation Color		二色発光/Two Color Lighting								
Type	Lens Color Lens Dimensions	Type No.	Lens Color	Page	Type No.	Lens Color	Page	Type No.	Lens Color	Page
●	φ 7.8mm	△LN088WP38	White Diffused	210						
		LN11WP23	White Diffused	211			LN11WP34	White Diffused	212	
	φ 5.0mm	LN11WP38	White Diffused	213						
		LN11CP23	Clear	214	LN11CP34	Clear	214			
	φ 4.4mm	LN170WP38	White Diffused	215						
		△LN140WP38	White Diffused	216						
φ 3.0mm	LN086WP38	White Diffused	219							
●	φ 3.0mm	LN138WP38	White Diffused	220						
□	φ 3.5mm	LN15BP	Blue Diffused	217	LN15WP	White Diffused	217	LN15WP-(F)	White Diffused	218
□	φ 2.4mm	LN16BP	Blue Diffused	221	LN16WP	White Diffused	221	LN16WP-(F)	White Diffused	222
□	5.0×5.0mm	LN173WP38	White Diffused	224						
	2.0×5.0mm	LN142WP34	White Diffused	225	LN142WP38	White Diffused	225			
□	5.0×5.0mm	△LN150WP38	White Diffused	223						
□	1.8×5.3mm	LN117WP23	White Diffused	226	△LN117WP38	White Diffused	226			
	1.5×5.0mm	△LN129WP38	White Diffused	227						
●	Mini Bright	LN02102C68	Clear	228						
■	Chip LED	LN2152C13	Clear	229						
■	Chip LED	LN2162C13	Clear	230						

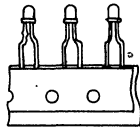
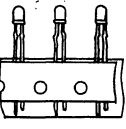
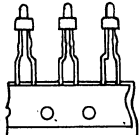
暫定規格/Tentative Specification

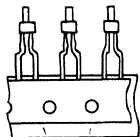
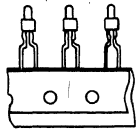
■可視発光ダイオード/Visible Light Emitting Diodes

○点発光 (テーピング) /Point Lighting Diodes (Taping)

Lens Dimension	φ 5.0mm (TA Type)				φ 5.0mm (TD Type)			
外形 Outline								
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN21RPH-(TA)	233	LN21RPH-(TA2)	234	△LN21RPSLX-(TDA)	235	△LN21RPH-(TD)	236
Green	LN31GPH-(TA)	233	LN31GPH-(TA2)	234	△LN31GPSLX-(TDA)	235	△LN31GPH-(TD)	236
Amber	△LN41YPH-(TA)	233	LN41YPH-(TA2)	234	△LN41YPSLX-(TDA)	235	△LN41YPH-(TD)	236
Orange	LN81RPH-(TA)	233	LN81RPH-(TA2)	234			LN81RPH-(TD)	236

Lens Dimension	φ 4.0mm (TA Type)		φ 3.2mm (TA Type)		φ 3.0mm (TA Type)			
外形 Outline								
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN29RPX-(TA)	237	△LN276RCPX-(TA)	238	LN28RPH-(TA)	239	LN28RPH-(TA2)	240
Green	LN39GPX-(TA)	237	△LN376GCPX-(TA)	238	LN38GPH-(TA)	239	LN38GPH-(TA2)	240
Amber	LN49YPX-(TA)	237	LN476YCPX-(TA)	238	△LN48YPH-(TA)	239	△LN48YPH-(TA2)	240
Orange			LN876RCPX-(TA)	238	LN88RPH-(TA)	239	LN88RPH-(TA2)	240

Lens Dimension	φ 3.0mm (TA Type)		φ 3.0mm (TD Type)		φ 2.6mm (TA Type)			
外形 Outline								
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN28RPX-(TA3)	241	LN28RPH-(TD)	242	LN221RPH-(TA)	243	LN221RPX-(TA2)	244
Green	LN38GPX-(TA3)	241	LN38GPH-(TD)	242	LN321GPH-(TA)	243	LN321GPX-(TA2)	244
Amber	△LN48YPX-(TA3)	241	△LN48YPH-(TD)	242	△LN421YPH-(TA)	243	△LN421YPX-(TA2)	244
Orange			△LN88RPH-(TD)	242				

Lens Dimension	φ 2.0mm (TA Type)				φ 2.0mm (TX Type)	
外形 Outline						
	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN222RPX-(TA)	245	LN222RPX-(TA2)	246	LN282RPX-(TA)	247
Green	△LN322GPX-(TA)	245	△LN322GPX-(TA2)	246	LN382GPX-(TA)	247
Amber	△LN422YPX-(TA)	245	△LN422YPX-(TA2)	246	△LN482YPX-(TA)	247
Orange					LN882RPX-(TA)	247

△暫定規格 / Tnetative Specification

■可視発光ダイオード/Visible Light Emitting Diodes

○点発光 (テーピング) /Point Lighting Diodes (Taping)

Lens Dimension	□ 4.0×4.0mm (TA Type)		□ 1.5×5.0mm (TA Type)		□ 1.8×1.8mm (TT Type)		□ 1.75×3.9mm (TT Type)	
外形 Outline								
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN252RPH-(TA)	248	LN229RPH-(TA)	251	LN265RPH-(TT)	249	LN275RPX-(TT)	250
Green	LN352GPH-(TA)	248	△LN329GPH-(TA)	251	LN365GPH-(TT)	249	△LN375GPX-(TT)	250
Amber	LN452YPH-(TA)	248	△LN429YPH-(TA)	251	△LN465YPH-(TT)	249	△LN475YPX-(TT)	250

Lens Dimension	□ 1.0×5.0mm (TA Type)	ガラス封止/Glass Sealed		ミニブライト/Mini Bright		チップLED/Chip LED		
外形 Outline								
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN224RPH-(TA)	252	LN2G-(TA)	253	LN01201C(Q)-(TA)	254	LN1251C-(TR)	255
Green	LN324GPH-(TA)	252	LN3G-(TA)	253	LN01301C(Q)-(TA)	254	LN1351C-(TR)	255
Amber	△LN424YPH-(TA)	252	△LN4G-(TA)	253	LN01401C(Q)-(TA)	254	LN1451C-(TR)	255
Orange	—	—	—	—	LN01801C(Q)-(TA)	254	LN1851C-(TR)	255

Lens Dimension	チップLED/Chip LED					
外形 Outline						
	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN1251C-(TL)	256	LN1261C-(TR)	257	LN1261C-(TL)	258
Green	△LN1351C-(TL)	256	LN1361C-(TR)	257	△LN1361C-(TL)	258
Amber	LN1451C-(TL)	256	LN1461C-(TR)	257	△LN1461C-(TL)	258
Orange	△LN1851C-(TL)	256	LN1861C-(TR)	257	△LN1861C-(TL)	258

○二色発光/Two Color Lighting

Lens Dimension	チップLED/Chip LED			
外形 Outline				
	Type No.	Page	Type No.	Page
	LN2152C13-(TR)	259	LN2162C13-(TR)	260

△暫定規格/Tentative Specification

■可視発光ダイオード/Visible Light Emitting Diodes

○面発光/Surface Lighting

	Red		Green		Amber		Orange		Two Color Lighting	
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
※ 1 □ 5.0×15.0mm	LN0202RP2	263	LN0202GP3	263	LN0202YP4	263	LN0202RP8	263	LN0402WP38	264
※ 2 □ 7.0×9.0 mm	LN0204RP2	265	LN0204GP3	265	LN0204YP4	265	LN0204RP8	265		
※ 3 □ 12.0×15.0mm	LN0401RP2	266	LN0401GP3	266	LN0401YP4	266	LN0401RP8	266	LN0801WP23	267
※ 4 □ 12.0×20.0mm	LN0603RP2	268	LN0603GP3	268	LN0603YP4	268	LN0603RP8	268		
※ 5 Tape residual quantity	LN0105RP2	269	LN0105GP3	269	LN0105YP4	269	LN0105RP8	269		
※ 6 Back light			LN0410CP3	270						



※ 1



※ 2



※ 3



※ 4



※ 5



※ 6

○レベルメーター/Level Meters

Lens Dimension	□ 1.8×5.3mm (2 Elements)	□ 1.8×5.3mm (3 Elements)	□ 1.8×5.3mm (4 Elements)	□ 1.8×5.3mm (5 Elements)				
外形 Outline								
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN02202P	272	LN03202P	273	LN04202P	274	LN05202P	275
Green	LN02302P	272	LN03302P	273	LN04302P	274	LN05302P	275
Amber	LN02402P	272	LN03402P	273	LN04402P	274	LN05402P	275

Lens Dimension	□ 1.8×5.3mm (6 Elements)	□ 1.8×5.3mm (7 Elements)	□ 1.5×5.0mm (4 Elements)	□ 1.5×5.0mm (5 Elements)				
外形 Outline								
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN06202P	276	LN07202P	277	LN04220P	278	LN05203P	279
Green	LN06302P	276	LN07302P	277	△LN04320P	278	LN05303P	279
Amber	LN06402P	276	LN07402P	277	△LN04420P	278	△LN05403P	279

Lens Dimension	□ 1.75×7.0mm (5 Elements)	□ 2-1.9×1.9mm (5 Elements)	φ 2.0mm (10 Elements)			
外形 Outline						
	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN05201P	280	LN05263P	281	LN10204P	282
Green	LN05301P	280	△LN05363P	281	△LN10304P	282
Amber	LN05401P	280	△LN05463P	281	△LN10404P	282

△暫定規格/Tentative Specification

■可視発光ダイオード/Visible Light Emitting Dides

○数字表示素子/Numeric Display

Digits(Size)	+1 display (0.3inch)						+1 display (0.4inch)					
外観 Outside	+!		+!		+!		+!		+!		+!	
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN503R	284	LN503RR	285	LN503RL	286	LN504R	287	LN504RR	288	△LN504RL	289
Green	LN503G	284	LN503GR	285	LN503GL	286	LN504G	287	△LN504GR	288	△LN504GL	289
Amber	LN503Y	284	LN503YR	285	LN503YL	286	LN504Y	287	△LN504YR	288	△LN504YL	289

Digits(Size)	+1 display (0.6inch)				1 digit (0.3inch)							
外観 Outside	+!				8							
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN506RA	290	LN506RK	290	LN513RA	292	LN513RK	292	LN513RAM	294	LN513RKM	294
Green	LN506GA	290	LN506GK	290	LN513GA	292	LN513GK	292	LN513GAM	294	LN513GKM	294
Amber	LN506YA	291	LN506YK	291	LN513YA	293	LN513YK	293	LN513YAM	295	LN513YKM	295
Orange	LN506OA	291	LN506OK	291	LN513OA	293	LN513OK	293				

Digits(Size)	1 digit (0.3inch)				1 digit (0.4inch)				1 digit (0.6inch)			
外観 Outside	8				8				8			
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN513RAS	296	LN513RKS	296	LN514RA	298	LN514RK	298	LN516RA	300	LN516RK	300
Green	LN513GAS	296	LN513GKS	296	LN514GA	298	LN514GK	298	LN516GA	300	LN516GK	300
Amber	LN513YAS	297	LN513YKS	297	LN514YA	299	LN514YK	299	LN516YA	301	LN516YK	301
Orange	LN513OAS	297	LN513OKS	297	LN514OA	299	LN514OK	299	LN516OA	301	LN516OK	301

Digits(Size)	1 digit (0.8inch)				1 digit (1.0inch)				2 digit (0.3inch)			
外観 Outside	.8				8				8.8			
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN518RA	302	LN518RK	302	△LN510ALAMW	305	△LN510ALKMW	305	LN523RAMR	306	△LN523RKMR	306
Green	LN518GA	302	LN518GK	302	△LN5110GAMW	304	△LN5110GKMW	304	△LN523GAMG	306	△LN523GKMG	306
Amber	LN518YA	303	LN518YK	303					△LN523YAMY	307	△LN523YKMY	307
Orange	LN518OA	303	LN518OK	303	△LN5110AMW	304	△LN5110OKMW	304				

Digits(Size)	2 digit (0.4inch)											
外観 Outside	8.8						88					
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN524RA	308	LN524RK	308	LN524RAMR	312	△LN524RKMR	312	LN524RAS	314	LN524RKS	314
Green	LN524GA	308	LN524GK	308	LN524GAMG	312	△LN524GKMG	312	LN524GAS	314	LN524GKS	314
Amber	LN524YA	309	LN524YK	309	△LN524YAMY	313	△LN524YKMY	313	△LN524YAS	315	△LN524YKS	315
Orange	LN524OA	309	LN524OK	309	△LN524OAMO	313	△LN524OKMO	313	△LN524OAS	315	△LN524OKS	315

△暫定規格/Tentative Specification

製品早見表

SELECTION GUIDE

■可視発光ダイオード/Visible Light Emitting Dides

○数字表示素子/Numeric Display

Digits(Size)	2 digit (0.4inch)								2 digit (0.6inch)			
外観 Outside	18								88			
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN5241RA	310	LN5241RK	310	LN5241RAS	316	LN5241RKS	316	LN526RA	318	LN526RK	318
Green	LN5241GA	310	LN5241GK	310	LN5241GAS	316	△LN5241GKS	316	LN526GA	318	LN526GK	318
Amber	LN5241YA	311	LN5241YK	311	△LN5241YAS	317	△LN5241YKS	317	LN526YA	319	LN526YK	319
Orange	△LN5241OA	311	△LN5241OK	311	△LN5241OAS	317	△LN5241OKS	317	LN526OA	319	LN526OK	319

Digits(Size)	2 digit (0.6inch)				2 digit (0.8inch)				3 digit (0.3inch)			
外観 Outside	18				8.8.				8.8.8.			
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN5261RA	320	LN5261RK	320	△LN528RA	322	LN528RK	322	△LN533RAMR	324	△LN533RKMR	324
Green	LN5261GA	320	LN5261GK	320	△LN528GA	322	△LN528GK	322	LN533GAMG	324	LN533GKMG	324
Amber	LN5261YA	321	LN5261YK	321	△LN528YA	323	△LN528YK	323	LN533YAMY	325	LN533YKMY	325
Orange	△LN5261OA	321	△LN5261OK	321	△LN528OA	323	△LN528OK	323	LN533OAMO	325	LN533OKMO	325

Digits(Size)	3 digit (0.4inch)				3 digit (0.6inch)							
外観 Outside	888.				88.8.				188.			
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN534RAMR	326	LN534RKMR	326	LN536RAMR	328	LN536RKMR	328	LN5361RAMR	330	△LN5361RKMR	330
Green	LN534GAMG	326	△LN534GKMG	326	LN536GAMG	328	△LN536GKMG	328	△LN5361GAMG	330	△LN5361GKMG	330
Amber	△LN534YAMY	327	△LN534YKMY	327	△LN536YAMY	329	△LN536YKMY	329	△LN5361YAMY	331	△LN5361YKMY	331
Orange	△LN534OAMO	327	LN534OKMO	327								

Digits(Size)	4 digit (0.3inch)											
外観 Outside	:88.88:				88.88s				18.88.			
	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
Red	LN543RAN8	332	LN543RKN8	332	LN543RAHN3	334	LN543RKHN3	334	LN5431RAMR	335	LN5431RKMR	335
Green	LN543GAN8	332	LN543GKN8	332	LN543GAHN3	334	LN543GKHN3	334	LN5431GAMG	335	LN5431GKMG	335
Amber									LN5431YAMY	336	LN5431YKMY	336
Orange	LN543OAN8	333	LN543OKN8	333					LN5431OAMO	336	LN5431OKMO	336

Digits(Size)	4 digit (0.3inch)		5 digit (0.3inch)	
外観 Outside	88.88		1888.8.	
	Type No.	Page	Type No.	Page
Red	△LN543RAFN8	337		
Green			LN5531GAP	338
Amber	△LN543YAFN8	337		

○二色発光/Two Color Lighting




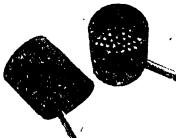


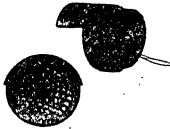
Digits(size)	1 digit (0.6inch)		1 digit (1.0inch)		2 digit (0.6inch)	
外観 Outside	8.		8.		8.8.	
	Type No.	Page	Type No.	Page	Type No.	Page
	△LN516RGA	339	△LN5110OGAMW	340	LN526RGA	341
					LN526RGAD	342

△暫定規格/Tentative Specification


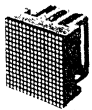

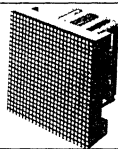
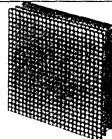
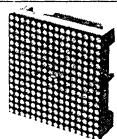
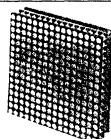
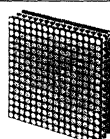
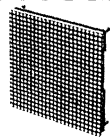
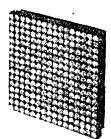
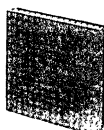
製品早見表 SELECTION GUIDE

■ユニット商品 / Unit Products








○屋外用大型ランプ / LED Lamp for Outdoor Use

φ 24mm	φ 30mm	φ 50mm	
			
LN015184UN	LN0151223UN	LN0501142UN	LN0501172UN
φ 50mm			
			
LN0501199UN	LN0501229UN	△LN0801228UN	

○パネルディスプレイユニット / Panel Display Units

□ 2.0×2.0mm	φ 3.0mm		
16×32dots 	16×16dots 	16×16dots 	24×24dots 
LN5121149UNA4	LN256144UNA	LN2561156UNA4	LN576146UNA
φ 3.0mm	φ 5.0mm		
24×24dots 	16×16dots 	16×16dots 	16×16dots 
LN5761150UNA4	LN256166UNA	LN2561141UNA4	△LN2561232UNA
φ 5.0mm	φ 8.0mm		
24×24dots 	16×16dots 	16×16dots 	
LN5761111UNA	LN2561171UNA4	LN2561151UNA4	

○LEDライン光源 / LED Line Light Source

B 8 size	A 6 size	A 4 size	
			
LN322114ALUN	LN483126UN	LN803108UN-A4	LN803169UNA-A4
B 4 size		A 3 size	
			
LN963106UN-B4	LN963185UNA-B4	LN1123107UN-A3	

△暫定規格 / Tentative Specification

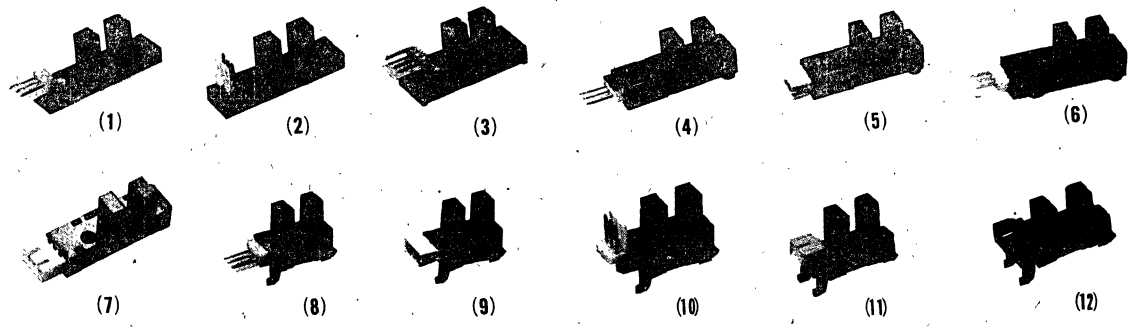
■ユニット商品/Unit Products

○ホトセンサユニット/Photo Sensor Unit

透過型/Transmittive Type

Type No.	Package No.	特長/Features	Output ON Condition	V _{cc} typ. (V)	I _o max. (mA)	V _o max. (V)	V _{OL} max. (V)
ON1501	1	ギャップ幅 5mm, 深さ 11mm, オープンコレクタ出力, 高分解能	物体非検知時	24	50	40	0.6
ON1501S	2	Gap width 5mm, Depth 11mm, Open Collector Output, High Resolution Capacity	Object at Non Detection				
ON1503	3	ギャップ幅 3.6mm, 深さ 10mm, オープンコレクタ出力, 高分解能	物体検知時	5, 10	100	20	0.6
		Gap width 3.6mm, Depth 10mm, Open Collector Output, High Resolution Capacity	Object at Detection				
△ON1517HA-(A)	4	ギャップ幅 5mm, 深さ 10mm, 集積化受光素子	物体検知時	5	20	30	0.4
ON1517HA2-(J)	6	オープンコレクタ出力, 高分解能					
ON1517HH-(A)	4	ギャップ幅 5mm, 深さ 10mm, Integrated Photo Detector, Open-Collector Output, High Resolution Capacity					
ON1517HO-(J)2	7						
ON1517HO-(M)	5						
ON1517LA-(A)	4	ギャップ幅 5mm, 深さ 10mm, 集積化受光素子	物体非検知時	5	20	30	0.4
△ON1517LA2-(J)	6	オープンコレクタ出力, 高分解能					
△ON1517LH-(A)	4	ギャップ幅 5mm, 深さ 10mm, Integrated Photo Detector, Open-Collector Output, High Resolution Capacity					
△ON1517LO-(J)2	7						
ON1517LO-(M)	5						
△ON1531HA-(A)	8	ギャップ幅 5mm, 深さ 10mm, 集積化受光素子					
△ON1531HA-(M)	9	オープンコレクタ出力, 高分解能	物体検知時	5	20	30	0.4
		ワンタッチ取り付け					
△ON1531HA2-(A)4	10	ギャップ幅 5mm, 深さ 10mm, Integrated Photo Detector, Open-Collector Output, High Resolution Capacity, Easy to fix					
△ON1531HC-(A)	8						
△ON1531HD-(A)	8						
ON1531LA-(A)	8	ギャップ幅 5mm, 深さ 10mm, 集積化受光素子					
ON1531LA-(M)	9	オープンコレクタ出力, 高分解能					
		ワンタッチ取り付け					
ON1531LA2-(A)4	10	ギャップ幅 5mm, 深さ 10mm, Integrated Photo Detector, Open-Collector Output, High Resolution Capacity, Easy to fix					
ON1531LC-(A)	8						
ON1531LD-(A)	8						
ON1542HA3-(J)	11	ギャップ幅 5mm, 深さ 10.5mm, ワンタッチ取り付け	物体検知時	5	20	30	0.4
		Gap width 5mm, Depth 10.5mm, Easy to fix	Object at Detection				
ON1542HA5-(H)	12	ギャップ幅 5mm, 深さ 7.5mm, ワンタッチ取り付け	物体検知時	5	20	30	0.4
		Gap width 5mm, Depth 7.5mm, Easy to fix	Object at Detection				
△ON1542LA3-(J)	11	ギャップ幅 5mm, 深さ 10.5mm, ワンタッチ取り付け	物体非検知時	5	20	30	0.4
		Gap width 5mm, Depth 10.5mm, Easy to fix	Object at Non Detection				
△ON1542LA5-(H)	12	ギャップ幅 5mm, 深さ 7.5mm, ワンタッチ取り付け	物体非検知時	5	20	30	0.4
		Gap width 5mm, Depth 7.5mm, Easy to fix	Object at Non Detection				

△ 暫定規格/Tentative Specification



■ユニット商品/Unit Products

○ホトセンサユニット/Photo Sensor Unit

反射型/Reflective Type

Type No.	Package No.	特長/Features	Output ON Condition	V _{CC} typ. (V)	I _O max. (mA)	V _O max. (V)	V _{OL} max. (V)
ON2509	1	オープンコレクタ出力, 普通紙・OHPフィルム, 第2原紙を検知可能 Open-Collector Output, Nomal Paper・OHP Film, 2nd original paper can be detected	物体非検知時 Object at Non Detection	5	—	24	0.4
ON2509(D)	2	オープンコレクタ出力, 普通紙・OHPフィルム, 第2原紙を検知可能 可視カットフィルター装着 Open-Collector Output, Nomal Paper・OHP Film, 2nd original paper can be detected, Using filter to cut - off visible light	物体非検知時 Object at Non Detection	5	—	24	0.4
ON2521LA-(A)	3	オープンコレクタ出力 検知距離範囲 2.5~7.5mm Open-Collector Output, Detectable Distance Range 2.5~7.5mm	物体非検知時 Object at Non Detection	5	10	5	0.4
ON2521LA-(A)3	4	オープンコレクタ出力 検知距離範囲 2.5~7.5mm Open-Collector Output, Detectable Distance Range 2.5~7.5mm	物体非検知時 Object at Non Detection	5	—	—	0.4
ON2528	5	オープンコレクタ出力 Open-Collector Output	物体検知時 Object at Detection	5	—	24	0.4
ON2529	6	オープンコレクタ出力 Open-Collector Output	物体検知時 Object at Detection	5	—	24	0.4

ホトインタラプタ/Photointerrupter

Type No.	Package No.	特長/Features	I _F (mA)	V _{CEO} (V)	I _C min. (mA)	I _C max. (mA)	I _{CEO} max. (μA)	t _r , t _f typ. (μs)	V _{CE} (sat) max. (V)
ON1541NA-(A)	7	ギャップ幅 5mm, 深さ 11mm, ワンタッチ取り付け Gap width 5mm, Depth 11mm, Easy to fix	50	20	0.5	7.5	1	6	0.5



(1)



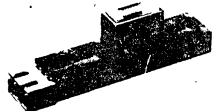
(2)



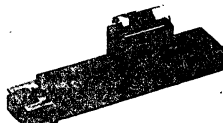
(3)



(4)



(5)



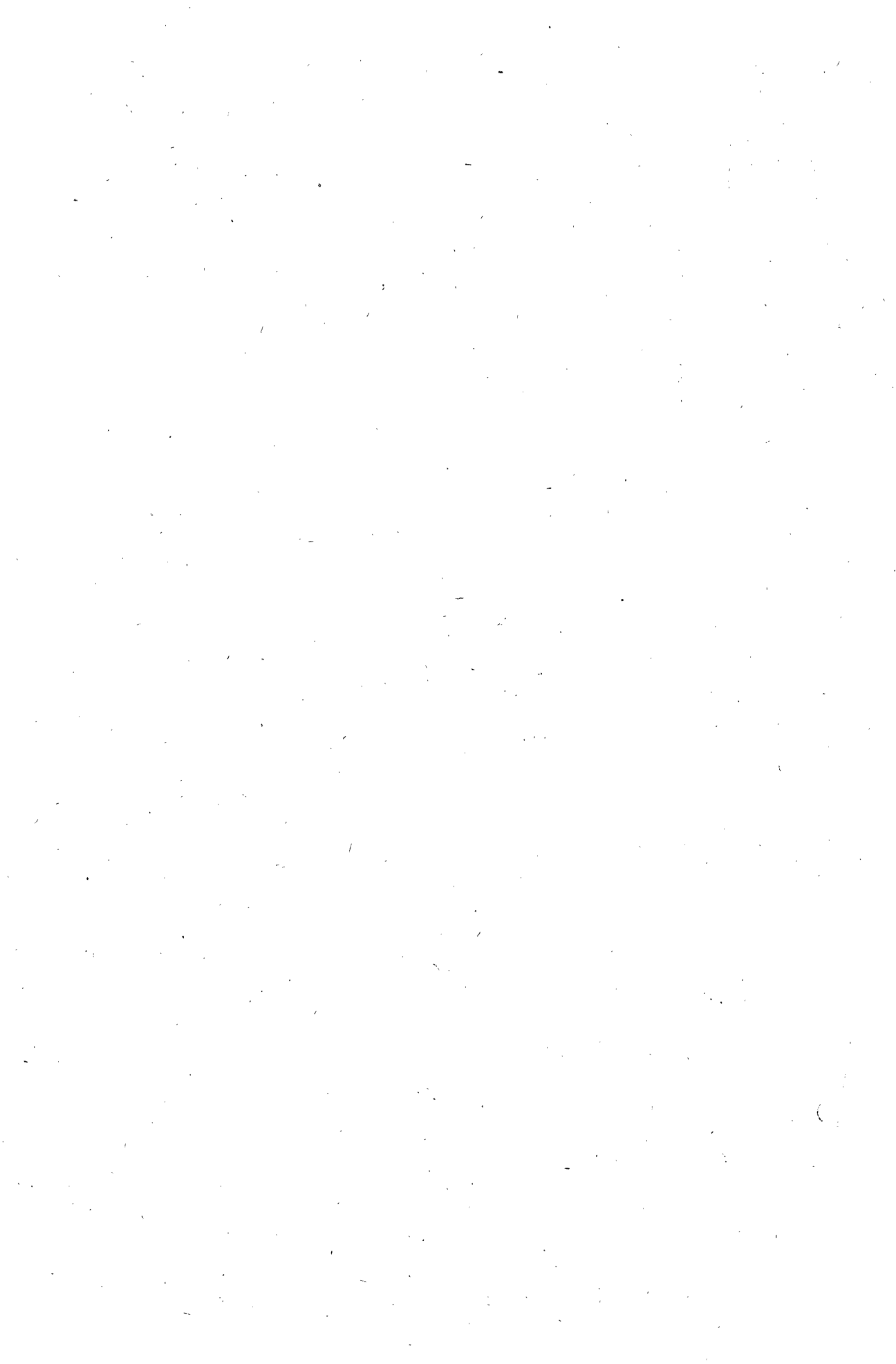
(6)



(7)



解 説 / GENERAL INFORMATION



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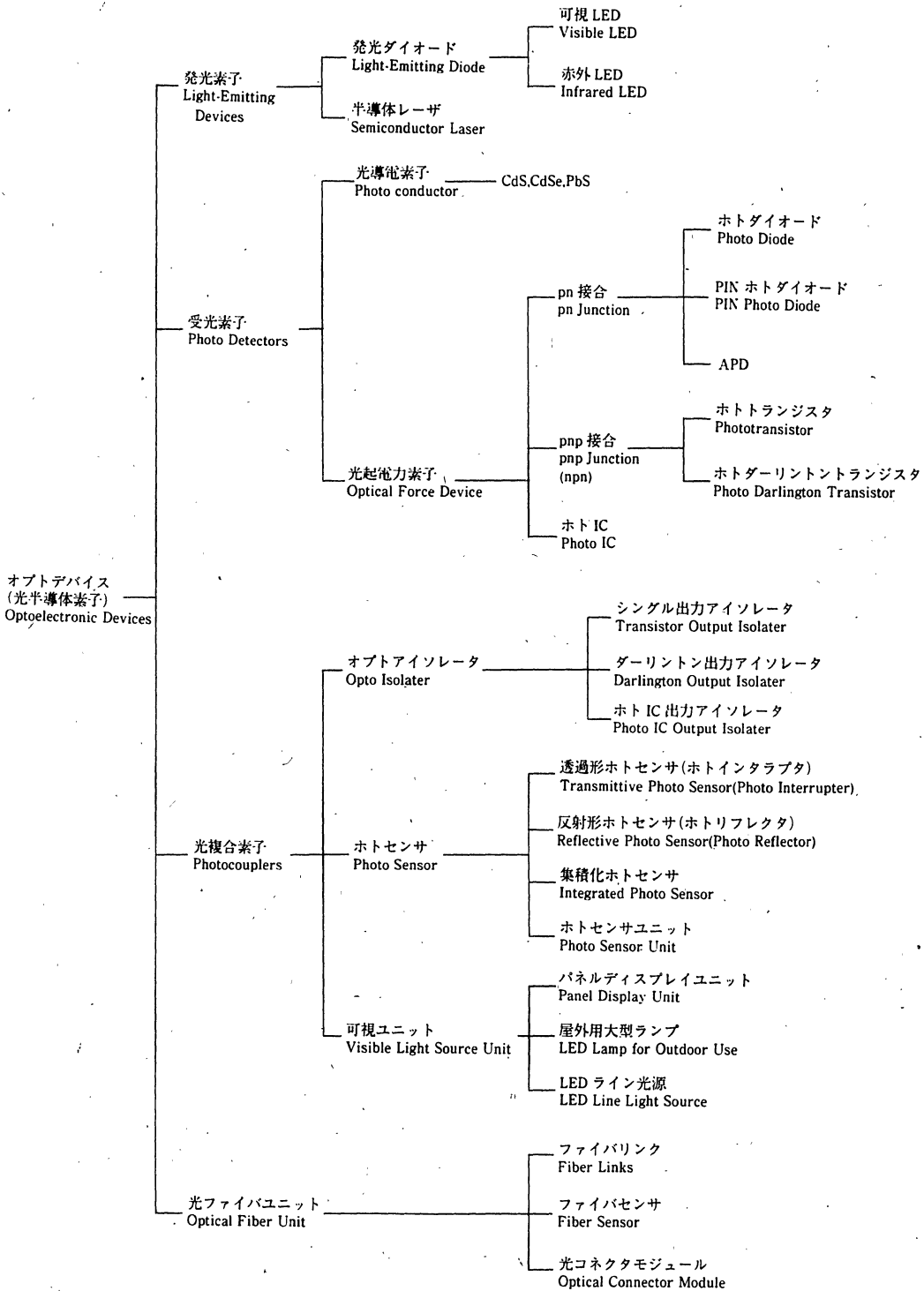
1. 記号説明

1. LETTER SYMBOLS

	説 明	Explanation
d	検出距離	Detection Distance
E	原稿面放射照度 原稿面照度	Radiant Illuminance on Manuscription Illuminance on Manuscription
f	応答周波数	Response Characteristics
I _C	コレクタ電流	Collector Current
I _{CC}	電源電流	Supply Current
I _{CCH}	消費電流(“H”出力)	Current Consumption (“H” Output)
I _{CCL}	消費電流(“L”出力)	Current Consumption (“L” Output)
I _{CEO}	コレクタシャ断電流	Collector Cut-off Current
I _F	順方向電流	Forward Current
I _{FP}	パルス順方向電流	Pulse Forward Current
I _{Ft}	全順方向電流	Total Forward Current
I _{LED}	LED消費電流	Supply Current for LED
I _O	光度	Luminous Intensity
I _O	出力電流	Output Current
I _O (d.p)	デシマルポイント光度	Luminous Intensity (Decimal point)
I _O (seg)	セグメント光度	Luminous Intensity (Segment)
I _R	逆方向電流	Reverse Current
I _{SINK}	出力吸込電流	Output Sink Current
L	有効照明長	Effective Illumination Length
P	消費電力	Power Consumption
P _C	コレクタ損失	Collector Power Dissipation
P _D	許容損失	Power Dissipation
td	遅れ時間	Delay Time (Emission, Light Current)
tf	下降時間	Fall Time (Emission, Light Current)
tr	上昇時間	Rise Time (Emission, Light Current)
Topr	動作周囲温度	Operating Ambient Temperature
Tstg	保存温度	Storage Temperature
V _{CC}	電源電圧	Supply Voltage
V _{CEO}	コレクタ・エミッタ電圧	Collector to Emitter Voltage
V _{CE(sat)}	コレクタ・エミッタ飽和電圧	Collector to Emitter Saturation Voltage
V _{ECO}	エミッタ・コレクタ電圧	Emitter to Collector Voltage
V _F	順方向電圧(直流)	Forward Voltage (DC)
V _{in}	入力電圧	Input Voltage
V _{LED}	LED用電源電圧	Supply Voltage for LED
V _O	出力電圧	Output Voltage
V _{OH}	“H”出力電圧	“H” Output Voltage
V _{OL}	“L”出力電圧	“L” Output Voltage
V _R	逆方向電圧	Reverse Voltage
λ _p	ピーク発光波長	Peak Emission Wavelength
ΔEB	照度分布	Illuminance Distribution
ΔEH	照度偏差	Illuminance Deviation
ΔL	集光照射幅	Range of Collecting and Spreading Light
Δλ	スペクトル半値幅	Spectral Band Width

2. 光半導体素子の分類

2. Classification of Optoelectronic Semiconductor Devices



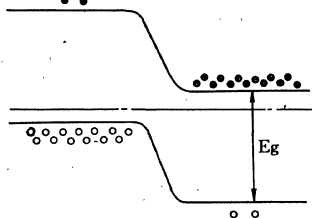
3.1 発光素子

発光ダイオード (LED) の材料としては表1に示すように、可視から赤外域まで発光波長をもつものが実用化されています。発光ダイオードのPN接合に、外部印加電圧がない場合、接合は熱平衡状態にあり、P層とN層のフェルミレベルは一致し、電位障壁の高さは V_D となります。この状態で外部より順電圧 V を印加すると、電位障壁の高さは $V_D - V$ に下がり、N層へ正孔、P層へ電子が注入されます。このように、キャリアが注入されると、熱平衡状態に比べ、キャリア濃度が過剰となり、PN接合は安定な熱平衡状態に戻ろうとして、キャリアの再結合が起こります。この際に、再結合前後のエネルギー差を光として放出します。(図1(a), (b))。

発光のピーク波長 λ は、キャリアの再結合時に放出されるエネルギーにより、次式で表わされます。

$$E_g \approx \Delta E = h\nu, \nu = \frac{c}{\lambda}$$

- E_g : エネルギーバンドギャップ
- ΔE : キャリアの再結合前後のエネルギー差
- h : プランクの定数
- ν : 光の振動数
- c : 光速



(a) 熱平衡状態
Thermal-equilibrium

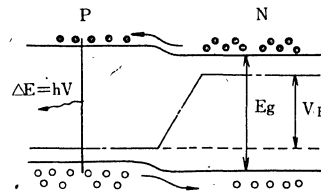
3.1 Light-Emitting Device

Many materials for light-emitting diode (LED) are employed with various emission wavelengths from visible to infrared as shown in table 1. When external voltage is not applied to PN junction of light-emitting diode, junction is on the thermal equilibrium mode and the fermi level coincides between P and N layer, and height of potential barrier is V_D . When external forward voltage V is applied in this mode, height of potential barrier decreases to $V_D - V$ and hole and electron is injected into N and P layer, respectively. When carrier is injected, carrier density is excess comparing to thermal equilibrium mode, and carrier is recombined as PN junction returns to stable thermal equilibrium mode. Therefore, energy difference of before and after recombination is emitted as the light. (Fig. 1 (a),(b)).

Peak wavelength λ of light emission is shown by below formula according to the energy emitted at recombination of carrier.

$$E_g \approx \Delta E = h\nu, \nu = \frac{c}{\lambda}$$

- E_g : Energy band gap
- ΔE : Energy difference of before and after recombination of carrier
- h : Planck's constant
- ν : Frequency of light
- c : Velocity of light in free space



(b) 順電圧印加時
Forward bias

図1 PN接合のバンドモデル

Fig. 1 Band Model of PN Junction

表1 各種LEDの製法と特性

Table 1 Production Method and Characteristics of LED's

LED	製造方法 Production method		発光特性 ピーク波長 (nm)		量子効率 (%)	視感効率 (lm/W)
	基板 Substrate	P-N接合 P-N junction	Light emitting characteristics Peak wavelength (nm)	Luminescent efficiency (%)	Visible sensitivity efficiency (lm/W)	
GaP : ZnO	GaP	LPE	Red	700	2~4	0.4~0.8
GaP : N	GaP	LPE	Green	565	0.3~0.4	1.95~2.6
GaP	GaP	LPE	Pure green	555	0.1~0.2	0.68~1.36
GaAs _{0.6} P _{0.4}	GaAs	VPE+拡散 Diffusion	Red	650	0.2	0.14
GaAs _{0.35} P _{0.65} : N	GaP	VPE+拡散 Diffusion	Red	630	0.2~0.4	0.36~0.72
GaAs _{0.25} P _{0.75} : N	GaP	VPE+拡散 Diffusion	Orange	610	0.2~0.3	0.7~1.05
GaAs _{0.15} P _{0.85} : N	GaP	VPE+拡散 Diffusion	Yellow	588	0.15	0.78
Ga _{0.65} Al _{0.35} As(DH) (DH)	GaAs	LPE	Red	660	2~4	0.84~1.6
	GaAlAs	LPE	Red	660	5~9	2.0~3.6

VPE : 気相成長法
Vapor phase epitaxial growing method

LPE : 液相成長法
Liquid phase epitaxial growing method

ピーク波長 λ は次式によって与えられます。

$$\lambda = \frac{hc}{E_g} \approx \frac{1.24}{E_g} \times 10^3 \quad (\text{nm})$$

Peak wavelength λ is given by next formula.

$$\lambda = \frac{hc}{E_g} \approx \frac{1.24}{E_g} \times 10^3 \quad (\text{nm})$$

Emission spectrum of LED is shown in Fig.2.

図2に主なLEDの発光スペクトルを示します。

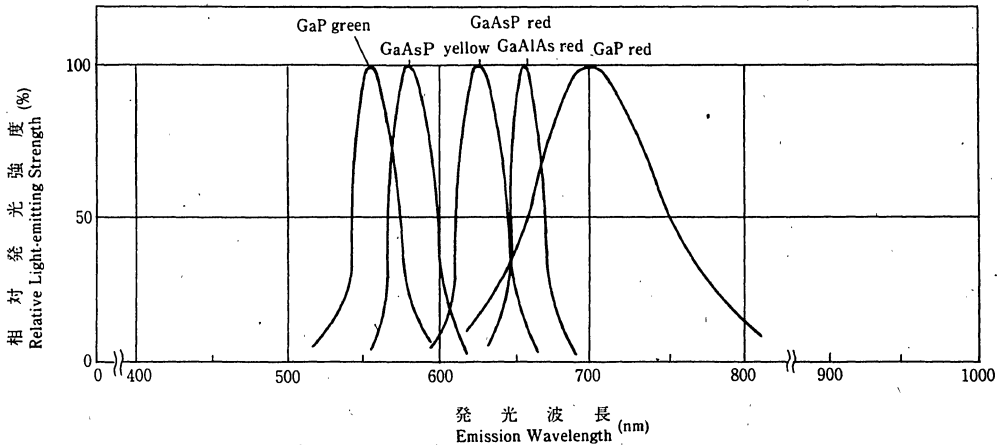


図2 LEDの発光スペクトル
Fig. 2 Emission Spectrum of LED

3.2 可視LED

(1) GaP (赤, 緑) LED

Gap (赤)LED はP型領域にアクセプタとして亜鉛 (Zn) をドーピングすると同時に、酸素 (O) をドーピングします。GaとPの格子位置に置換したZn-Oの対が一種のアイソエレクトロニックトラップの働きをして約700nmの赤色のエキシトン発光をします。n側電極は裏面反射の効果が高めるために部分電極を採用しています。(図3)。

Gap (赤)LED はZn-O発光センタの濃度に限界 ($1 \times 10^{17} \text{cm}^{-3}$) があるために、高電流領域では輝度の飽和が occurs ますが低電流領域では発光効率が高く、 $1 \sim 2 \text{A/cm}^2$ の電流密度で最大効率を示します。

Gap (緑)LED は発光センタとして窒素 (N) がドーピングされており、赤色のZn-Oセンタと同様にNにトラップされたエキシトン発光をします。Nのドーピング量を増すと発光センタが増加し、発光効率はいちじるしく改善されますが、発光波長は黄色に近づきます。

純緑色LED (555nm) の発光はフォノンを介する自由エキシトンの再結合に起因するものと考えられています。Nをドーピングしないため、結晶欠陥や不純物濃度の影響を受けやすく、低い発光効率しか得られませんでした。温度差法と蒸気圧制御法を併用した方法や減圧LPE法が開発され、発光ピークが555nmの純緑色でこれまでの緑色LEDに匹敵する高輝度が得られるようになりました。

3.2 Visible LED

(1) GaP (red, green) LED

In case of GaP (red), zinc (Zn) and oxygen (O) are doped in the P region as acceptor, it operates as a kind of isoelectronic trap emitting red exciton of about 700nm. Partial n side electrode is applied in order to improve rear reflection. (Fig.3).

GaP (red) has limitation ($1 \times 10^{17} \text{cm}^{-3}$) in the density of Zn-O luminescent center, saturation of brightness occurs in high current area but luminescent efficiency is high in the low current area, and it shows maximum efficiency in current density at $1 \sim 2 \text{A/cm}^2$.

GaP (green), where nitrogen (N) is doped as luminescent center, emits N trapped exciton same as Zn in red Zn-O center. When doping quantity is increased, luminescent center increases and emission wavelength becomes near yellow although luminescent efficiency is improved. Emission of pure green LED (555nm) is thought to be caused on recombination of free exciton via phonon. Because N is not doped, it is easily effected by crystal defect and impurity concentration, causing low luminescent efficiency. However, with the development of new methods, the brightness of pure green LED increased almost the same as the conventional green LED.

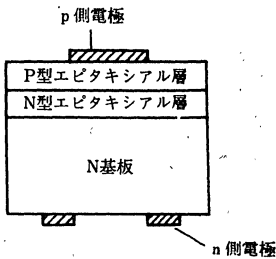


図3 GaP LED チップ構造

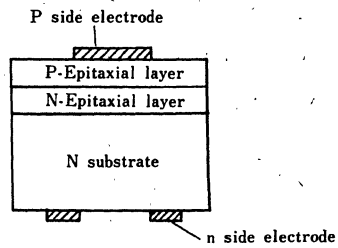


Fig. 3 GaP LED Chip Structure

(2) GaAsP (赤, 橙, 黄) LED

GaAsP系はいずれも気相エピタキシャル成長法(VPE)によってGaAsまたはGaPの基板上に順次P組成を変えたグレード層を成長し、その上に発光波長に応じたn型GaAs_{1-x}P_xを成長します。発光領域はこのn層にZnを拡散することによって得られるP型領域であります。(図4)。

GaAs_{0.6}P_{0.4}/GaAs(赤)LEDはGaAs基板を用いているために、基板への光は完全に吸収され、裏面反射による効率アップは望めませんが、発光部以外に光が漏れない利点を生かしたLEDアレーなどの新しい応用が開かれています。

GaAs_{0.35}P_{0.65}/GaP(赤)LEDはGaP基板を用い、基板での光吸収を防ぐとともに、発光センタとしてNを添加し発光効率の向上を図っています。

GaAs_{1-x}P_x/GaP(橙, 黄)LEDは発光層のP成分をより多くすることで禁制帯幅を大きくし、橙色(610nm)と黄色(588nm)を実現しています。いずれもGaP基板を用い、かつNをドーピングして発光効率を高めています。

(2) GaAsP(red, orange, yellow) LED

GaAsP grows graded layer, where P composition is changed by turn the GaAs or GaP substrate by vapor phase epitaxial growing method (VPE) and grows n GaAs_{1-x}P_x corresponding to emission wavelength on it. Emission region is a p type area obtained by diffusing Zn to n layer(Fig.4).

In case of GaAs_{0.6}P_{0.4}/GaAs (red) LED, emitting light into substrate is perfectly absorbed due to usage of GaAs substrate. Efficiency is not improved by rear reflection, but it is applied to LED array because light does not leak except light-emitting area.

As for GaAs_{0.35}P_{0.65}/GaP (red) LED, light is not absorbed on substrate due to GaP substrate, luminescent efficiency is improved by filling nitrogen (N) as luminescent center.

As for GaAs_{1-x}P_x/GaP (orange, yellow), forbidden band width is widened by increasing P composition of emission layer and orange (610nm) and yellow (588nm) is realized. Luminescent efficiency is improved by using Gap and by doping N.

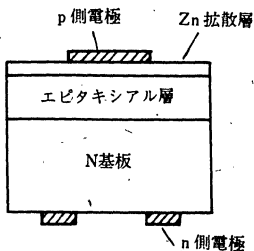


図4 GaAsP LED チップ構造

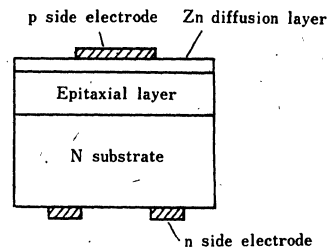


Fig. 4 GaAs LED Chip Structure

(3) GaAlAs (赤) LED

GaAlAs (赤) LED は可視 LED の中でもっとも高い発光輝度が得られています。

AlAs と GaAs はその格子定数が非常に近いので、GaAs 基板上に良質の GaAlAs 結晶を成長させることができます。Ga_{1-x}Al_xAs LED の発光波長は AlAs の混晶比によって変えられますが、表示用としては量子効率と視感度の積 (視感効率) が最大となる約 660nm に選ばれます。この GaAs 結晶を GaAs 基板上に形成したシングルヘテロ構造 (SH) の LED は 300mcd (I_F=20mA) の LED として、さらにダブルヘテロ構造 (DH) により 500mcd 以上の高輝度で高速応答の LED が商品化されています (図 5)。

また、660nm の発光波長に対して透明な Ga_{0.35}Al_{0.65}As 基板の上に P-Ga_{0.2}Al_{0.8}As 層 (バリア層), P-Ga_{0.65}Al_{0.35}As 層 (発光層), n-Ga_{0.2}Al_{0.8}As (バリア層), n-Ga_{0.35}Al_{0.65}As (コンタクト層) の 4 層を順次形成した LED は GaAlAs 基板の採用と裏面部分電極の活用によって光の取り出し効果を高めており、1000mcd 以上の高輝度化が達成されています。

この DH 構造の LED では、注入された電子を薄い発光領域 (0.5~1μm) に閉じこめることができ、吸収をより少なくするとともに高速性も同時に実現しています。

(3) GaAlAs (red) LED

GaAlAs offers most highest brightness in the visible LED's.

As lattice constant is very near each other for AlAs and GaAs, GaAlAs of good quality can grow on the GaAs substrate. Emission wavelength of Ga_{1-x}Al_xAs LED can change by mixed crystal ratio of AlAs. Maximum product of quantum efficiency and visible sensitivity (visible sensitivity efficiency) about 660nm is selected as display use. Single hetero structure (SH) LED formed with GaAs crystal on GaAs substrate is realized as 300mcd (I_F=20mA) LED. And also LED featuring high brightness of more than 500mcd and high speed response is realized (Fig.5).

LED which forms 4 layers by turns P-Ga_{0.2}Al_{0.8}As layer (barrier layer), P-Ga_{0.65}Al_{0.35}As layer (emission layer), n-Ga_{0.2}Al_{0.8}As (barrier layer) and n-Ga_{0.35}Al_{0.65}As (contact layer) on transparent Ga_{0.35}Al_{0.65}As substrate against 660nm emission wavelength improves taking-out efficiency of light due to adoption of GaAlAs substrate and rear partial electrode. Thus, high brightness of more than 1000mcd is attained. In this DH structured LED, injected electron can be enclosed to thin emission area (0.5~1μm), and absorption is decreased and high speed is realized.

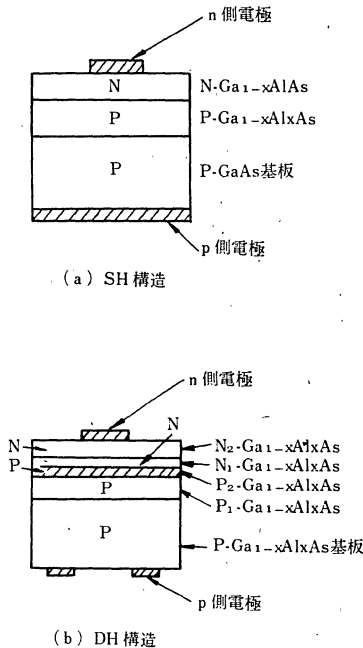


図5 GaAlAs LED チップ構造

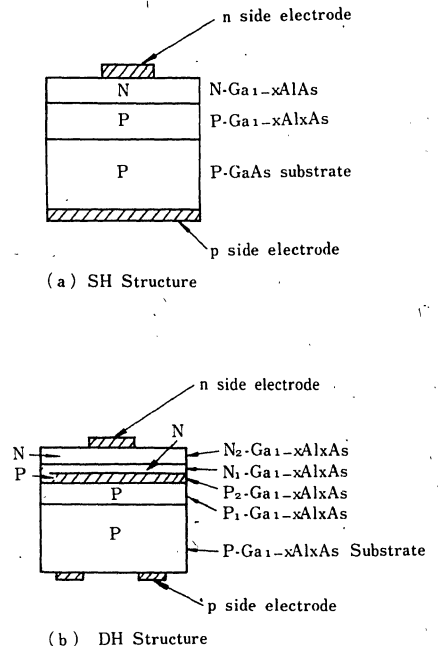


Fig. 5 GaAlAs LED Chip Structure

3.3 ユニット

(1) パネルディスプレイユニット

パネルディスプレイユニットは高輝度発光ダイオードをドットマトリックス状(□2mm, φ3mm, φ5mm, φ8mmの32×16, 16×16, 24×24ドット)にならべ駆動回路(ゲートアレイ等)を搭載した薄型、軽量、高密度実装化したものです。

また本ユニットを縦、横にならべ小画面から大画面のパネルディスプレイが組み立てられる構造になっています。図6にその構造を示します。

3.3 Unit

(1) Panel Display Unit

This panel display unit has high illumination LEDs arranged in dot matrix (16×16, 24×24 and 32×16 dots of □2mm, φ3mm, φ5mm and φ8mm) and a driving circuit (gate array, etc.) is mounted.

This is thin light-weight and high-density mounting type device. This unit can be arranged horizontally and vertically to form a panel display of various sizes. Fig. 6 shows its structure.

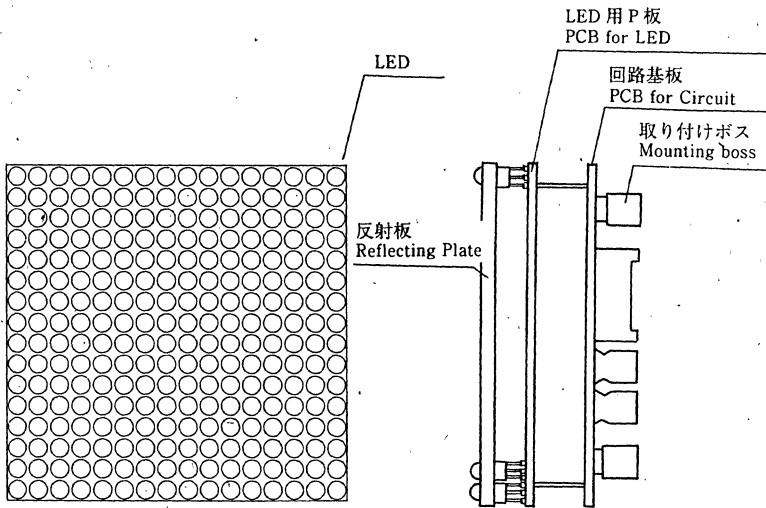


図6 パネルディスプレイユニット
Fig. 6 Panel Display Unit

(2) 屋外用大型LEDランプ

屋外用大型LEDランプは高輝度の単品LED φ5mmを15個~50個のLEDをφ24mm, φ50mm内に挿入したものです。また、視野角度が広く鮮明な視認性及び防水構造にしています。

図7にその構造を示します。

(2) Large LED Lamp for Outdoor Use

This large LED Lamp for outdoor use consists of 15 to 50 high illumination unit LEDs φ5mm inserted to the area of φ24mm or φ50mm. This has a wide viewing angle, a clear recognizability and a water-proof structure.

Fig.7 shows its structure.

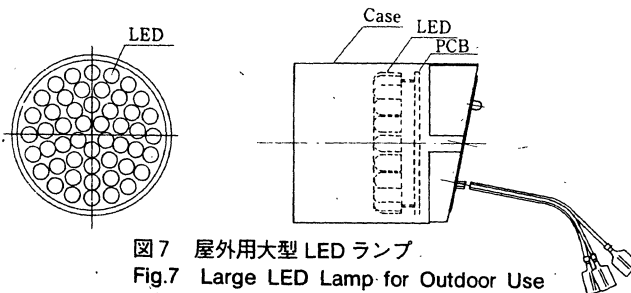


図7 屋外用大型LEDランプ
Fig.7 Large LED Lamp for Outdoor Use

(3) 画像読み取り用 LED 光源

画像読み取り用 LED 光源は高輝度発光ダイオードをライン状に配置し特殊なロッドレンズを組み合わせた製品です。ハンディースキャナやファクシミリまでの画像読み取り用として、原稿サイズ (B8 ~ A3 サイズ), イメージスキャナ部レンズ系 (縮小系, 等倍系, 密着型), センサ (CCD, CdS, CdSe) 等の用途機種に応じチップオンボード (COB) タイプ, 挿入タイプ, 一体成形タイプの LED 光源があります。

図 8 にその構造を示します。

(3) Image Reading LED Light Source

An image reading LED light source is high-brightness LEDs arranged in a line combined with a special rod lens. Chip-on-board (COB) type, insertion type and integral type LED light sources have been developed in accordance with their purposes of use such as manuscript sizes (B8 to A3), image scanner lens system (reduction system, equimultiple system, contact type), sensors (CCD, CdS, CdSe) as image reading LED light sources.

Fig.8 shows its structure.

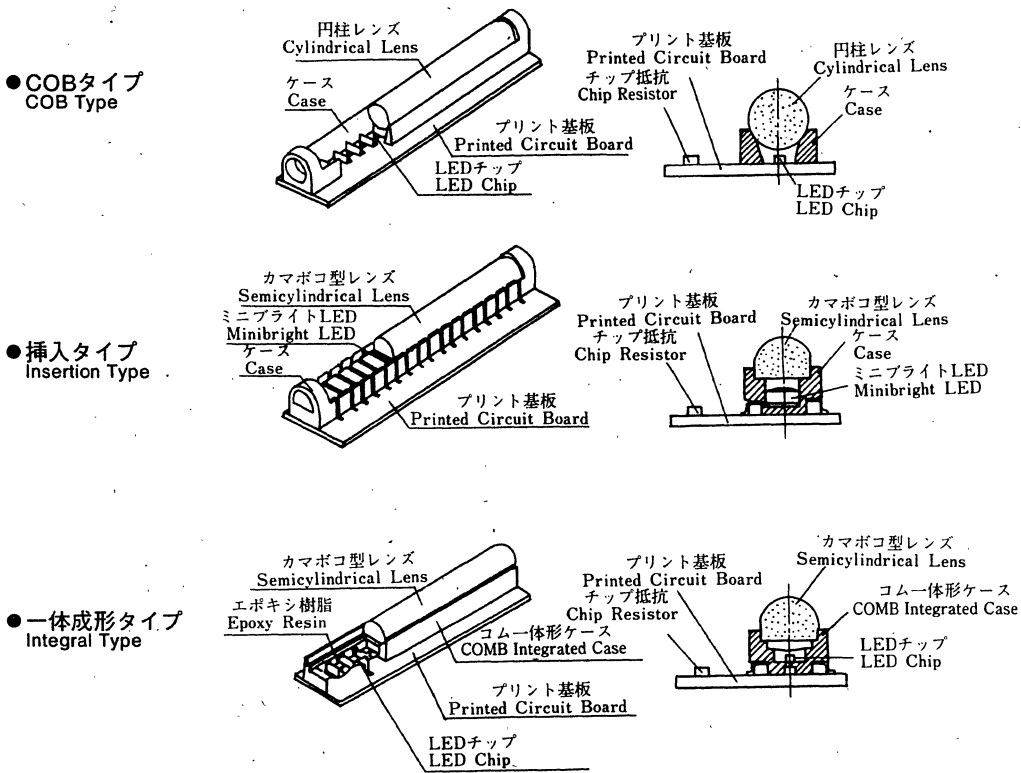


図 8 画像読み取り用 LED 光源
Fig. 8 Image Reading LED Light Source

(4) ホトセンサユニット

ホトセンサユニットは、ハイブリッド技術を応用して、ミニモールドトランジスタとチップ部品をハウジングケース内に受・発光素子と共に一体化したものです。図9にその構造を示します。回路部はプリント基板に高密度にマウントしてあり、LED駆動回路、検出回路を構成し、エポキシ樹脂で封入してあります。

(4) Photosensor Unit

Photo sensor unit is composed of mini-mold transistor and chip component together with photo detector and light emitting device in the housing case by applying hybrid technique. Fig. 9 shows its structure. Circuit is mounted in high density on the printed circuit board composing LED driving circuit and detecting circuit sealed by epoxy resin.

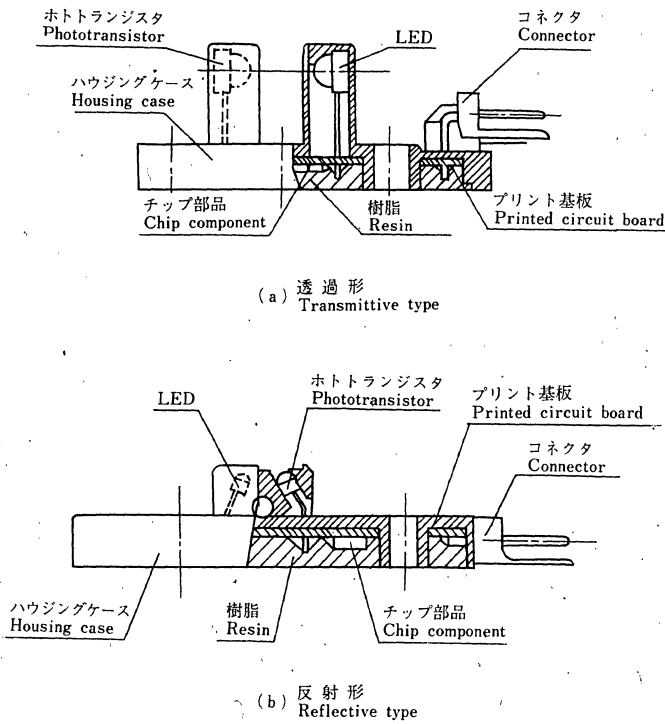


図9 ホトセンサユニット
Fig. 9 Photosensor Unit

4.1 光測定と単位

発光素子の光の評価には、放射測定 (Radiometry) と測光 (Photometry) があります。

放射測定法はすべての波長の放射に関して測定を行なうもので、理想的検出器は平坦な分光感度を持ち、基本単位はワット [W] です。測光法は可視域の波長の測定を行なうもので、理想的検出器は人間の目の視感度に近い分光感度を持ち、基本単位はルーメン [lm] です。

4.2 光の測定

放射量と測光量は [W] を [lm] に置き換えた関係にあります。両測定法の間には、555nmの波長の1Wの放射束が680lmの光束に相当すると定義されています。例えば、放射束と光束の関係は(1)式で示されます。

$$F = K_m \int_{380}^{780} V(\lambda) \cdot P(\lambda) d\lambda \dots \dots (1)$$

ただし、Fは光束、V(λ)は比視感度関数、P(λ)は放射束関数、K_mは最大視感度(680lm/W)です。

(1) 放射強度、放射束

放射照度標準電球と発光素子の比較測定により、光電出力の比と距離の関係から放射強度 (W/sr) を求めます。測定系を図1に示します。受光器としては分光感度の平坦なサーモパイルを用いるか、シリコンフォトセルを波長校正して使用します。

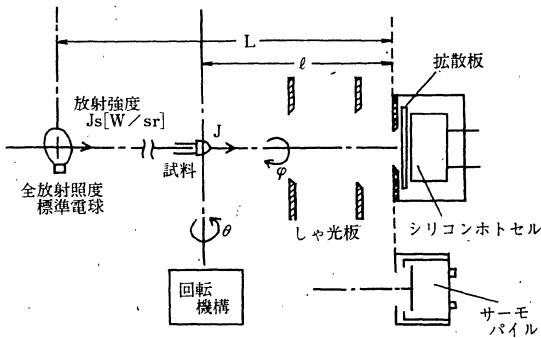


図1 放射強度、配光の測定

放射束は強度の空間分布である配光特性と球帯係数により求めます。θ, φ方向の測定面であるNを増すほど精度はあがります。図2に球帯係数法の概要を示します。図3は積分球を用いた測定方法で、標準光源と形状、波長などが類似の発光素子に対しては、簡単に放射束を得ることができます。

4.1 Optical Measurement and Its Dimensions

There are two types of measurement; Radiometry and Photometry for the light evaluation of light emitting element.

Radiometry measure regarding radiation of all wave length, ideal detector has a flat spectral response and basic unit is watt [W]. Photometry measure regards for wave length in visible area, ideal detector has spectral response similar to luminosity factor of human eyes. Basic unit is lumen [lm].

4.2 Measurement of Light

Radiation capacity and photometry capacity has a relation that [W] is replaced by [lm]. Two measuring method has following definition : 1W radiant flux of 555nm wave length light corresponds to 680lm luminous flux. Relation between radiant flux and luminous flux is given by following formula(1).

$$F = K_m \int_{380}^{780} V(\lambda) \cdot P(\lambda) d\lambda \dots \dots (1)$$

F: Luminous flux, V(λ): Relative luminosity factor function, P(λ): Radiant flux function, K_m; Maximum luminosity factor (680lm/W).

(1) Radiant intensity, radiant flux

By comparing measurement of irradiance standard electric lamp and light emitting device, radiant intensity (W/sr) is obtained from the relation between ratio of thermo pile output and distance. Fig. 1 shows the measuring system. Detector is thermo pile with flat spectral response or wave length corrected with silicon photo cell.

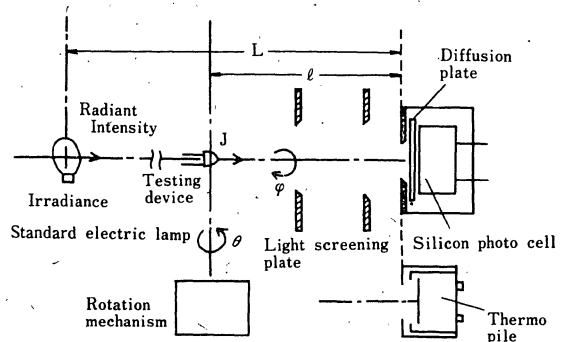


Fig. 1 Measurement of Radiant Intensity, Optical Distribution

Radiant flux is obtained from optical distribution characteristics which is space distribution of strength and spherical function. N which measures θ and φ direction is increased, precision is improved. Fig.2 shows description of spherical function. Fig. 3 is a measuring method using integral sphere. Radiant flux can be easily obtained against similar light emitting device of size and emission wavelength characteristics with standard light source.

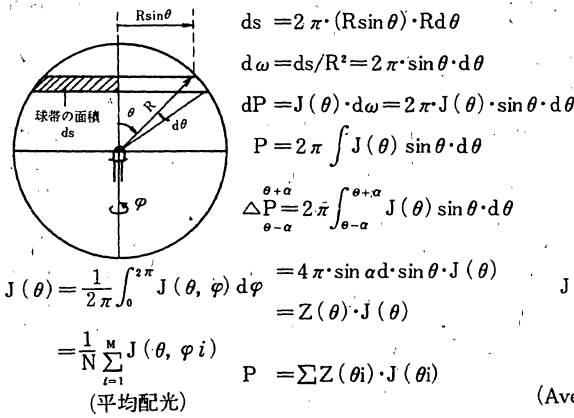


図2 球帯係数法

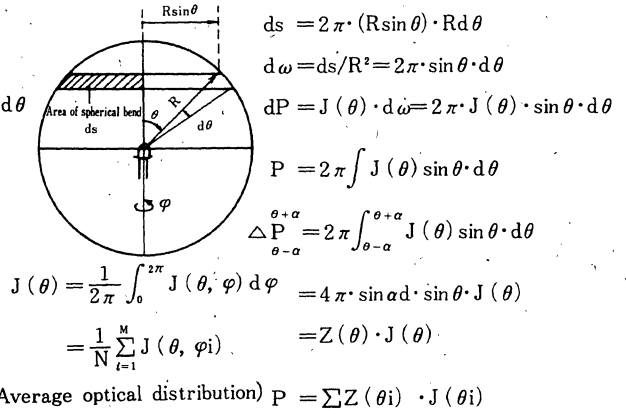


Fig. 2 Spherical Function Method

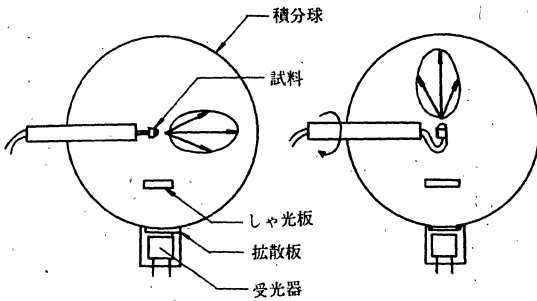


図3 全放射束の測定

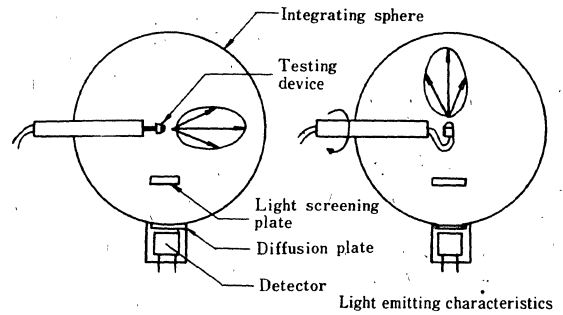


Fig. 3 Measurement of Radiant Flux

(2) 分光分布

発光強度の波長分布である分光分布の測定系を図4に示します。標準電球と発光素子の比較測光により、光電出力の比から分光分布を求めます。

(2) Spectral distribution

Fig. 4 shows measuring method of spectral distribution. Spectral distribution is obtained out of the ratio of electronic output of detector by comparative measurement of standard electric lamp and light emitting device.

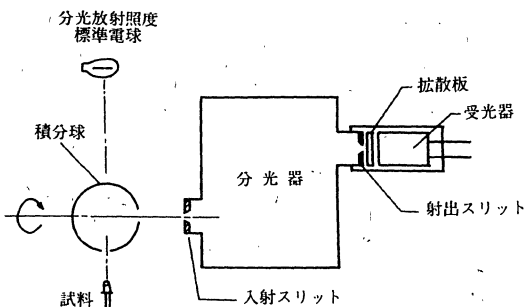


図4 分光分布の測定

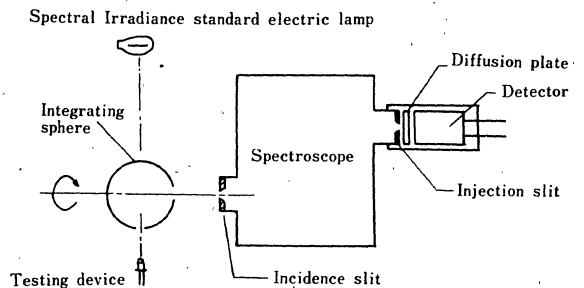


Fig. 4 Measurement of Spectral Distribution

4.3 光の単位系

放射量 (測光量) の定義を以下に示します。

(1) 放射強度 (光度)

光源からある方向に発散する光の強度。

光度の単位であるカンデラ (cd) は白金の凝固点にある黒体 (1 m²) の表面の垂直方向光度の1/60万をいいます。

(2) 放射束 (光束)

単位時間内にある面を通過する光の量。

光束の単位であるルーメン (lm) はすべての方向に放射される 1 cd の点光源から、単位立体角内に放射される光束をいいます。

(3) 放射照度 (照度)

ある表面を照らす光の強度。

照度の単位であるルクス (lx) は 1 lm の光束で 1 m² の面を一様に照らす照度をいいます。

(4) 放射輝度 (輝度)

面光源、反射面などがある方向から見たときの明るさ。

輝度とは面のある方向の光度を垂直な面に射影した面積で割ったものに相当し、観測方向からの見かけの単位面積当りの光度をさします。表 1 に放射量と測光量の単位を示します。

表 1 放射量と測光量

項目	記号・式	単位 (MKS)
放射量		
放射エネルギー	U	Joule
放射束	$P = \frac{dU}{dt}$	$W = \frac{J}{S}$
放射強度	$J = \frac{dP}{d\omega}$	W/sr
放射照度	$H = \frac{dP}{dA}$	W/m ²
放射発散度	$M = \frac{dP}{dA}$	W/m ²
放射輝度	$R = \frac{dJ}{dA'}$	W/sr.m ²
測光量		
光量	Q	lm·s
光束	$F = \frac{dQ}{dt}$	lm
光度	$I = \frac{dF}{d\omega}$	lm/sr(cd)
照度	$E = \frac{dF}{dA}$	lm/m ² (lx)
光束発散度	$L = \frac{dF}{dA}$	lm/m ²
輝度	$B = \frac{dI}{dA'} = \frac{dI}{\cos \theta dA}$	lm/sr.m ² (nt)

4.3 Optical System of Units

Definition of radiation capacity (photometry) is introduced below.

(1) Radiant intensity (Luminous intensity)

Light intensity of emission to certain direction out of light source.

Candela (cd), unit of luminous intensity is defined as 1/600,000 times of vertical directional luminous intensity on the surface of body (1m²) at freezing point of platinum.

(2) Radiant flux (Luminous flux)

Light capacity passing through the area in a unit time.

Lumen (lm), a unit of luminous flux, shows the flux radiating from led point source of uniform luminous intensity of 1 candela, contained within a solid angle of 1 steradian.

(3) Irradiance (Illuminance)

Light intensity of illuminating certain area.

Lux (lx), a unit of illuminance, is a light flux of 1lm falling on a surface of area 1m².

(4) Radiance (Luminance)

Luminance is equivalent to luminous intensity of certain direction divided by area projected to vertical surface, and shows luminous intensity per facial unit area from observed direction. Table 1 shows unit of radiometry and photometry.

Table 1 Unit of Radiometry and Photometry

Item	Symbol·Definition	Unit (MKS)
Radiometry		
Radiant energy	U	Joule
Radiant flux	$P = \frac{dU}{dt}$	$W = \frac{J}{S}$
Radiant intensity	$J = \frac{dP}{d\omega}$	W/sr
Irradiance	$H = \frac{dP}{dA}$	W/m ²
Radiant emittance	$M = \frac{dP}{dA}$	W/m ²
Radiance	$R = \frac{dJ}{dA'}$	W/sr.m ²
Photometry		
Quantity of light	Q	lm·s
Luminous flux	$F = \frac{dQ}{dt}$	lm
Luminous intensity	$I = \frac{dF}{d\omega}$	lm/sr(cd)
Illuminance	$E = \frac{dF}{dA}$	lm/m ² (lx)
Luminous Emittance	$L = \frac{dF}{dA}$	lm/m ²
Luminance	$B = \frac{dI}{dA'} = \frac{dI}{\cos \theta dA}$	lm/sr.m ² (nt)

5.1 発光素子

5.1.(i) 製造と信頼性

「よい設計」のもとに「よい製造」があって、はじめて「よい品質」が生まれます。信頼性とは本来、品質の時間的な安定の度合であり、設計の意図した信頼性が現実の製品に作りこまれていく場が製造過程です。ここで活用される手法は、基本的には、品質管理が確立した手法ですが、時間を経て出現する故障現象と、密接に関係する特性や工程の要素が管理対象になります。

製造の場の安定化について、自動化工程は大きな力を発揮しました。たとえばワイヤボンドが熟練にたよる手動ボンドから、コンピュータ化したパターン認識による自動ワイヤボンドに発展するに伴って、市場におけるワイヤボンド関連故障は、2桁も改善が得られたのもその一例です。

製造における工程管理は、綿密に検討した工程管理網を規定し材料、装置、条件、環境、半製品の特性について、常にモニタし、不信頼性要因が紛れこむことを防止しています。

これらの管理網からの品質情報は、改善のためのデータとして、また設計のためのデータとして活用され、一層の品質向上に役立っています。

5.1.(ii) 品質保証システムについて

製品品質は設計によって方向づけられ、製造において作り込み、検査によって確認することができます。

当社では、これらを総合して高水準の品質保証をしています。製品品質の保証確認システムを図1に示します。また、社内におけるこのような品質保証体制を経て出荷した製品が、ユーザの工程や市場でどのような成績を上げているかを調査し、さらに改善すべき品質上のご要望をいただくために、ユーザ間との品質に関する連絡を密にとっています。

● 信頼性の要因

半導体の信頼度は、素子自身のもっていたストレスに対する耐性と電気的ストレス、熱的ストレス、機械的ストレス、湿気などによるアタックなどの、外部ストレスとのかね合いで決まってきます。ここで素子の一部にでも異常な特に弱い構造があると、ストレスによる反応がそこで異常に進み、重大な故障を招くこととなります。

半導体の信頼性に影響を与える内部要因は、十二分の検討を経て、正常な使用条件下では無視できるように設計されていますが、誤った使用条件下では、故障を誘発することがあるので、以下に代表的な故障要因について説明し、ユーザ各位のご参考に供します。

5.1 Light Emitting Devices

5.1.(i) Production and Reliability

Good quality is derived from good production on good design. Reliability is fundamentally a time stability degree of quality, and reliability required at design stage is taken into products in the production process. Quality control has established controlling methods and processes closely related to the failure phenomenon, and also controlled the features and factors related to failure.

Automatic processing has acted as a driving force for the stabilization of production. For example, wire bonding process was improved from manual to full automatic. Thus, wire bonding-related defects have been improved by tens of percentage. Processing control in production is intended for elimination of unreliability factors by always monitoring material, apparatus, condition, environment and characteristics.

Quality information from these controlling network is used as the data for improvement and design, and is useful for quality improvement.

5.1.(ii) Quality Assurance System

Quality of the product is initially designed at design stage, taken in production and finalized in inspection.

MEC has high standard quality assurance system. Fig. 1 shows assurance system for the quality of product. MEC also investigates how the products work in the field and furthermore takes closer contact with users on the quality to get more detailed quality informations.

● Factor of Reliability

Reliability on the semiconductor is decided by the mutual relation between the devices own resistance against stresses and external stresses such electrical stress, thermal stress, mechanical stress and humidity. If there is a weak structure in the device, reaction by stress develops abnormally and causes critical defects.

Fully studying internal factors which effects reliability of the semiconductor, products are designed so that you can ignore them under normal conditions. However, if it is used in error, faults will be caused by them. Following fault factors should be taken into consideration.

(1) 電氣的(過)負荷

使用時の電圧、電流、電力などの動作条件は、使用環境と組み合わせあって、寿命に大きな影響をもたらします。

電力は、接合温度の上昇をもたらし、これによる故障率の増加を招くので、可能な限り低く抑えることが重要です。

スイッチON/OFF時のサージ電流や、誘導性(L)負荷におけるサージ電圧などについても、絶対最大定格を超えない配慮が必要です。

(2) 温度

半導体製品は、一般に寿命が温度の影響を受けることはよく知られています。故障というものは半導体に何らかの変化が急速に、あるいはゆっくりと進行して特性を変化させるものですから、その変化が化学的な反応であれ、物理的な現象であれ、温度の影響を受けるのは当然といえます。

アレニウスが化学反応の反応速度について与えた一般式が、半導体の故障率によくあてはめられることが、多くのデータで立証されています。

寿命Lと温度(T, 絶対温度)との間には

$$L = A \exp \frac{E_a}{kT} \quad (\text{アレニウスの式})$$

A: 定数

E_a : 活性化エネルギー (eV)

k: ボルツマン定数 $8.6 \times 10^{-5} \text{eV/K}$

の関係があり、温度が高くなるほど寿命が短くなります。この傾向は、物性的に避けられませんが、機器設計に際しては、通風、放熱などの充分の配慮が望まれます。

アレニウスの式の中にある E_a なる項は、活性化エネルギーを表わしており、故障のメカニズムにしたがって、次に例示するような特徴的な値をとります。

酸化膜の欠陥	0.3~0.4eV
イオン性のドリフト	0.7~1.3eV
時定数の長いトラップ	1.0eV
エレクトロ・	
マイグレーション断線	0.6~1.0eV
金属の腐食	0.5~0.7eV
金属間化合物の成長	0.5~0.7eV

図2は、 $T_j = 125^\circ\text{C}$ における寿命を1として、相対的寿命時間と温度の関係を示したもので、半導体の寿命の温度依存性は、おおむねこのような傾向にあると考えられます。

(1) Electric load

Operating conditions of voltage, current and power at usage effect to life together with usage environment.

Electric power makes junction temperature rise and increase fault ratio. It should be limited as low as possible.

Considerations should be taken not to exceed absolute maximum ratings for surge current at ON/OFF switching and surge voltage in inductive (L) load.

(2) Temperature

Life of the semiconductor products can easily be effected by temperature. The accident happens when some changes develop slowly or rapidly inside the device and effect badly its functions, so it is natural for the semiconductor to be effected by temperature even if its changes are chemical reaction or physical phenomenon.

It has been verified by data that fault ratio on semiconductor is applied to formula on reaction speed of chemical reaction defined by Arrhenius' equation.

Relation between life (L) and temperature (T , absolute temperature) is given by following formula.

$$L = A \exp \frac{E_a}{kT} \quad (\text{Arrhenius' equation})$$

A: Constant

E_a : Activated energy (eV)

k: Boltzmann's constant $8.6 \times 10^{-5} \text{eV/K}$

Life is shortened as temperature rises. At designing of machine, ventilation and heat sink should be considered as this tendency can not be avoided. E_a in the formula shows activated energy and shows following values according to fault mechanism.

Failure of oxide film	0.3~0.4eV
Ionic drift	0.7~1.3eV
Trap of long time constant	1.0eV
Electro migration breaking of wire	0.6~1.0eV
Erosion of metal	0.5~0.7eV
Growth of intermetallic compound	0.5~0.7eV

Fig. 2 shows relation between relative life time and temperature when life is set to 1 at $T_j = 125^\circ\text{C}$. Temperature dependency of semiconductor's life is on the tendency.

5. 信頼性について

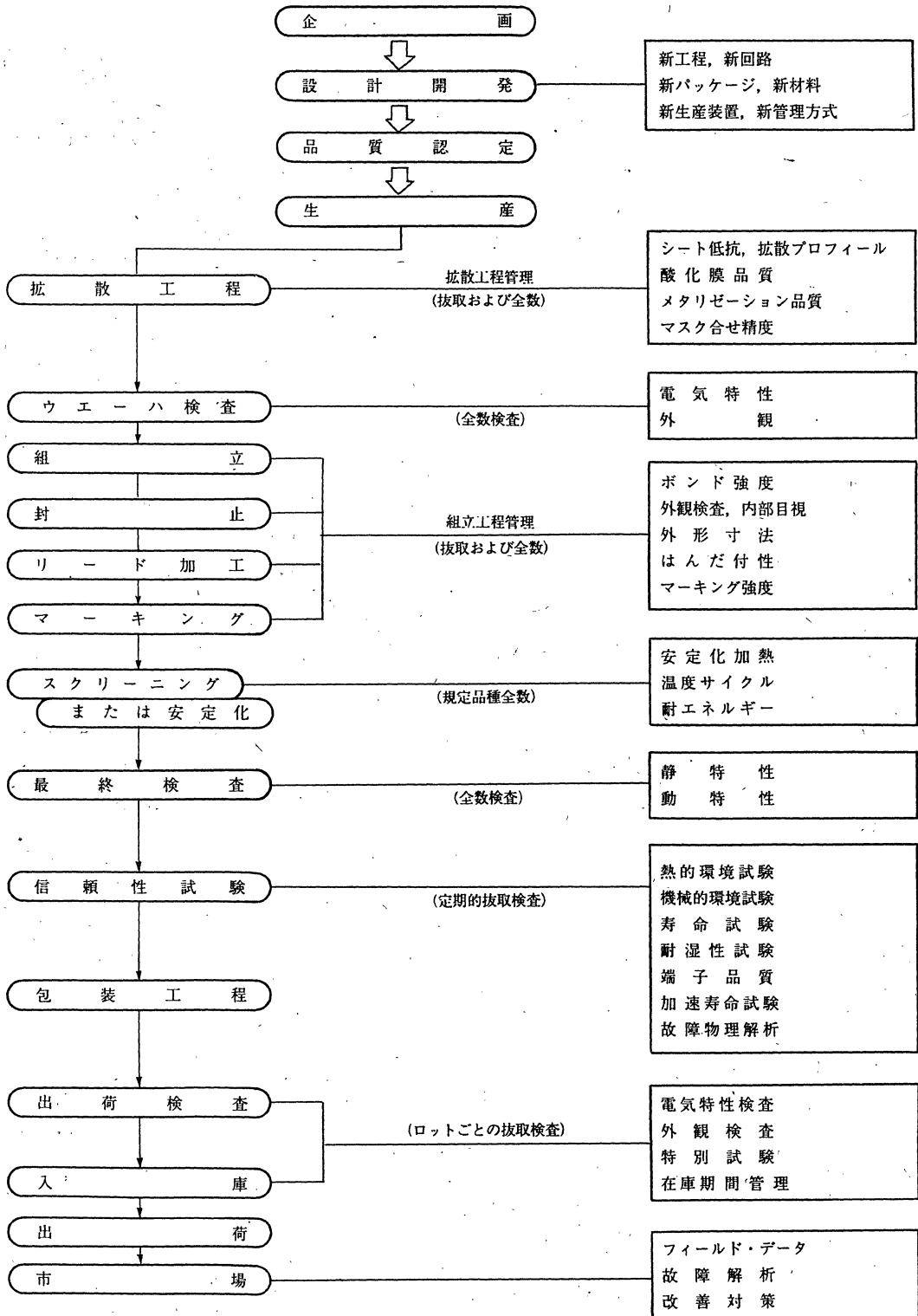


図1 品質管理・保証システム

5. Reliability

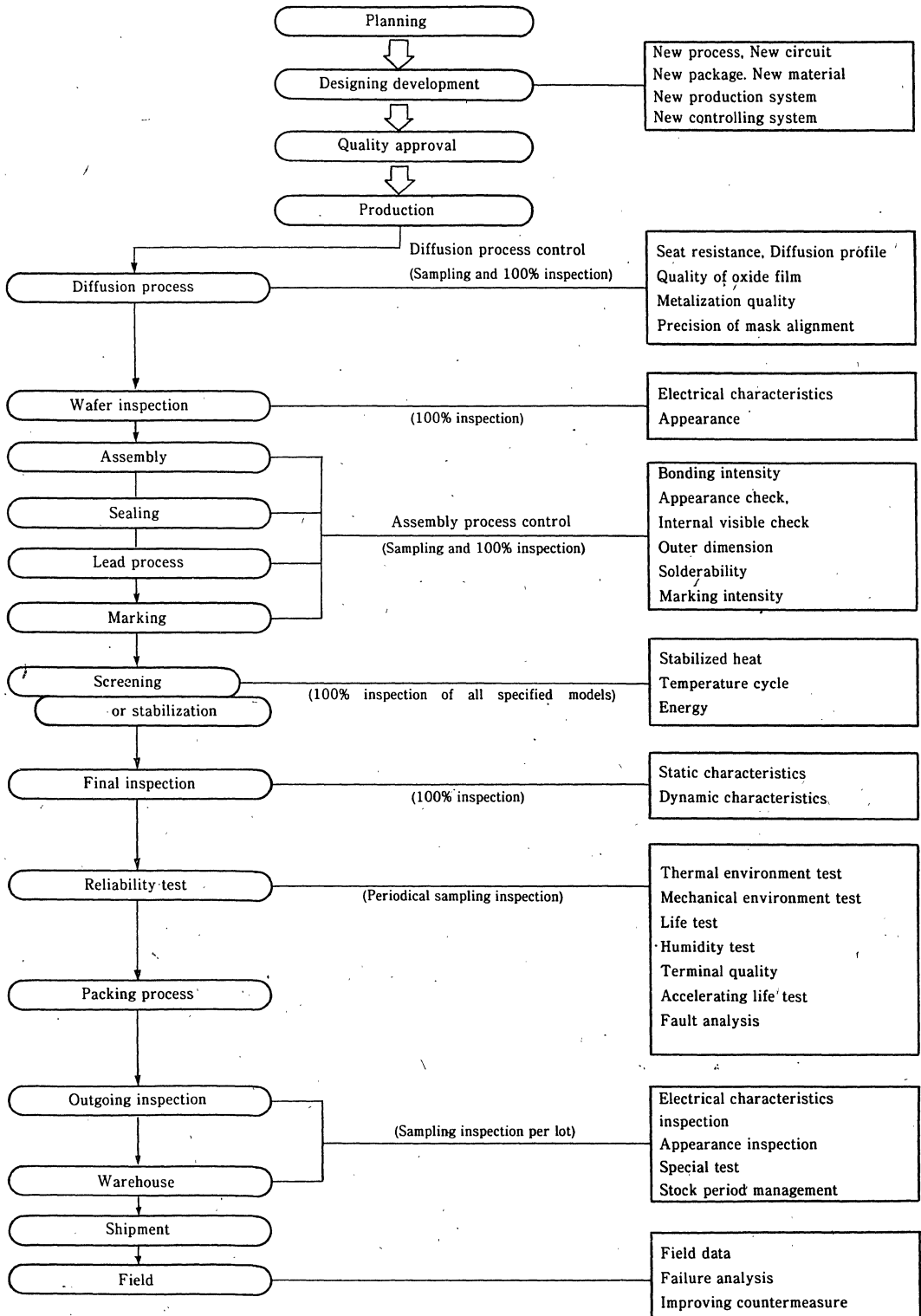


Fig. 1 Quality Control Assurance System

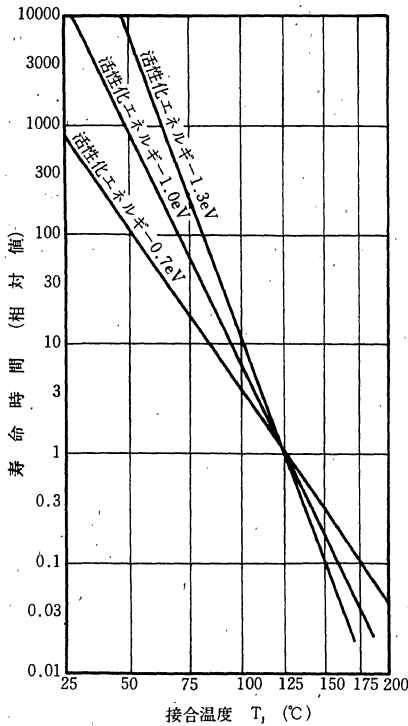


図2 接合温度と相対寿命との関係

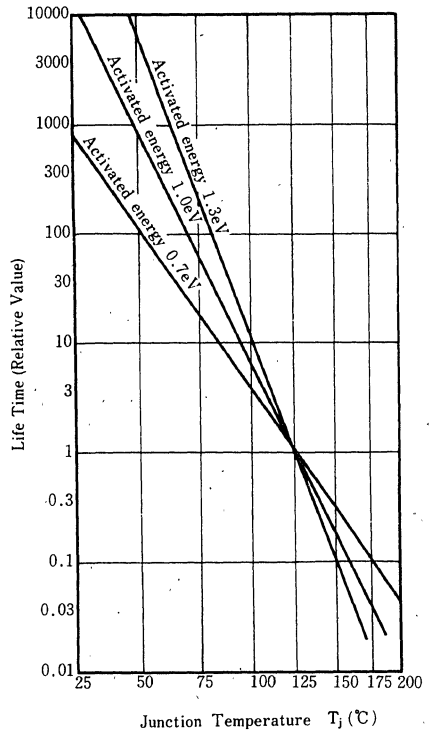


Fig. 2 Relation between Junction Temperature and Relative Life

(3) 湿度

半導体チップ表面は、不活性化保護膜で被われているため、湿度の影響は受けにくくなっています。しかし、樹脂モールドされた半導体は、樹脂の中を徐々に水分が透過する性質があり、高温多湿の中で長時間動作させるなどの過酷な条件に出会うと、半導体素子に故障を起こす可能性があります。この現象は、湿度に対する依存性が著しいため、通常の湿度環境では、完全気密パッケージ品と同等の信頼性が得られます。

したがって、とくに過酷な湿度条件が予想される場合には、注意が必要です。

(4) 機械的ストレス

輸送時の振動や半導体取付けの無理な力は、直接的に機械的な損傷を与える可能性があります。また、二次的には、そこからの湿気や汚染物質の進入により、半導体の劣化を招く可能性があります。振動、衝撃に対しては、一般的には、プラスチックモールド品は、気密封止品よりも強い耐性があります。

これは主として、内部ボンディングワイヤがモールドされていることによります。

(3) Humidity

Surface of the semiconductor chip is hardly effected by humidity as it is covered by inactive protection layer. However, in the resin molded semiconductor, water can penetrate into the resin gradually. When the semiconductor is used for a long time under condition of high temperature and high humidity, faults might occur in the semiconductor device. This phenomenon is derived from large dependency against humidity, and under normal humidity environment, same reliability as fully sealed package can be obtained.

Accordingly, cautions should be taken if it is used under severe humidity condition.

(4) Mechanical stress

Vibration in transit and irrational force applied to semiconductor when mounting may give direct failure to it mechanically. Secondary, humidity and pollutants penetrate into semiconductor through failed hole, and causes degradation of semiconductor. Plastic molded product has stronger resistance against vibration and shock than hermetic sealed product due to molded internal bonding wire.

(5) 静電気

半導体が用いられている機器の中で、静電気の帯電していることが往々にして見られ、ときには破壊の主原因となっていることがあります。特に最近では筐体や構造体にプラスチックが用いられることが普通であり、ユーザ各位においてこの点に対する配慮が望まれます。

また、静電気は、人体に帯電しているので、取扱いに際しては、帯電防止の策が必要です。静電破壊は、MOS デバイスに特有と考えられがちですが、微小化、高周波化に伴って、バイポーラ、オプト半導体の中にも取扱いの注意を要するものがあるのでご注意ください。

(6) ストレスの繰返しの効果

ストレスが繰返し加えられているとき、定常的なストレスよりも強く働くことがあります。高温からなるサイクルや、内部発熱の断続からなるサイクルなどがその例であり、材料中の構造の再配列や、ひずみに対する疲労劣化の効果による故障の評価に活用されます。

5.1.(iii) 信頼性試験

半導体の信頼性に影響する外部ストレスには、種々のものがあります。また、これらの外部ストレスによって影響される半導体内部の故障メカニズムにも、種々のものがあります。信頼性試験は、外部ストレスをシミュレートして、半導体の時間的耐性を調べるとともに、ある特定の故障メカニズムに着目して、そのメカニズムの特性を調べようとする2面の目的をもっています。

これらの試験方法には、標準的な試験方法として公刊された規格があります。

半導体素子に適用できる信頼性試験方法としては、

○IEC規格

publication 147-4 半導体素子の寿命試験

○JIS規格

JIS-C-7021 個別半導体デバイスの環境試験方法及び耐久性試験方法

○EIAJ規格

SD-121 個別半導体デバイスの環境および耐久性試験方法

当社では IEC に準拠し、一部 JIS, EIAJ 規格や松下独自のものを追加して試験方法を定め、定期的に試験を実施しています。

参考のために主要な試験方法の概要を表 1 に示します。

このような試験から得られたデータは、加速性を考慮して市場での信頼性の予測に活用しています。

(5) Static electricity

Sometimes static electricity is electrified to the apparatus and equipment where semiconductor is used, and cause destruction. Recently, plastics is used for casing and structural material, and user should pay attention to this point.

As static electricity is electrified to human body, protection should be taken against electrification. Destruction by static electricity is thought to peculiar to MOS device, but some of the bipolar and opto devices should be treated carefully.

(6) Repeating effect of stress

When stress is applied repeatedly, sometimes its effects is stronger than normal stress. Examples can be found in cycles by high and low temperature and intermittent internal exothermic factor. They are utilized to re-distribution of structure in the materials and for the evaluation of fault by effectiveness of fatigue degradation.

5.1.(iii) Reliability Test

There are various external stress which effect reliability of semiconductors. There are also kind of fault mechanisms in the semiconductor effected by external stress. Reliability test is performed by simulating external stress to investigate semiconductor's time-proof and also characteristics of specified fault mechanism.

Test method has published specification as standard one.

Following test method of reliability is applied for semiconductor device.

○IEC specification

publication 147-4 Life test of semiconductor device

○JIS specification

JIS-C-7021 Environmental testing method and durability testing method for discrete semiconductor device

○EIAJ specification

SD-121 Environmental and durability testing method for discrete semiconductor

Panasonic performs tests periodically by applying IECJIS and our specifications.

For reference, main testing methods are listed in Table 1.

The data obtained from tests are utilized for the forecast of reliability in the field by considering acceleration.

5. 信頼性について

表1 代表的な信頼性試験の種類と内容

分類	種 類	内 容 お よ び 条 件
寿命試験	連続動作寿命試験	素子に長時間にわたる電氣的ストレス（電圧、電流）および熱的ストレス（負荷による温度上昇を含む）を与えることにより、その耐性を判定する。 通常試験は、最大許容損失を印加して行なう。
	高温動作寿命試験	高温状態で規定の逆バイアスの電圧あるいは順電流などを加えて、温度と電氣的ストレスの相互作用による素子の劣化機構を加速して検査する試験。
	断続動作寿命試験	半導体素子の最大許容損失で動作させ、その素子の熱応答時間にほぼ相当する時間（通常5分）で断続させることにより、製品の熱的ひずみ、あるいはその過渡現象などによる劣化を加速させる試験。通常常温で行なう。
	高温保存寿命試験	高温で保存した場合の熱に対する耐性を判定する。 通常試験温度は最高保存温度（ $T_{stg\ max}$ ）で行なう。
	高温高湿寿命試験	高い相対湿度で長時間の保存または動作に対する耐性を判定する。
	低温保存寿命試験	低温に保存した場合の耐性を判定する。 通常試験温度は最低保存温度（ $T_{stg\ min}$ ）で行なう。
熱的環境試験	はんだ付け加熱試験	はんだ付け作業の間に受ける熱に対する耐性を判定する。 通常試験条件は $260\pm 5^{\circ}\text{C}$ 、端子を規定の深さまで10秒間浸す。
	温度サイクル試験（気相）	低温および高温の状態にさらした場合の耐性を判定する。 通常試験条件は、最低保存温度（ $T_{stg\ min}$ ）と最高保存温度（ $T_{stg\ max}$ ）の間を規定の時間間隔で10サイクル行なう。
	熱衝撃試験（液相）	急激な温度の変化にさらした場合の耐性を判定する。通常試験条件は最高保存温度（ $T_{stg\ max}$ ）と最低保存温度（ $T_{stg\ min}$ ）を交互に10サイクル繰り返す。
機械的環境試験	振動試験	輸送中または使用中に受ける振動に対する耐性を判定する。 試験は一定周波数振動を加える方法とがあり、通常振動周波数変化（100～2000Hz）を行なう。
	衝撃試験	構造的、機械的耐性を判定する。 試験条件は素子の構造により異なる。 通常試験条件は衝撃加速度1000G、衝撃時間0.5ms（素子によっては500G 1ms）
	定加速度試験	定加速度に対する耐性を判定する。 試験条件は素子の形状、構造により異なる。 通常試験条件は20000G、6方向に加える。
	自然落下試験	構造的、機械的耐性を判定する。 通常試験条件は1mの高さから、カエデ板上に自然落下させる（3回）。
	端子強度試験	端子部分の強度が、その取付け配線または使用中に加えられる力に対して充分であるかどうかを判定する。折曲げ試験と引張り試験がある。 試験条件は端子の形状、断面積により異なる。
その他	はんだ付け性試験	端子のはんだ付きやすさを判定する。 通常試験条件は、はんだ温度 $230\pm 5^{\circ}\text{C}$ 、5秒間で行なう。
	塩水噴霧試験	耐食性を判定する。 通常試験条件は、室温 35°C 、5%塩溶液を24時間噴霧する。
	気密試験	封止の気密性を判定する。 トレーサガスにより微小リークを気泡により大リークを検出する。

*高温高湿下で16H前処理実施

5. Reliability

Table 1 Kind and Contents of Typical Reliability Test

Classification	Kind	Contents and conditions
Life test	Consecutive operating life test	Durability is determined by giving electric stressess(voltage, current) and thermal stressess(including temperature rise by load). Normal test is performed by applying total power dissipation.
	High temperature life test	Specified bias voltage and forward current are applied in high temperature status, and deterioration structure of device is accelerated and tested by interaction of thermal and electric stressess.
	Intermittent operating life test	Device is operated in total power dissipation. Apply equivalent time (normally five minutes) to thermal response time of the device intermittently and accelerate deterioration by thermal distortion of the product or transient phenomena. Normally tested in normal temperature.
	High temperature storage life test	Durability against heat stored in high temperature is determined. Testing temperature is max. storage temperature(T_{str} max.).
	Tropical life test	Durability is determined against storage for long time in high relative humidity.
	Low temperature storage life test	Durability is determined when stored in low temperature. Testing temperature is min. storage temperature(T_{str} min.).
Thermal environmental test	Soldering heat test	Durability is determined against heat for soldering. Testing temperature is $260 \pm 5^{\circ}\text{C}$, and terminal is dipped to the specified depth for ten second.
	Temperature cycle test(gaseous phase)	Durability is determined in low and high temperature. Test is performed ten cycles between min.(T_{str} min.) and max.(T_{str} max.) storage temperature in specified time period.
	Thermal shock test (liquid phase)	Durability is determined in sudden temperature change. Test is performed ten cycles in max.(T_{str} max.) and min.(T_{str} min.) storage temperature, repeatedly.
Mechanical environmental test	Vibration test	Durability is determined against vibration in transit and usage. Test is performed by applying constant frequency vibration. Vibrating frequency is 100~2000Hz.
	Shock test	Structural and mechanical durability test. Test condition is different according to stucture of the device. Shock acceleration is 1000G and shock time is 0.5ms (or 500G and 1ms according)
	Constant accelerating test	The test of durability toward constant acceleration. Test condition is different according to size and structure of device. 20000G is applied to six directions for test condition.
	Fall test	Structural and mechanical durability is determined.
	Terminal strength test	It is determined whether terminal strength toward the force applied to the wiring or applied while the device is used. Bending test and expanding test are used. Test condition is different according to size and sectional area of terminal.
Others	Soldering test*	Solderability for terminal is judged. Test condition is; soldering temperature $230 \pm 5^{\circ}\text{C}$, five seconds.
	Salt water spray test	Corrosion resistance is judged. Temperature is 35°C for 24 hours sprayed with 5% salt solvent.
	Hermetic sealing test	Hermetic sealing is judged. Micro leakage and gross leakage is detected by tracer gas and bubble, respectively.

*Pre processing for 16 hours is performed at high temperature and high humidity.

5.1.(iv) 寿命

当社のオプト製造は、高水準の品質を目標に設計、製造、販売いたしておりますが、特にその寿命については、使用条件（動作条件—電流、電圧、周囲温度、動作時間など）によって大きく左右されます。また、使用される機器への実装条件によっても影響を受けます。

●発光素子（LED）の劣化について

Ⅲ—V族化合物半導体で構成される固体発光素子の寿命は半永久的といわれています。しかし、これはタングステンランプなど他の光源と比較した場合、長寿命であることのとえで、実際には電気エネルギーを消費し、光エネルギー（大部分は熱エネルギー）に変換するアクティブなデバイスであるため、有限の寿命があります。

定格入力下で通電した場合、光出力が初期値の50%まで劣化する半減時間を寿命とすると、MTTF（平均寿命）で 10×10^4 hrsと公表されております。LEDが実装される機器の保証が10年間であれば、連続通電時間に換算すると約8万時間となり、有限の寿命であっても実用上問題ないこととなります。

(1) 発光の機構

LEDの劣化について考える前に、発光のメカニズムを知る必要があります。LEDのp-n接合に順電流を流すと、電子、正孔にそれぞれの拡散長内のp-n接合近傍で再結合し、禁制帯幅 (E_{g1}) もしくは再結合中心の準位を差し引いたエネルギー (E_{g2}) に相当する光を發します。(図3)

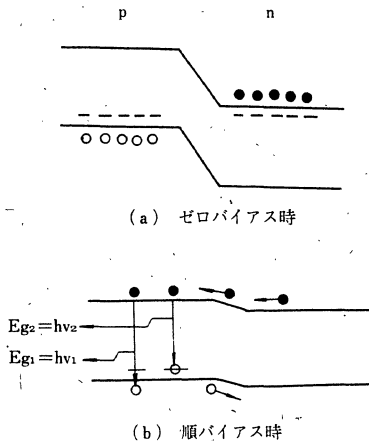


図3 発光の機構モデル

5.1.(iv) Life

Panasonic is proud of quality in high standard for the opto products in design, production, and sales. Life is largely different according to usage conditions (operating conditions such as current, voltage, ambient temperature and operating time, etc.), and mounting condition to the equipment and apparatus effects.

●Degradation of Light Emitting Diode(LED)

Life of light emitting device composed of Ⅲ-V family semiconductor is said to be almost permanent. However, it has a long life as compared with other light source such as tungsten lamp and life is limited because it is an active device dissipating electric energy and converting to light energy (most of them are thermal energy). When current is supplied under rated input, half-time is defined as life, that is to say light power degrades to 50 percentage of initial value.

It is expected that MTTF(average life) is longer than 10×10^4 hours. If guarantee is ten years for the products on which LED is mounted, and ten years is equivalent to about 80,000 hours when converted to continuous operating time. Therefore, life can be said to be forever in real usage even if life is limited.

(1) Mechanism of emission

Mechanism should be introduced before considering degradation of LED. When forward current is supplied to p-n junction of LED, it recombines to electron and hole near the p-n junction in diffusion length, and light is out equivalent to energy of forbidden band width (E_{g1}) or to the subtracted energy of recombination centers (E_{g2}). (Fig.3)

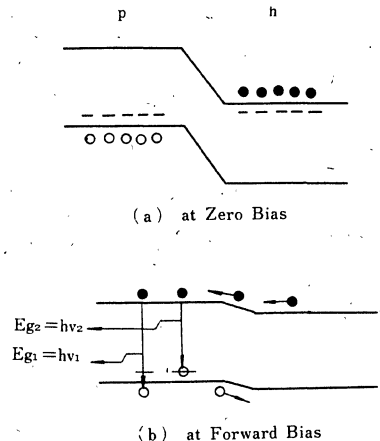


Fig. 3 Mechanical Model of Luminance

LED に流れた電流のうち、光に変換されて外に出る割合を発光効率といい、結晶内部の p-n 接合近傍で発した光に着目した場合を内部発光効率、実際に素子の外部に出てくる光に着目した場合を外部発光効率といいます。それぞれを、 η_{ext} 、 η_{int} とすると、次式で表わされます。

$$\eta_{ext} = \frac{\eta_{int}}{1 + (\alpha V / T \cdot A)} \dots \textcircled{1}$$

ここで、 α : 結晶の吸収係数

V : LED チップの体積

T : 表面での平均透過率

A : 発光面積

$$\eta_{int} = \frac{\beta \cdot I_D}{I_L + I_R + I_D} \cdot \frac{\tau}{\tau_R} \dots \textcircled{2}$$

ここで、 β : 少数キャリアの注入率

I_D : 拡散電流

I_L : リーク電流

I_R : 電子、正孔の非発光再結合電流

τ : 発光領域に注入された少数キャリアの寿命

τ_R : 発光再結合のみによって消滅するとしての少数キャリア寿命

発光は p-n 接合を通じて注入された少数キャリアによる拡散電流 I_D に比例します。内部発光効率を低下させる要因は、p-n 接合のもれ電流と、空乏層内にある深い再結合中心を介して流れる非発光再結合電流と、空乏層に近接した非発光の深い再結合中心により注入された少数キャリアの寿命の低下の3つです。

また、樹脂封止をしている LED では、①式に樹脂境界の屈折率、樹脂の光透過率などが影響します。

(2) 劣化の機構

LED の光出力変化は先に述べましたように、外部発光効率の低下に相当いたしますので、その劣化の要因を大別すると、

(a) 結晶内部の変化による内部発光効率の変化

(b) 取り出し効率の変化 (例: 樹脂の劣化など)

となります。

Luminous efficiency is percentage of a converted light out of the current supplied to LED. Internal luminous efficiency is based on the light emitted near p-n junction in the crystal and external luminous efficiency is based on the light emitted out of the device. they are shown by η_{ext} and η_{int} .

$$\eta_{ext} = \frac{\eta_{int}}{1 + (\alpha V / T \cdot A)} \dots \textcircled{1}$$

α : Absorption coefficient of the crystal

V : Volume of LED chip

T : Average transmission factor on surface

A : Luminous area

$$\eta_{int} = \frac{\beta \cdot I_D}{I_L + I_R + I_D} \cdot \frac{\tau}{\tau_R} \dots \textcircled{2}$$

β : Injection ratio of minority carrier

I_D : Diffusion current

I_L : Leakage current

I_R : Nonradiative recombination current of electron and hole

τ : Life time of minority carrier injected to luminous area

τ_R : Life time of minority carrier when quenching only by radiative recombination

Emission is in proportion to diffusion current I_D by the minority carrier injected through p-n junction. Factors which decrease internal luminous efficiency are caused by following three; first one is a leakage current of p-n junction, second is a nonradiative recombination current flowing via deep recombination in depletion layer and third is the decrease of life time of minority carrier injected by nonradiative deep recombination center near depletion layer.

As for the resin sealed LED, formula ① is effected by refractive index of boundary and light transmission factor of resin.

(2) Mechanism of degradation

Change of optical power for LED is equivalent to the decrease of external luminous efficiency. Degradation factors are shown as follows.

(a) Change of internal luminous efficiency by the change in crystal.

(b) Change of external efficiency (Example : degradation of the resin)

5.1.(v) ユーザーに対するお願い

当社の半導体製品は、高水準の品質・信頼性を目標に設計・製造・販売していますが、電子装置の信頼性は、当社製品の固有の信頼度とユーザーにおける使用状態の積として現れます。この観点から、半導体メーカーとして、次のようなことをユーザーにお願いいたします。

- ① 用途に応じた正しい品種を適正に使用してください。
- ② 応用回路の設計は統計的に余裕のあるものとしてください。
- ③ 放熱設計はとくにご留意ください。
- ④ 絶対最大定格は必ず守ってください。
- ⑤ 電源電圧の変動が故障原因とならないようご配慮ください。
- ⑥ 外部ストレスとなる因子（サージ、振動衝撃、温度、雰囲気）について十分ご注意ください。

(1) リードフォーミング

リードピンのフォーミングは、はんだ付け前に行ってください。はんだ付け中、または、はんだ付け後にリードに力を加えないでください。

リードピンのフォーミングの際、同じ箇所を何度も曲げないようにしてください。リードピン折れの原因となります。

(2) はんだ付け時の熱ストレス

樹脂モールド光素子は、発光や受光の効率をあげるため、フィラーの添加をおさえた純度の高い樹脂にてモールドされています。

このことにより、IC、LSIなどの樹脂と異なり、熱的、機械的ストレスや薬品などの取り扱いによって素子の信頼性が大きく左右されます。そこでリードピンへのはんだ付けは、表2の温度および時間を守り、外囲器本体より2mm以上離れたリード線の箇所で行って下さい。

はんだ付け直後に素子の取り付け修正、基板のそのり修正を行いますと素子にストレスが加わり、破壊させることがありますので、ご注意願います。

5.1.(v) Requirement to User

The semiconductor products by Panasonic is designed, manufactured and sold aiming at high standard quality and reliability, however, reliability of electronic apparatus is seen as a product of reliability superior to Panasonic and using status at users. From this point, Panasonic requests user's for following things.

- ① Right product should be used properly matched to application.
- ② Application circuit should be designed with enough tolerance statistically.
- ③ Careful attention should be paid for thermal radiation design.
- ④ Use in absolute maximum rating.
- ⑤ Careful consideration should be given to the fluctuation of power supply voltage not to cause faults.
- ⑥ Careful attention should be paid to factors causing external stress (surge, vibration shock, temperature and ambience).

(1) Lead forming

Make lead pin forming before soldering. During soldering, or after soldering, do not give any force to the lead. Upon forming the lead pin, do not bend the same position repeatedly, it may cause a bent of lead pin.

(2) Thermal stress when soldering

Photo-element of resin mold has been treated with molding with highly pure resin by suppressing the addition of filler in order to elevate the efficiency of light emitting and light receiving functions. Accordingly, unlike the resins such as IC and LSI, the reliability of element will be greatly influenced by the handling of chemicals, thermal, or mechanical stress. Then, make soldering for the lead pin at the position of lead wire away from the main body of the cover more than 2 mm.

Immediately after soldering, if adjustment is made for the mounting of element or warp of board, stress will be given to the element which would be broken, then, pay attention to the treatment.

5. 信頼性について

5. Reliability

表2 はんだ付けの推奨条件 (タイプ別)
(はんだごと)

タイプ	推奨条件		
	温度	時間	位置
一般パッケージ (丸形、角形、三角形)	260℃以下	5秒以内	モールド根元より2mm以上はなす
ダブルエンドパッケージ	250℃以下	3秒以内	リード樹脂根元より2mm以上はなす
ガラス封止	260℃以下	5秒以内	リード樹脂根元より2mm以上はなす
ミニブライト	250℃以下	5秒以内	リード樹脂根元より2mm以上はなす
チップLED	240℃以下 (リフロー)	5秒以内	—
面発光	260℃以下	5秒以内	リード樹脂根元より2mm以上はなす
レベルメータ	260℃以下	5秒以内	リード樹脂根元より2mm以上はなす
数字表示素子	260℃以下	5秒以内	リード樹脂根元より2mm以上はなす

(3) リードカットについて

高温の状態ではんだ付けを行いますと、断線事故の原因となりますので、リードカットは常温で行って下さい。

特にはんだ付け直後は温度が高くなっておりますので、ご注意ください。

(4) 動作中の熱ストレス

光素子の外囲器用樹脂は、光透過率を重要視するため、その中に添加剤を入れることが制約されております。このため、IC、LSIなどの半導体用樹脂に比べて熱変形温度が低く、最大保存温度 T_{stg} 近傍にあります。動作電流や環境条件を加味した使用条件で設計されていないと、動作中の光素子内部の熱ストレスにより光出力低下や断線など、素子を破壊させる原因となります。また、回路のON-OFF時の過電圧(過電流)も、破壊原因となることがありますので、設計時には十分配慮して下さい。

(5) 耐薬品性について

表3に各種溶剤の使用可否の一覧を示します。使用不可の溶剤を使用しますと、外囲器表面が浸され変形、変質することがあります。また、溶剤が乾かないうちに樹脂表面を指などでこすりますと、品名や表示マークが消えることがありますのでご注意ください。

Table 2 Soldering Recommendations
(Soldering Iron)

Type	Recommended Conditions		
	Temp	Time	Location
General package.	Under 260°C	Under 5 sec.	Keep away at least 2 mm from mold base.
Double end package	Under 250°C	Under 3 sec.	Keep away at least 2 mm from resinous base of the lead.
Glass Seal	Under 260°C	Under 5 sec.	Keep away at least 2 mm from resinous base of the lead.
Mini Bright	Under 250°C	Under 5 sec.	Keep away at least 2 mm from resinous base of the lead.
Chip LED	Under 240°C (Reflow)	Under 5 sec.	—
Surface Type	Under 260°C	Under 5 sec.	Keep away at least 2 mm from resinous base of the lead.
Level Meters	Under 260°C	Under 5 sec.	Keep away at least 2 mm from resinous base of the lead.
Numerical Displays	Under 260°C	Under 5 sec.	Keep away at least 2 mm from resinous base of the lead.

(3) Lead cutting

When lead is cut in high temperature, sometimes it might be the cause of destruction. Lead should be cut in room temperature.

Special attention should be paid to right after soldering.

(4) Thermal stress in operation

Application of the addition agent is limited into external resin of the optical device because transmissivity is important. Therefore, deformation temperature is low comparing to semiconductor resin such as IC and LSI, it is new maximum storage temperature T_{stg} . If resin for the external case is designed without considering operating current and environmental conditions, device may be destructed such as light power decrease or burn-out by thermal stress in the light device in operation. Also excessive current at ON/OFF mode may cause destruction.

(5) Chemicals resistance

Table 3 shows [solvents may be used or met]. When forbidden chemicals is used, surface of the outer case may be deformed. When the surface of the resin is rubbed by fingers etc. before the resin is dried enough, product name and marking on the surface might be vanished.

表3 各種溶剤の使用可否一覧表

溶 剤 名	使用の可否	溶 剤 名	使用の可否
エチルアルコール	○	フreon TES	×
メチルアルコール	○	フreon TMC	×
イソプロピルアルコール	○	ダイフロンソルベントS3-E	△*
フreon TE	△*	トリクレン	×
フreon TF	△*	クロロセン	×
フreon TA	×	トルエン	×

*：特に透過形センサ(インタラプタ)、反射形センサ、数字表示についてはフreon系溶剤を使用されますと、ケースが変形する製品がありますので、ご使用の際は十分ご注意ください。

オプトデバイスを超音波洗浄する場合は、表4を参考にして下さい。

超音波洗浄が不可のものについては、蒸気洗浄など実施されますようおすすめします。

なお、表2から表4の試験条件は単品個々の評価によるものであり、実際のご使用にあたっては、アセンブル後の実装状態のテストにて問題がないことを十分確認した上で導入していただきますようお願いいたします。

表4 超音波洗浄条件

タイプ	超音波洗浄	超音波洗浄条件
一般パッケージ	砲弾型	○
	サイドビュー	○
	3φセラミック	×
	キャン封止	×
アイソレータ	○	28kHz以下 300W以下 30秒以内
インタラプタ	×	
反射型センサ	×	
ダブルエンド	×	

×：不可

(6) ゴミ、ホコリについて

表面がゴミ、ホコリなどで汚れた場合、誤動作することがありますので、設計および保守にご注意ください。

(7) 外乱光について

受光素子、光複合素子にて外乱光による誤動作が発生することがありますのでご注意ください。

Table 3 List of Solvent

Name of solvent	Use or not	Name of solvent	Use or not
Ethyl alcohol	Yes	Freon TES	No
Methyl alcohol	Yes	Freon TMC	No
Isopropyl alcohol	Yes	Difron solvent S3-E	△*
Freon TE	△*	Triklen	No
Freon TF	△*	Chrorosen	No
Freon TA	No	Toluene	No

*：Package might be changed if freon solvent is used for transmittive sensor (interruptor), reflective sensor, Numerical Displays.

Table 4 is instructive when opto device is washed by ultrasonic wave.

When ultrasonic washing is not admitted, steam washing should be performed.

Test conditions shown in Table 2 to 4 are evaluation for individual device, and they should be applied after testing the assembled product in real use.

Table 4 Condition of Ultrasonic Washing

Type	Ultrasonic washing	Condition of ultrasonic washing
General package	Shell type	○
	Side view	○
	3φ ceramic	×
	Can sealed	×
Isolator	○	300 W Less than 30 seconds
Interruptor	×	
Reflective sensor	×	
Double end	×	

×：Cannot be used.

(6) Dust

Attention should be paid to dusts because they may cause mis-operation.

(7) Ambient disturbing light

Ambient disturbing light may mis-operate photo detecting device and photo coupled device.

可視発光ダイオード/VISIBLE LED'S

丸 形

Round Type



丸形 Round Type

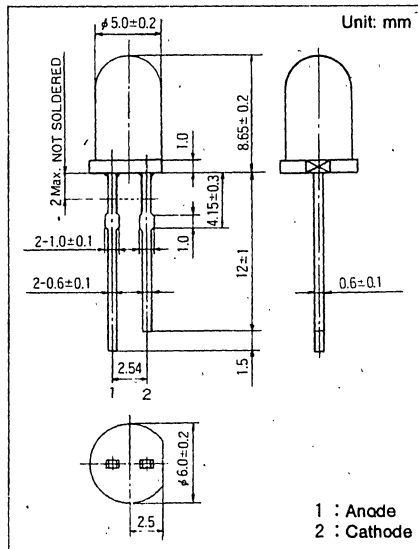
φ 5.0mm Series

Type No.	Lighting Color
LN21RPHL	Red
LN21RCPHL	Red
LN21WPHL	Red
LN21CPHL	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

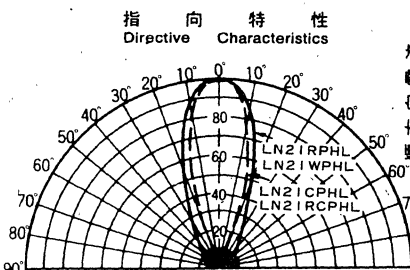
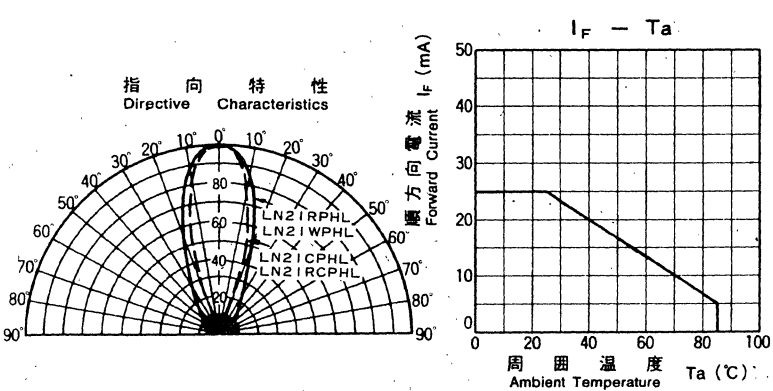
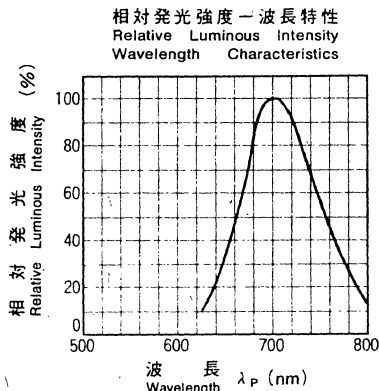
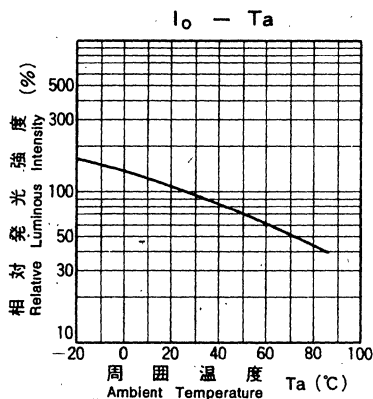
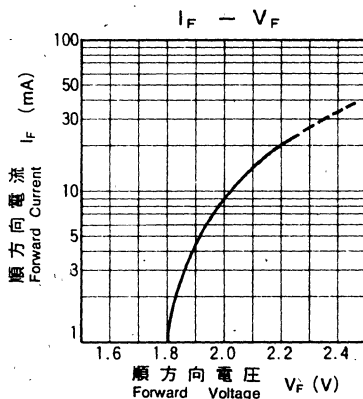
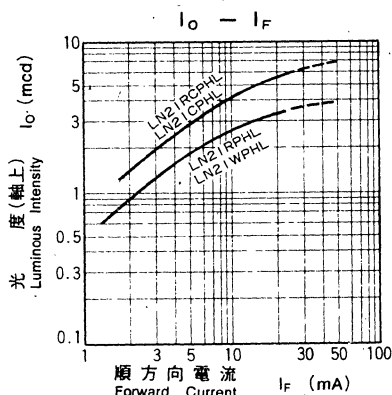
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN21RPHL	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN21RCPHL	Red	Red Clear	5.0	2.5	15	2.2	2.8	700	100	20	5	4
LN21WPHL	Red	White Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN21CPHL	Red	Clear	5.0	2.0	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



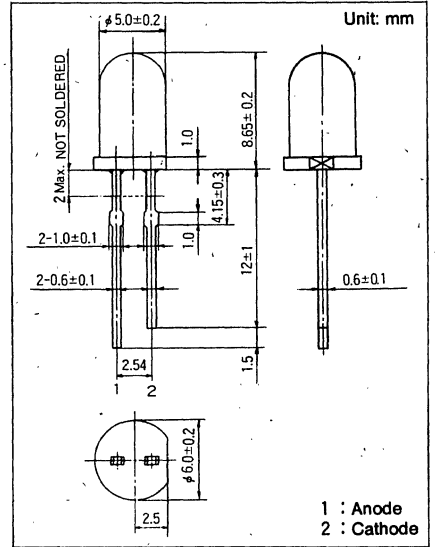
φ 5.0mm Series

Type No.	Lighting Color
LN31GPHL	Green
LN31GPHL(G)	Green
LN31GCPHL	Green
LN31GCPHL(G)	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

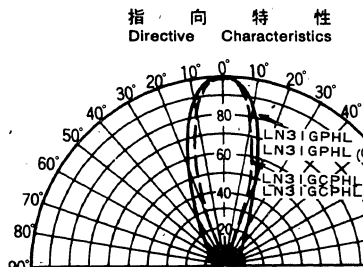
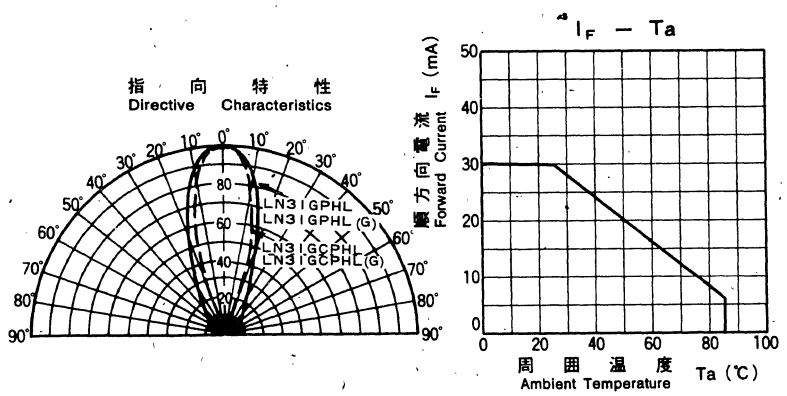
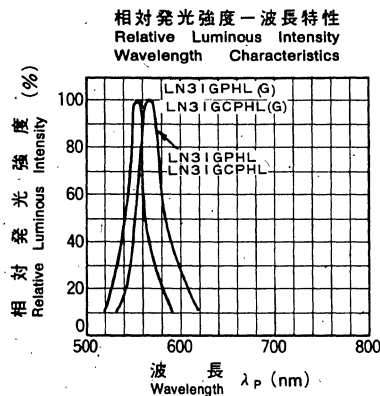
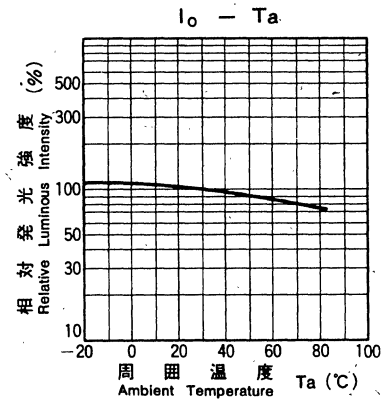
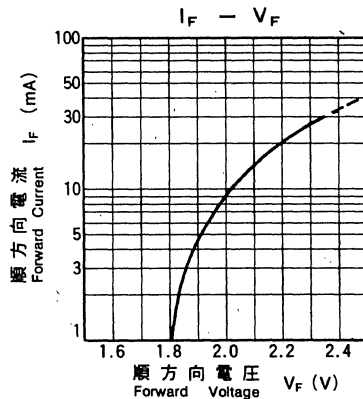
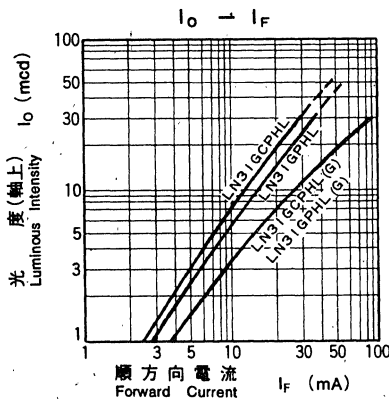
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN31GPHL	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
LN31GPHL(G)	Green	Green Diffused	7.0	2.5	20	2.2	2.8	555	20	20	10	4
LN31GCPHL	Green	Green Clear	20.0	7.5	20	2.2	2.8	565	30	20	10	4
LN31GCPHL(G)	Green	Green Clear	7.5	3.0	20	2.2	2.8	555	20	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形

Round Type

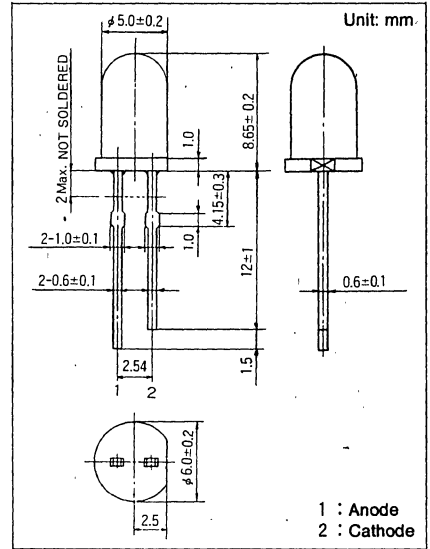
φ 5.0mm Series

Type No.	Lighting Color
LN41YPHL	Amber
LN41YCPHL	Amber
LN41CPHL	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

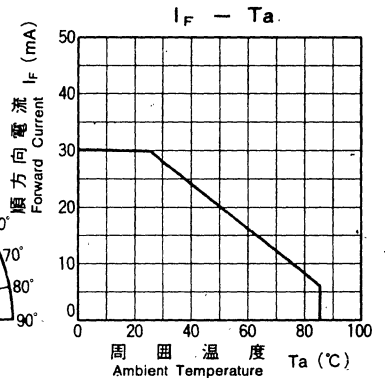
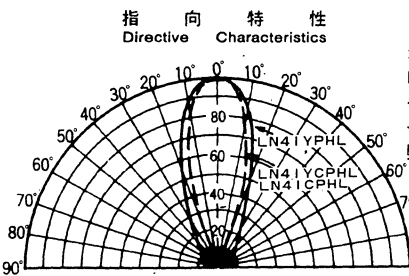
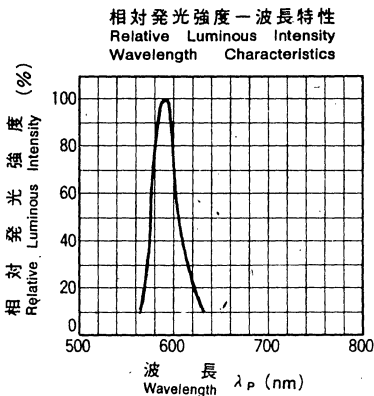
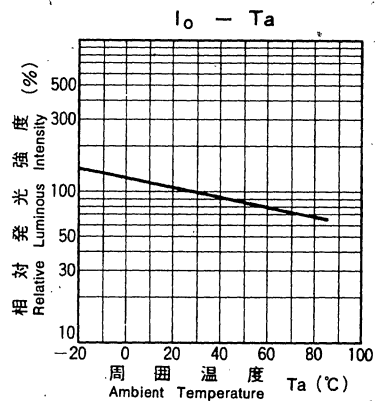
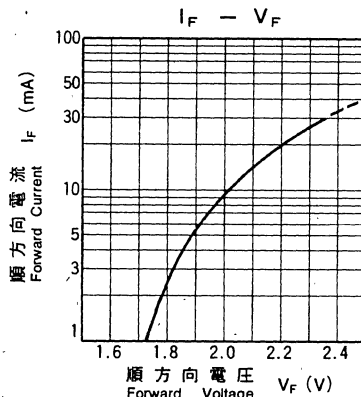
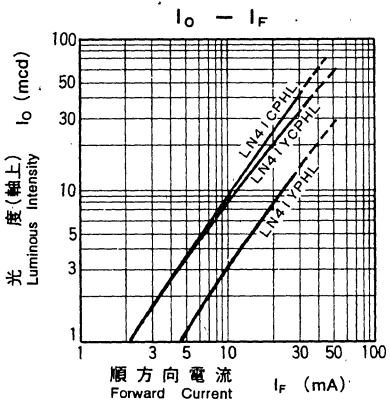
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN41YPHL	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
LN41YCPHL	Amber	Amber Clear	20.0	10.0	20	2.2	2.8	590	30	20	10	4
LN41CPHL	Amber	Clear	25.0	10.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形

Round Type

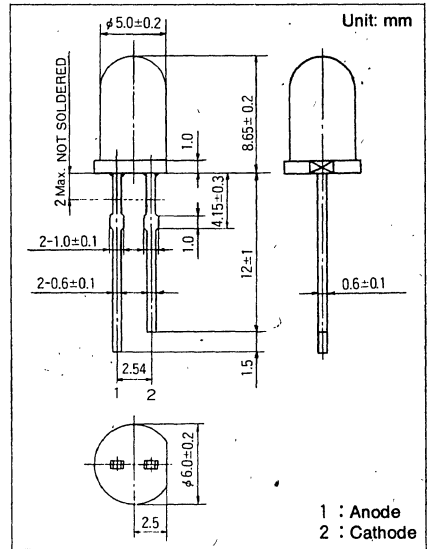
φ 5.0mm Series

Type No.	Lighting Color
LN81RPHL	Orange
LN81RCPHL	Orange
LN81WPHL	Orange
LN81CPHL	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

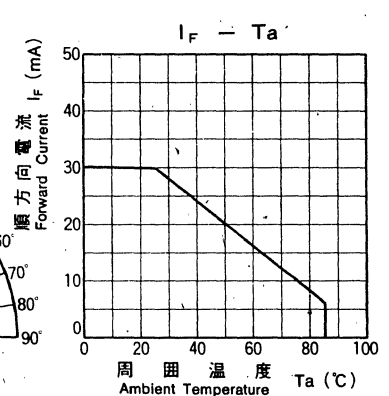
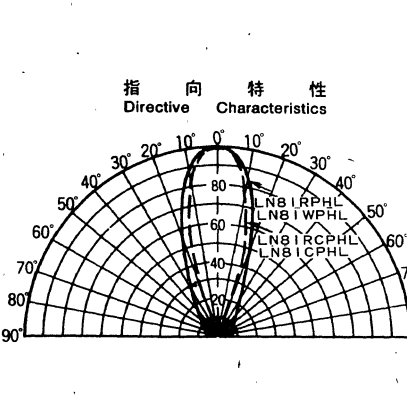
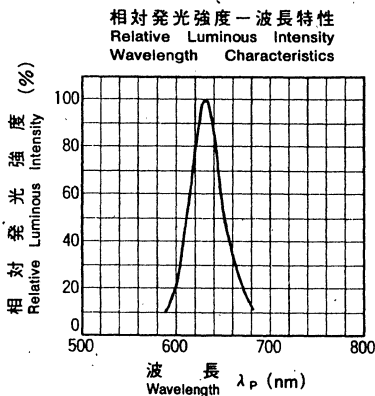
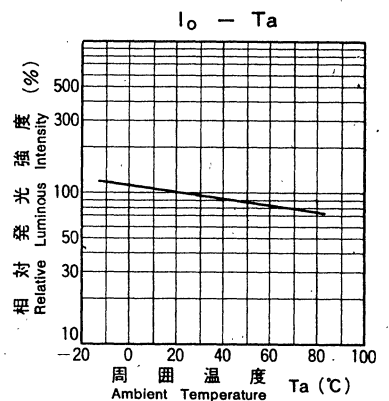
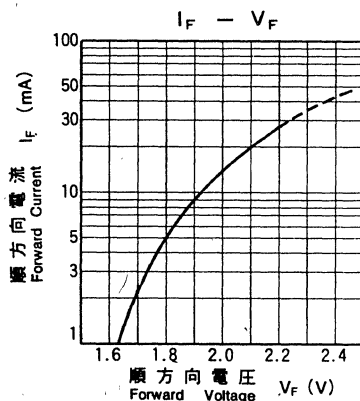
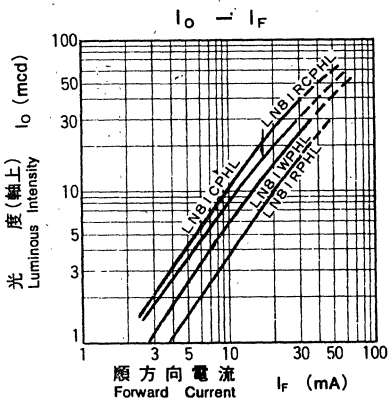
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN81RPHL	Orange	Red Diffused	10.0	5.0	20	2.1	2.8	630	40	20	10	3
LN81RCPHL	Orange	Red Clear	20.0	8.0	20	2.1	2.8	630	40	20	10	3
LN81WPHL	Orange	White Diffused	15.0	6.0	20	2.1	2.8	630	40	20	10	3
LN81CPHL	Orange	Clear	25.0	10.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形

Round Type

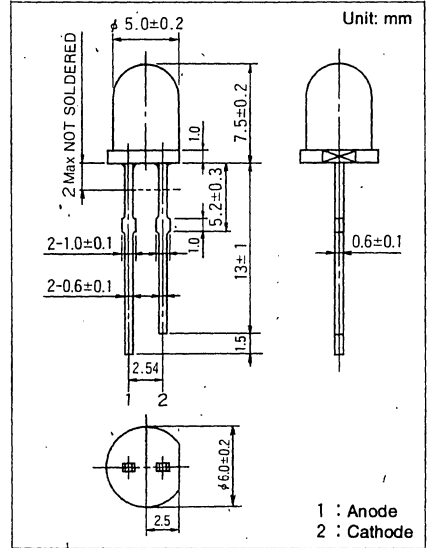
φ 5.0mm Series

Type No.	Lighting Color
LN21RPSL	Red
LN21RCPSL	Red
LN21WPSL	Red
LN21CPSL	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

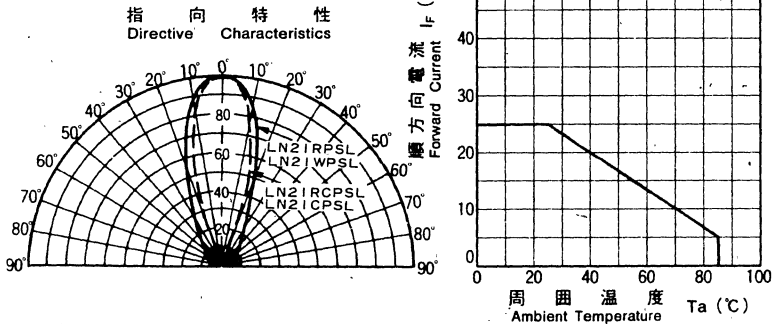
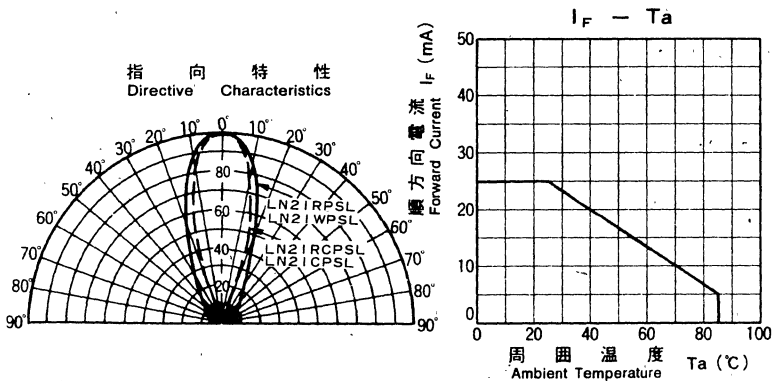
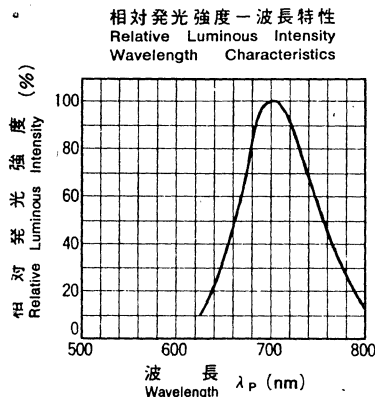
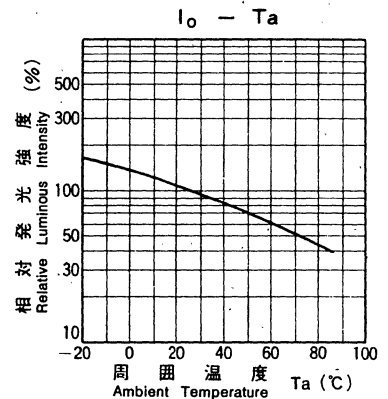
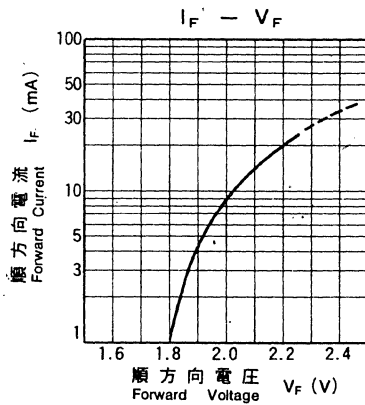
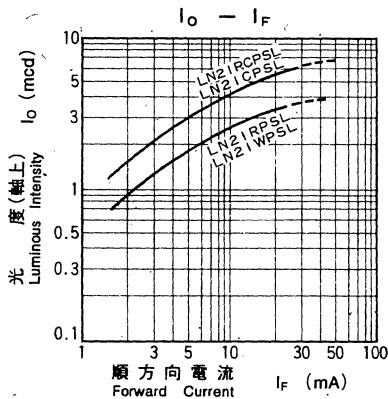
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN21RPSL	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN21RCPSL	Red	Red, Clear	5.0	2.5	15	2.2	2.8	700	100	20	5	4
LN21WPSL	Red	White Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN21CPSL	Red	Clear	5.0	2.0	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



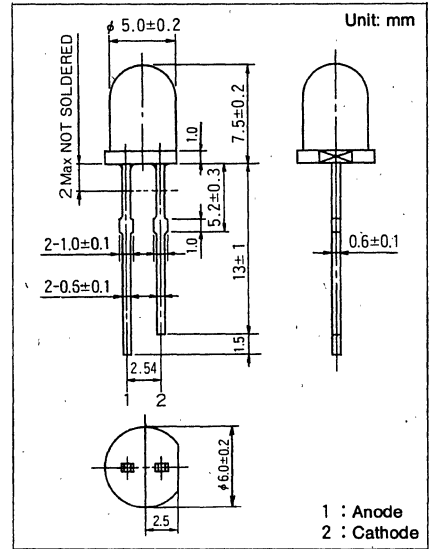
丸

形

Round Type

φ 5.0mm Series

Type No.	Lighting Color
LN31GPSL	Green
LN31GCPSL	Green
LN41YPSL	Amber
LN41YCPSL	Amber



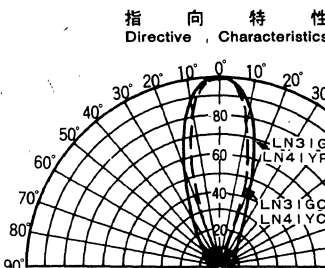
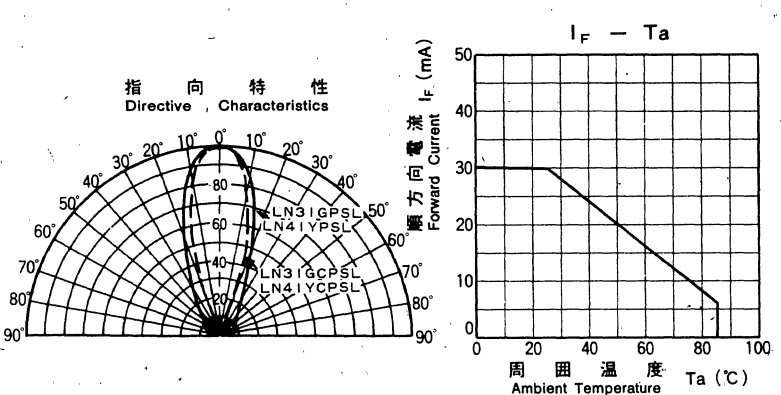
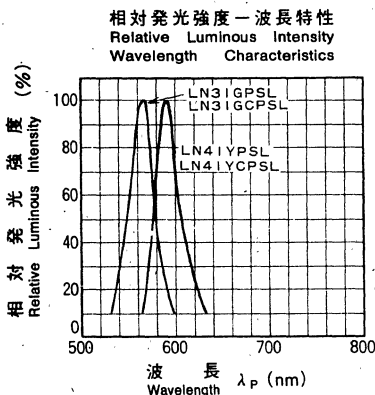
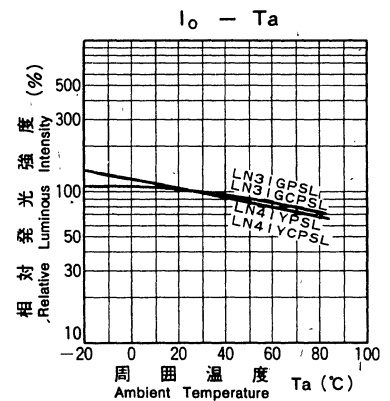
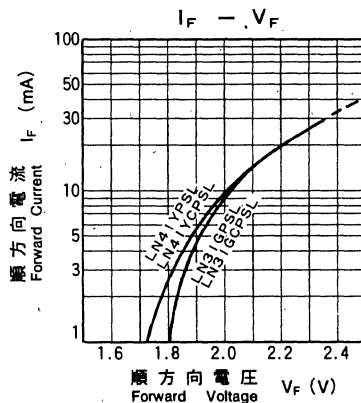
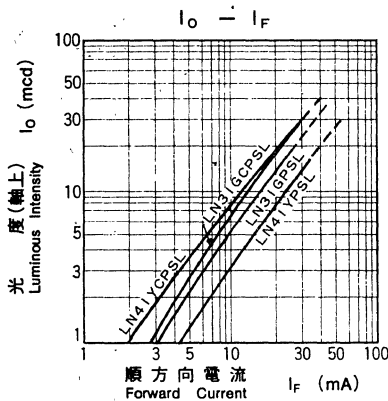
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN31GPSL	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
LN31GCPSL	Green	Green Clear	20.0	7.5	20	2.2	2.8	565	30	20	10	4
LN41YPSL	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
LN41YCPSL	Amber	Amber Clear	20.0	10.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type

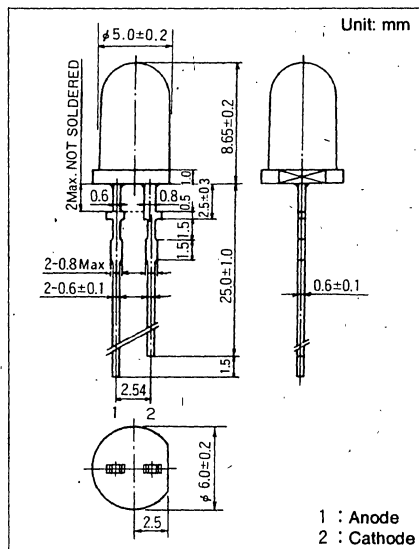
φ 5.0mm Series

Type No.	Lighting Color
LN21RPH	Red
LN21RCPH	Red
LN21WPH	Red
LN21CPH	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

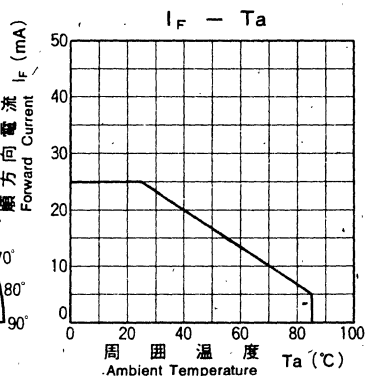
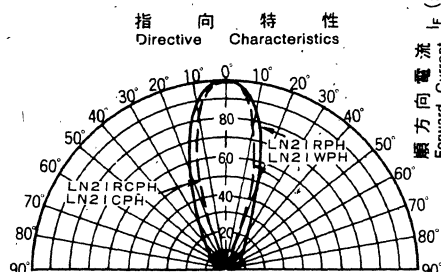
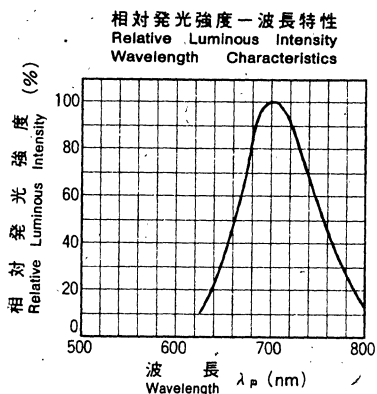
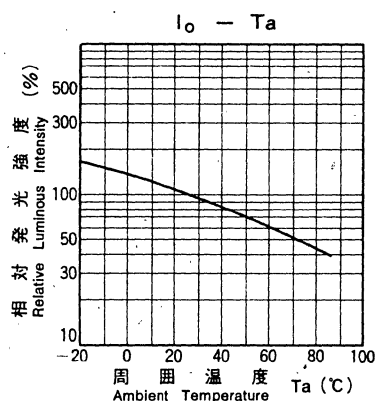
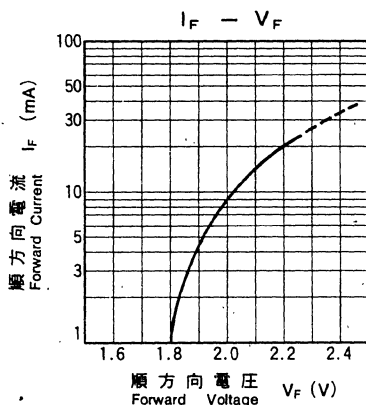
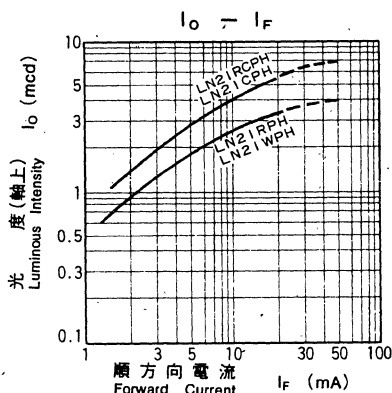
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN21RPH	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN21RCPH	Red	Red Clear	5.0	2.5	15	2.2	2.8	700	100	20	5	4
LN21WPH	Red	White Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN21CPH	Red	Clear	5.0	2.0	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



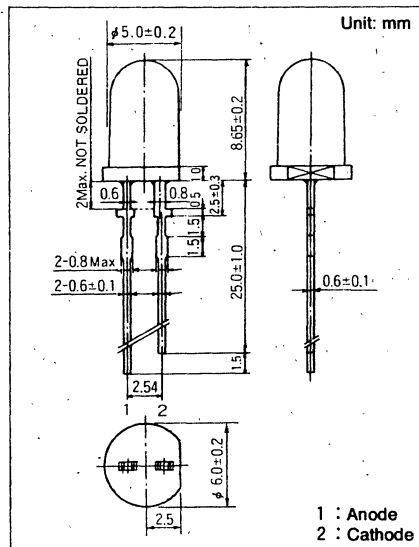
φ 5.0mm Series

Type No.	Lighting Color
LN31GPH	Green
LN31YPH	Green
LN31GCPH	Green
LN31YCPH	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

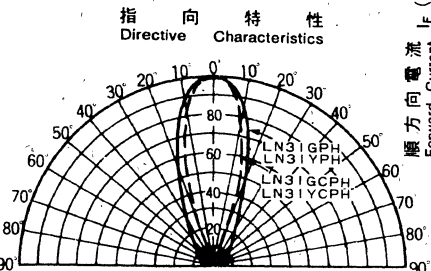
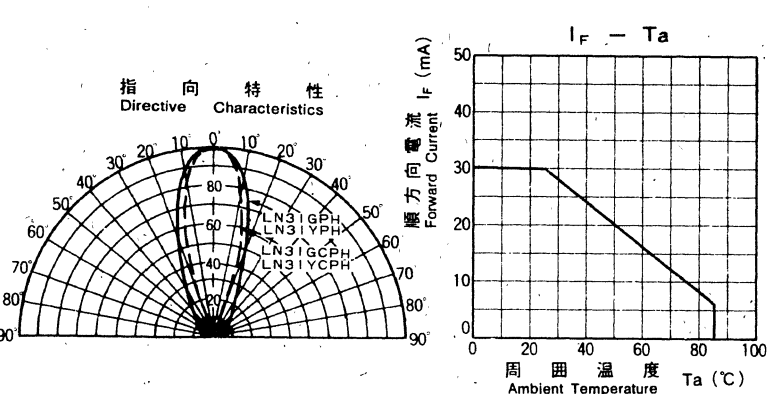
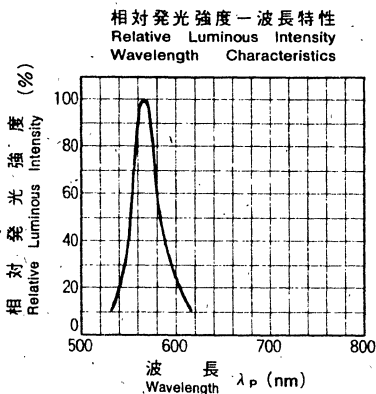
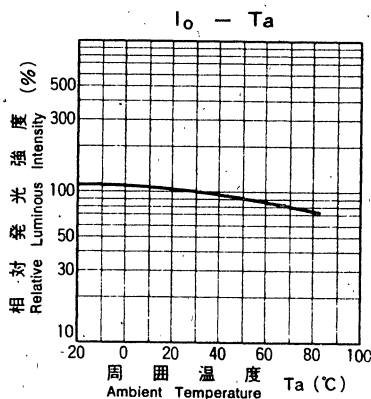
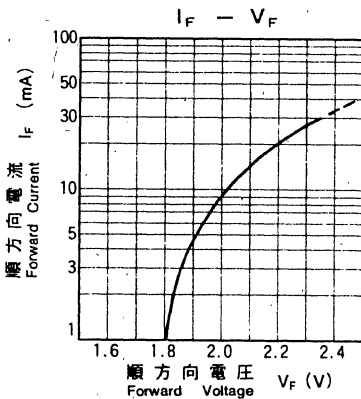
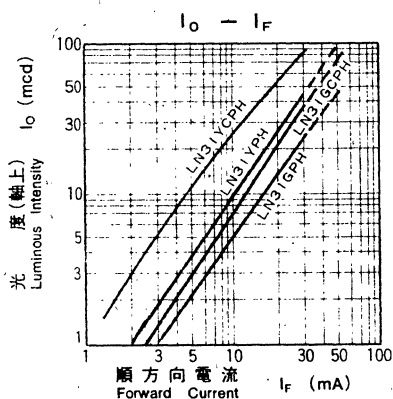
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P		Δλ	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN31GPH	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
LN31YPH	Green	Yellow Diffused	25.0	10.0	20	2.2	2.8	568	30	20	10	4
LN31GCPH	Green	Green Clear	20.0	7.5	20	2.2	2.8	565	30	20	10	4
LN31YCPH	Green	Yellow Clear	56.0	22.0	20	2.2	2.8	563	30	20	10	4
Unit			mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形

Round Type

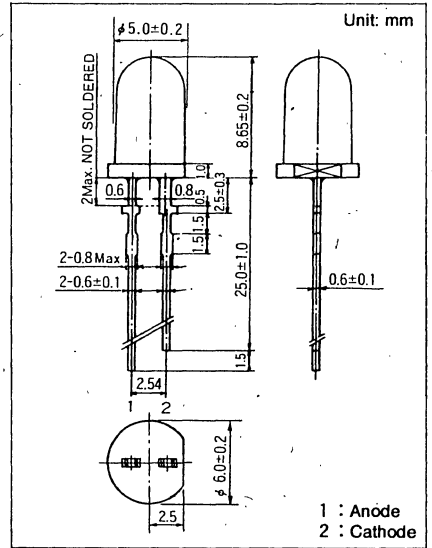
φ 5.0mm Series

Type No.	Lighting Color
LN41YPH	Amber
LN41YCPH	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

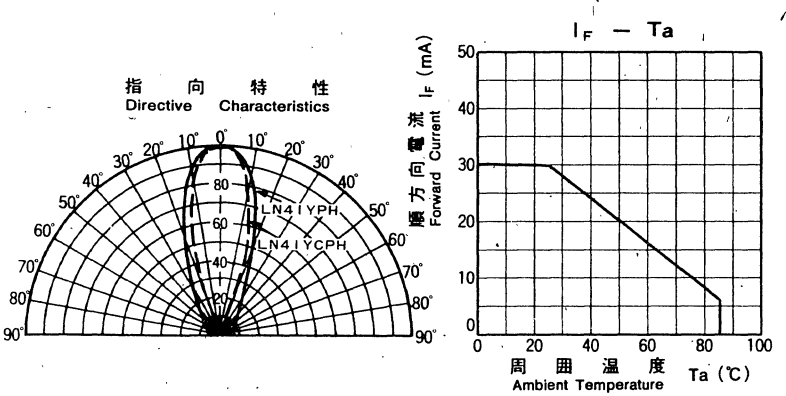
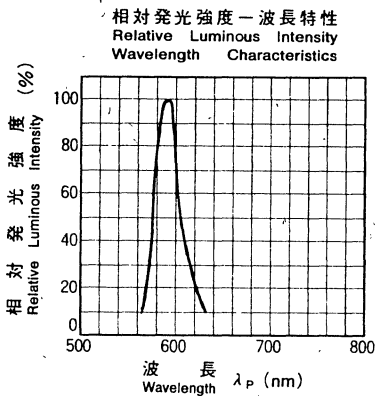
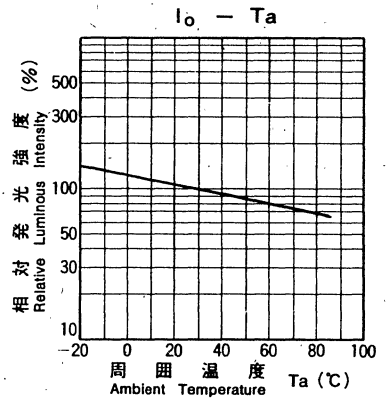
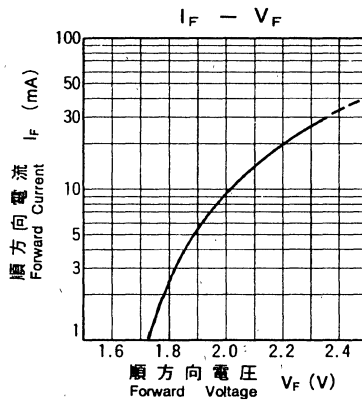
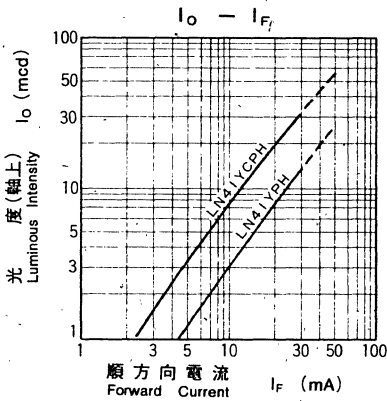
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.					
LN41YPH	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
LN41YCPH	Amber	Amber Clear	20.0	10.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



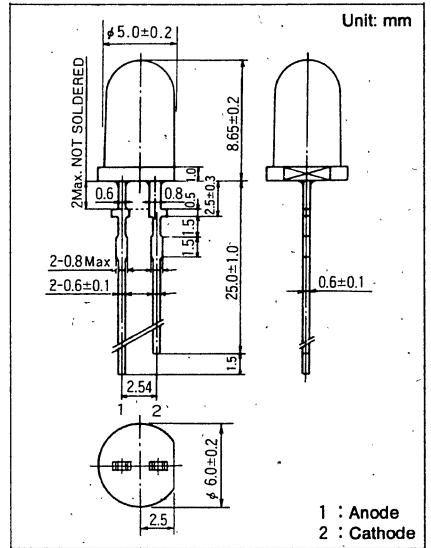
φ 5.0mm Series

Type No.	Lighting Color
LN81RPH	Orange
LN81RCPH	Orange
LN81WPH	Orange
LN81CPH	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Orange	90	30	150	3	-25~+85	-30~+100

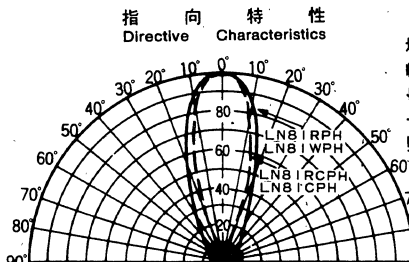
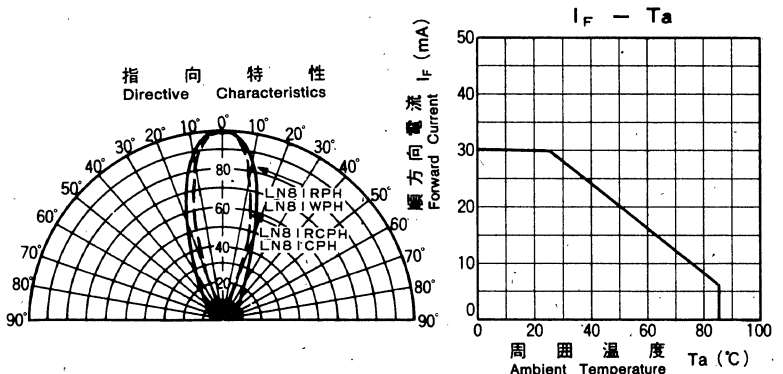
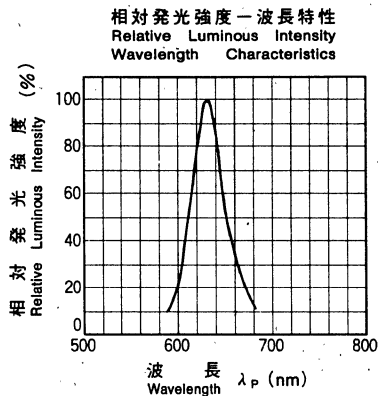
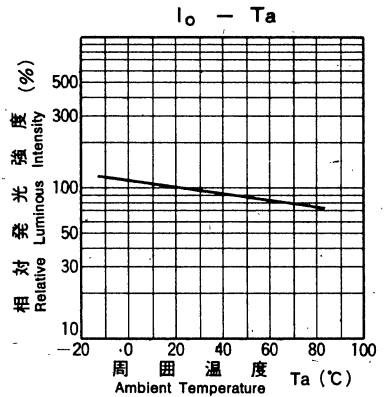
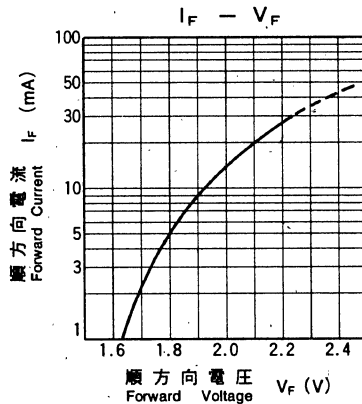
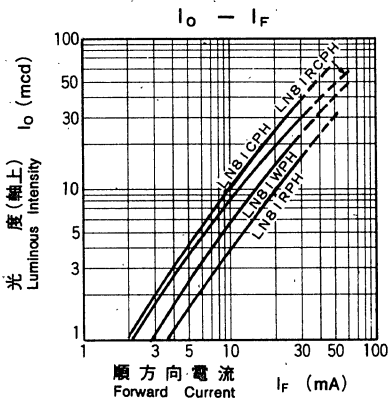
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN81RPH	Orange	Red Diffused	10.0	5.0	20	2.1	2.8	630	40	20	10	3
LN81RCPH	Orange	Red Clear	20.0	8.0	20	2.1	2.8	630	40	20	10	3
LN81WPH	Orange	White Diffused	15.0	6.0	20	2.1	2.8	630	40	20	10	3
LN81CPH	Orange	Clear	25.0	10.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



φ 5.0mm Series

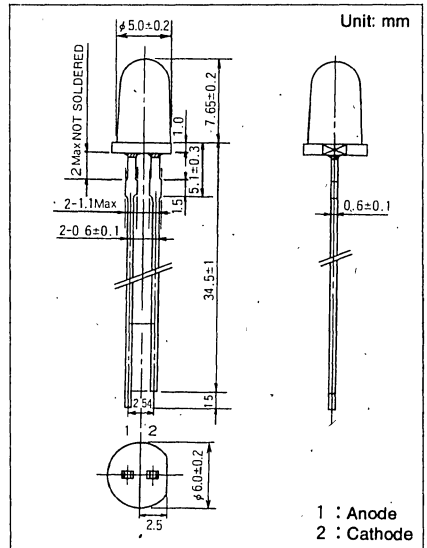
Type No. Lighting Color

- LN21RPLRed
- LN31GPLGreen
- LN41YPLAmber
- LN81RPLOrange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

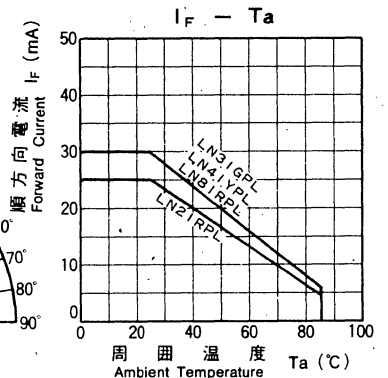
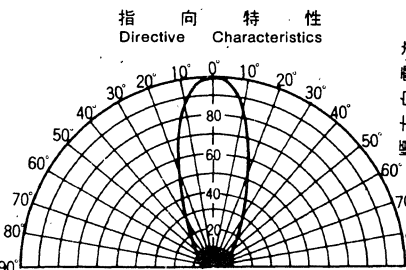
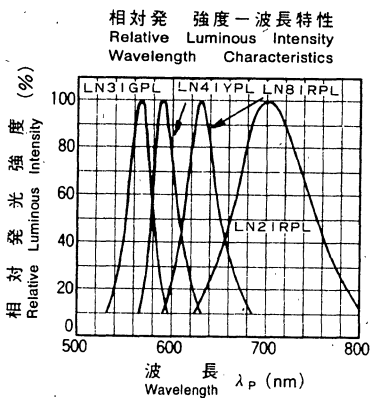
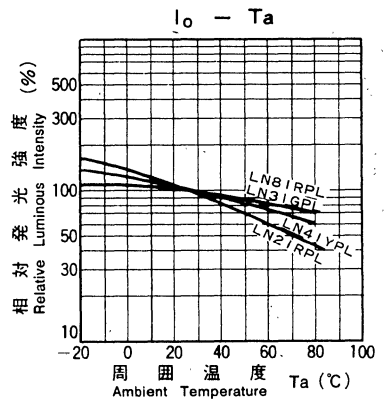
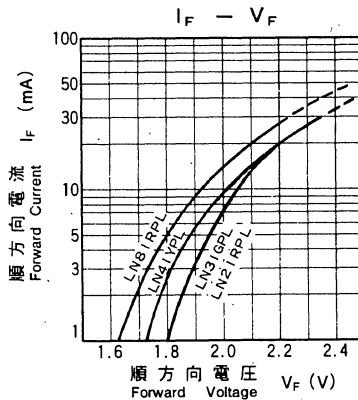
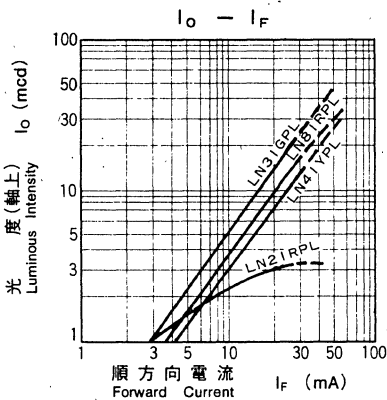
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN21RPL	Red	Red Diffused	2.5	1.0	15	2.2	2.8	700	100	20	5	4
LN31GPL	Green	Green Diffused	15.0	5.0	20	2.2	2.8	565	30	20	10	4
LN41YPL	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
LN81RPL	Orange	Red Diffused	10.0	4.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



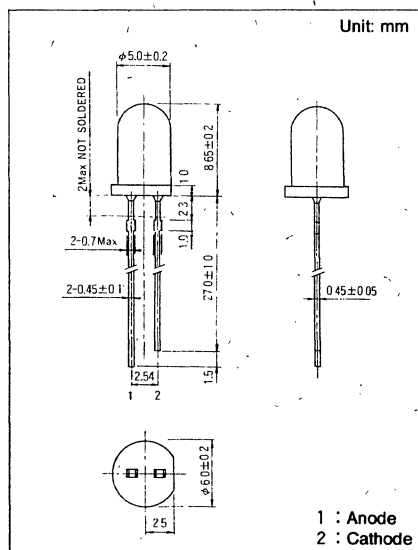
φ 5.0mm Series

Type No.	Lighting Color
LN21RPX	Red
LN31GPX	Green
LN41YPX	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

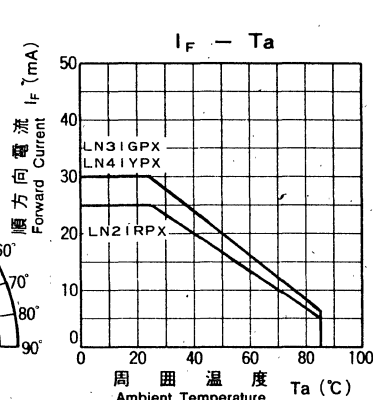
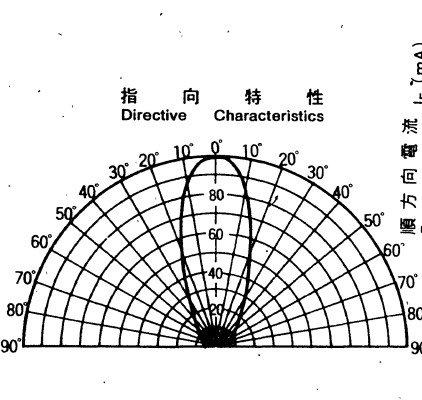
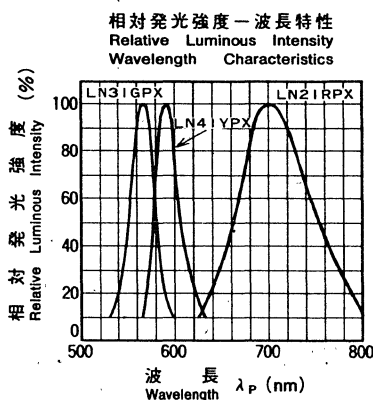
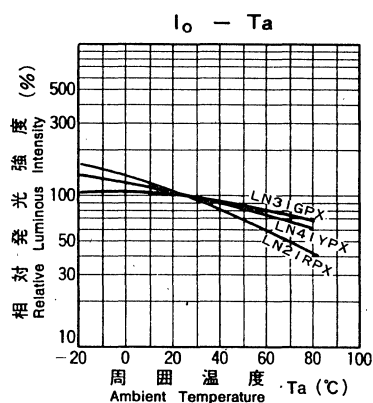
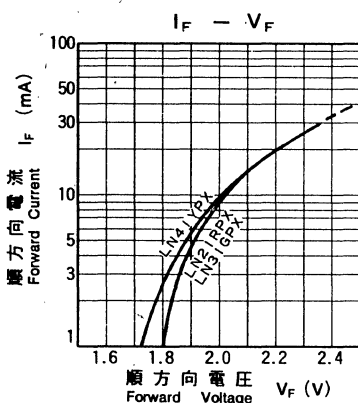
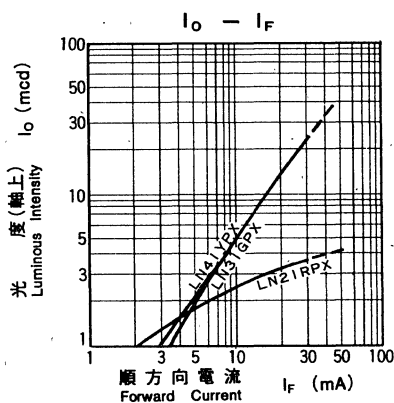
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN21RPX	Red	Red Diffused	3.0	1.5	15	2.2	2.8	700	100	20	5	4
LN31GPX	Green	Green Diffused	15.0	6.0	20	2.2	2.8	565	30	20	10	4
LN41YPX	Amber	Amber Diffused	15.0	6.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



φ 5.0mm Series

Type No. Lighting Color

LN21RPSLX Red

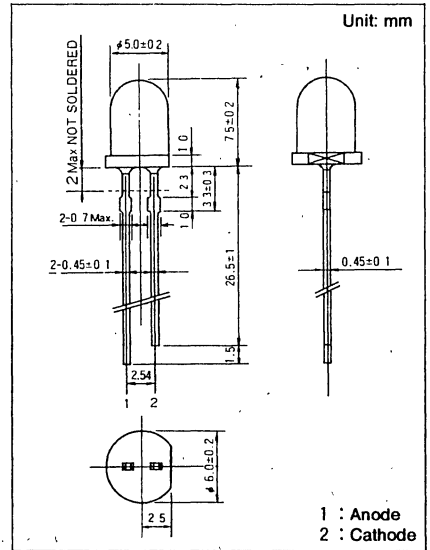
LN31GPSLX Green

LN41YPSLX Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{OPR} (°C)	T _{STG} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

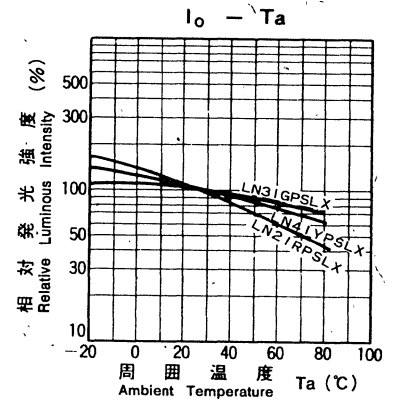
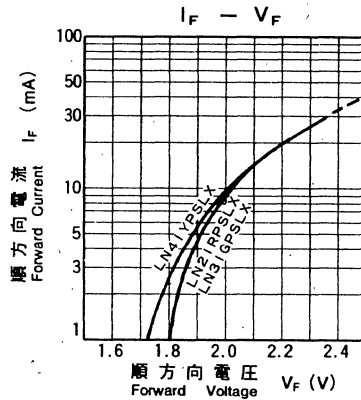
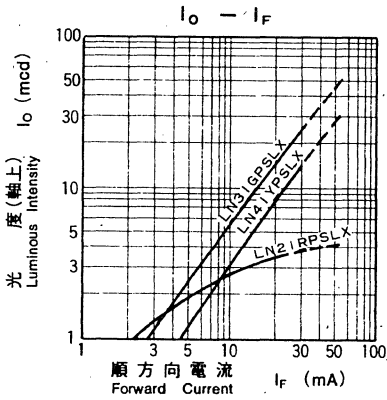
*I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



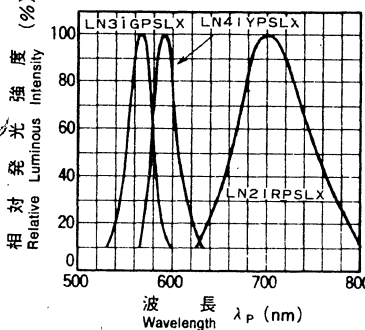
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.	I _F	Max.	V _R
LN21RPSLX	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN31GPSLX	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
LN41YPSLX	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

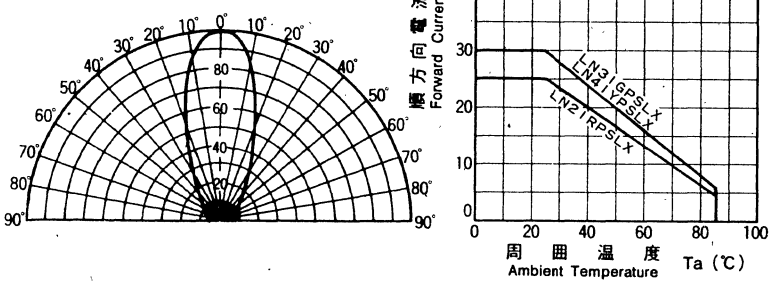
△印は暫定規格を示す。△ Tentative Specification



相対発光強度 - 波長特性
Relative Luminous Intensity
Wavelength Characteristics



指向特性
Directive Characteristics



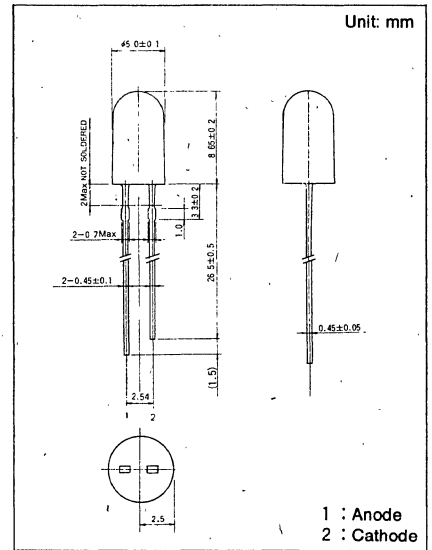
φ 5.0mm Series

Type No. Lighting Color
 LN21RPXN Red
 LN31GPXN Green
 LN41YPXN Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

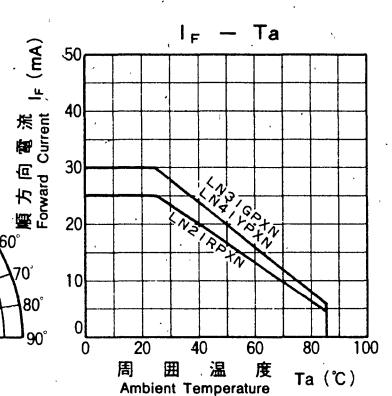
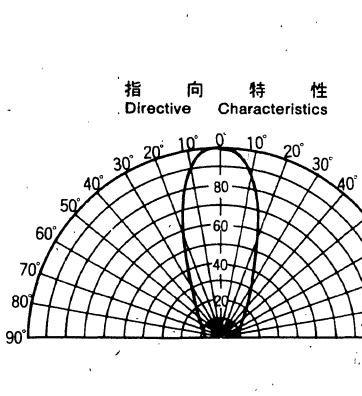
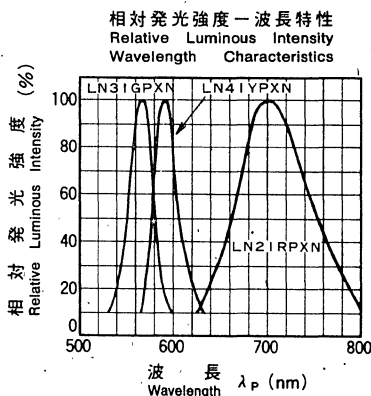
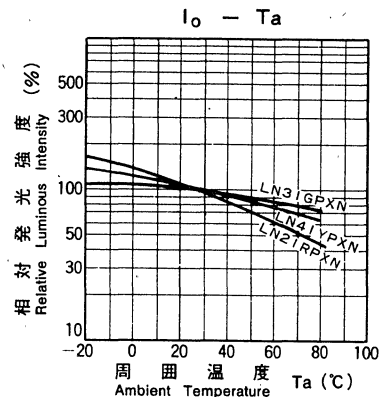
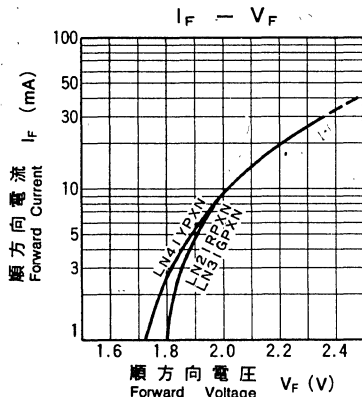
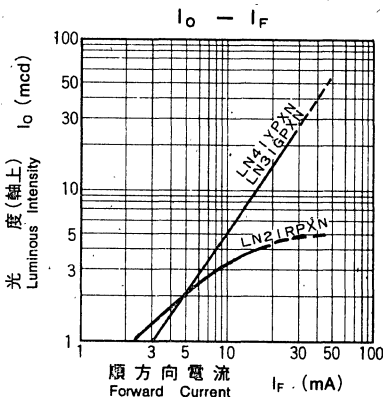
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN21RPXN	Red	Red Diffused	4.0	1.5	15	2.2	2.8	700	100	20	5	4
LN31GPXN	Green	Green Diffused	15.0	6.0	20	2.2	2.8	565	30	20	10	4
LN41YPXN	Amber	Amber Diffused	15.0	6.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



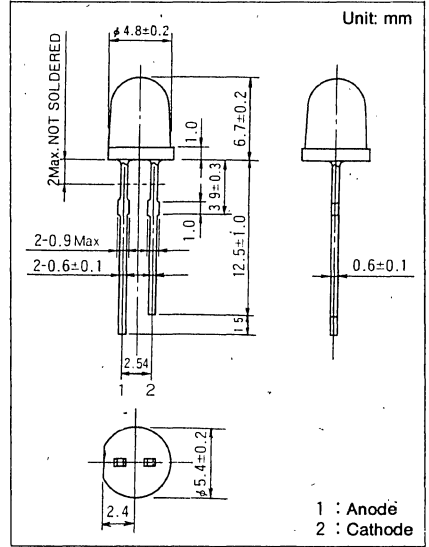
φ 4.8mm Series

Type No. Lighting Color
 LN21RCPSS.....Red
 LN31GCPSS.....Green
 LN41YCPSS.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

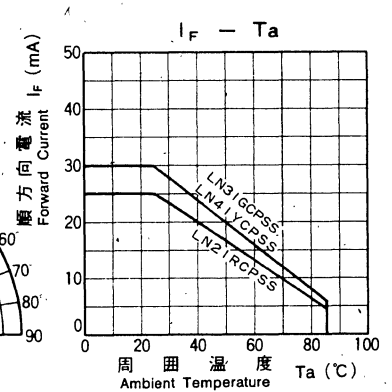
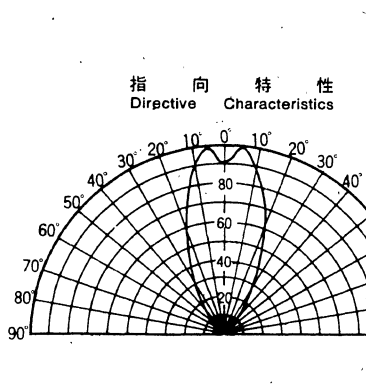
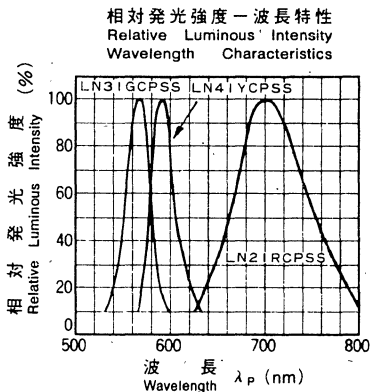
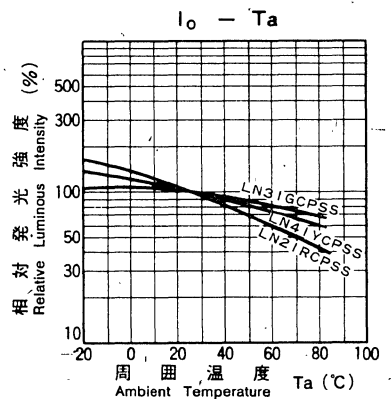
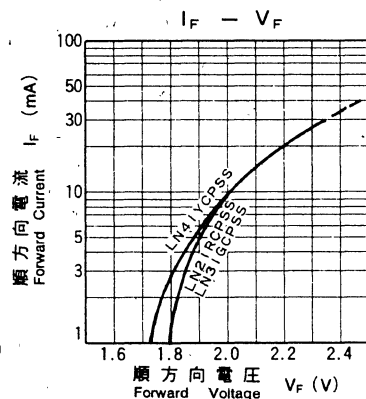
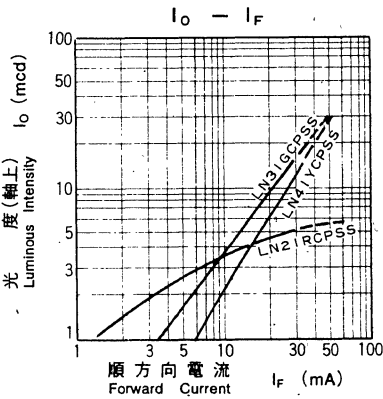
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



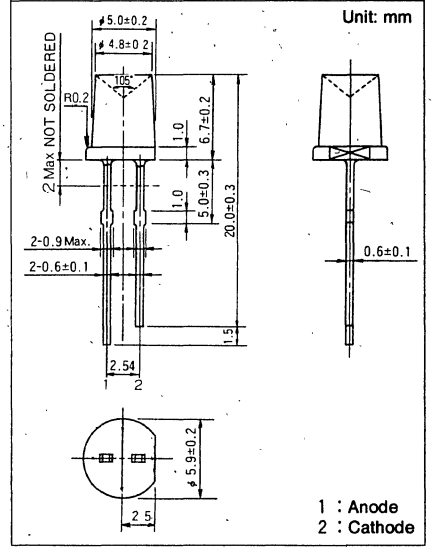
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _r		
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.	I _F	Max.	V _R
LN21RCPSS	Red	Red Clear	4.0	1.5	15	2.2	2.8	700	100	20	5	4
LN31GCPSS	Green	Green Clear	10.0	4.0	20	2.2	2.8	565	30	20	10	4
LN41YCPSS	Amber	Amber Clear	6.0	2.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



φ 4.8mm Series

Type No.	Lighting Color
LN264CP	Red
LN364GCP	Green
LN464YCP	Amber
LN864RCP	Orange



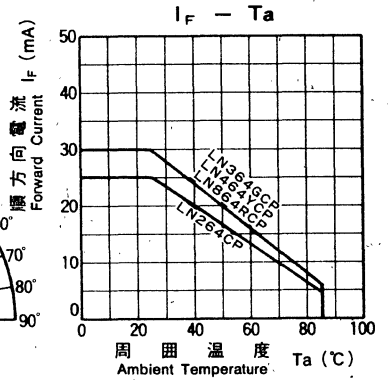
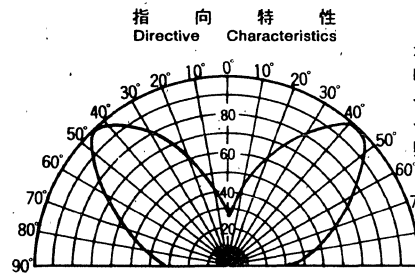
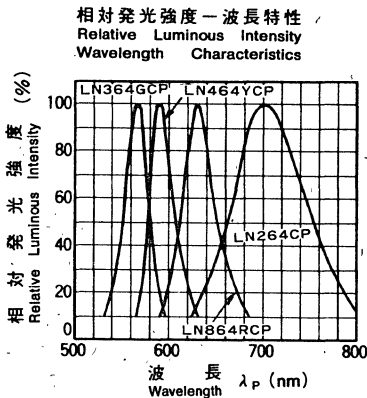
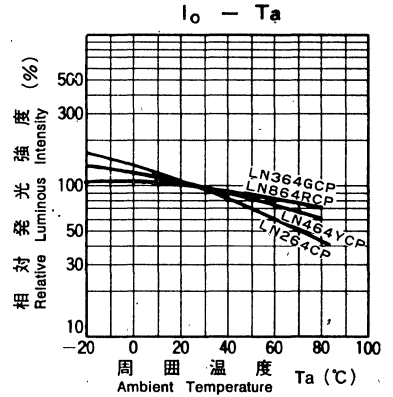
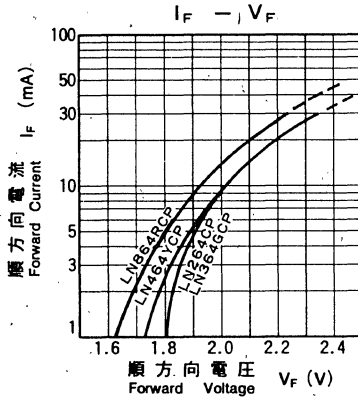
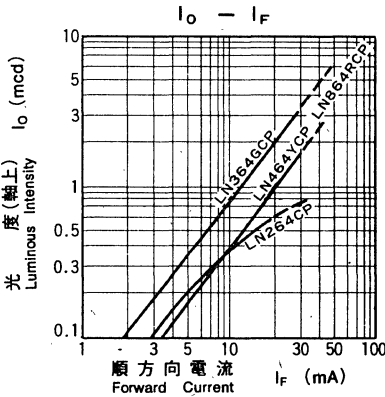
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN264CP	Red	Clear	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN364GCP	Green	Green Clear	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN464YCP	Amber	Amber Clear	1.0	0.4	20	2.2	2.8	590	30	20	10	4
LN864RCP	Orange	Red Clear	1.0	0.4	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



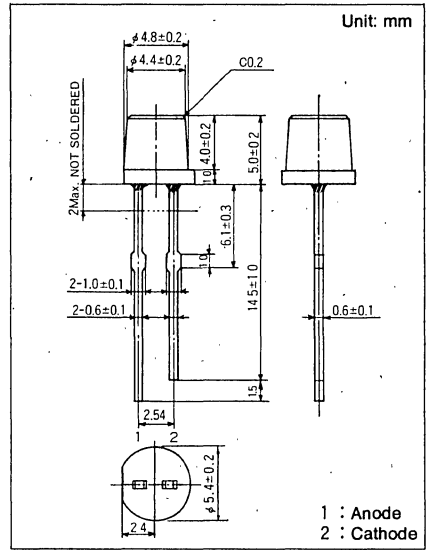
φ 4.4mm Series

Type No.	Lighting Color
LN240RCP	Red
LN240CP	Red
LN340GCP	Green
LN340CP	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{op} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100

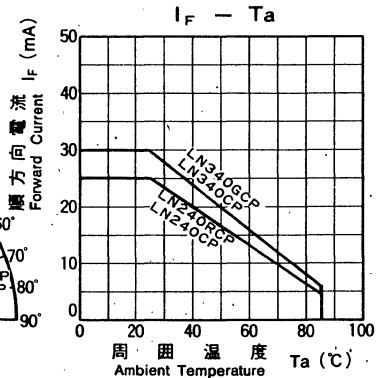
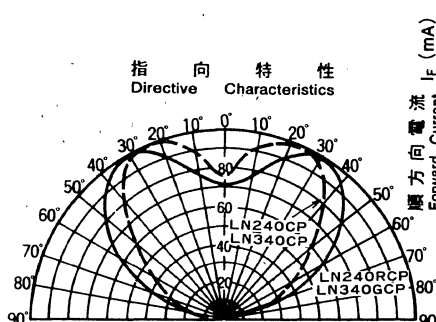
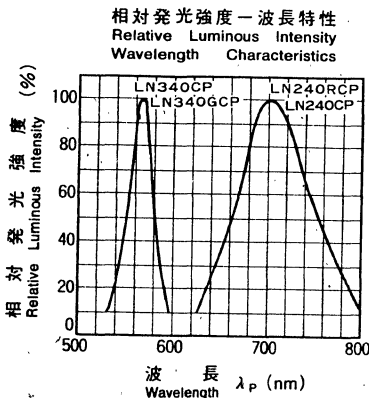
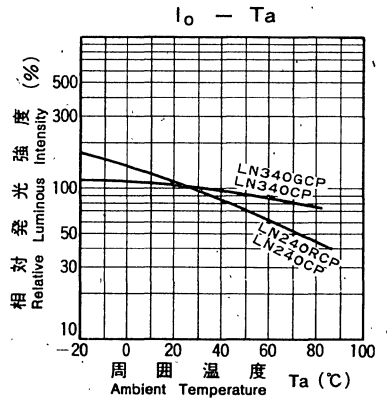
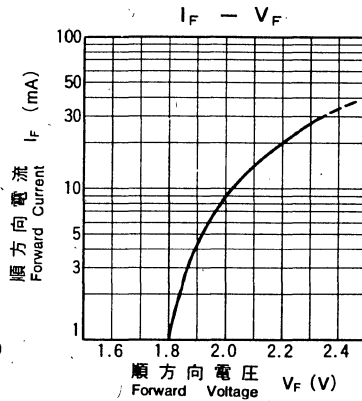
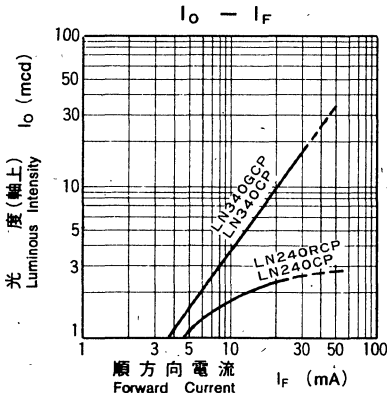
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.					
LN240RCP	Red	Red Clear	2.0	0.8	15	2.2	2.8	700	100	20	5	4
LN240CP	Red	Clear	2.0	0.8	15	2.2	2.8	700	100	20	5	4
LN340GCP	Green	Green Clear	10.0	5.0	20	2.2	2.8	565	30	20	10	4
LN340CP	Green	Clear	10.0	5.0	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



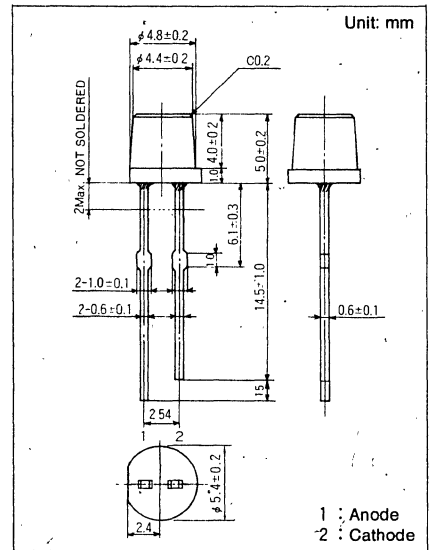
φ 4.4mm Series

Type No.	Lighting Color
LN440YCP	Amber
LN440CP	Amber
LN840RCP	Orange
LN840CP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

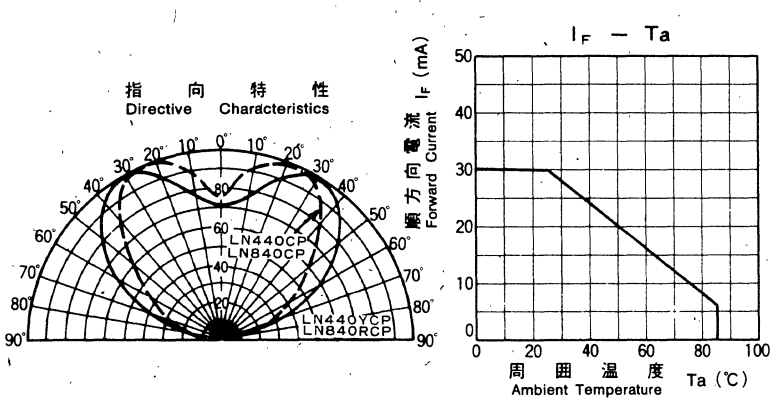
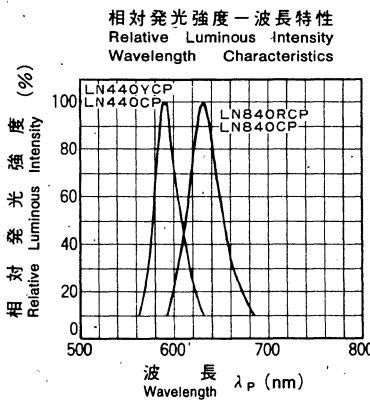
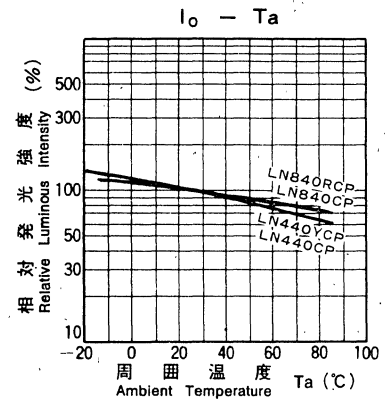
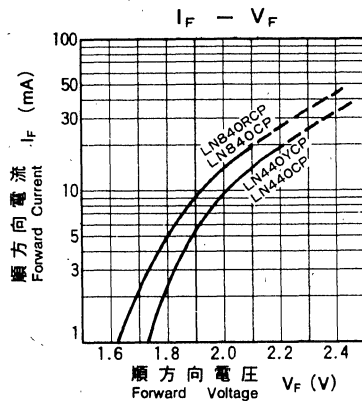
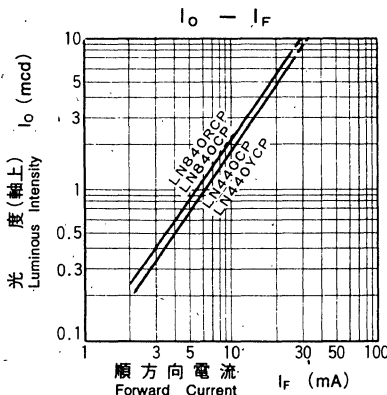
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は; duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN440YCP	Amber	Amber Clear	5.0	2.0	20	2.2	2.8	590	30	20	10	4
LN440CP	Amber	Clear	5.0	2.0	20	2.2	2.8	590	30	20	10	4
LN840RCP	Orange	Red Clear	6.0	2.5	20	2.1	2.8	630	40	20	10	3
LN840CP	Orange	Clear	6.0	2.5	20	2.1	2.8	630	40	20	10	3
Unit			mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形

Round Type

φ 4.4mm Series

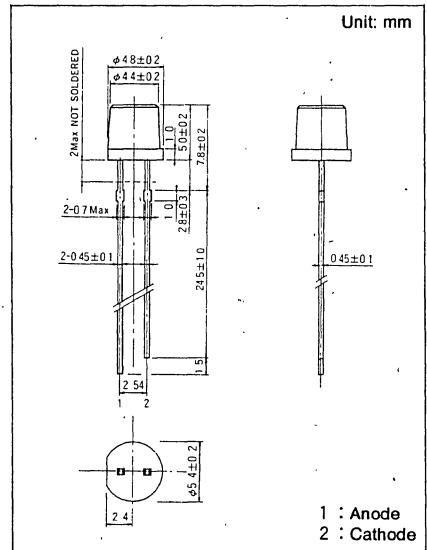
Type No. Lighting Color

- LN240RPXRed
- LN340GPXGreen
- LN440YPXAmber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

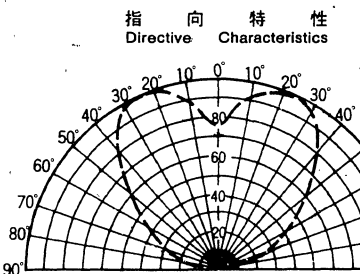
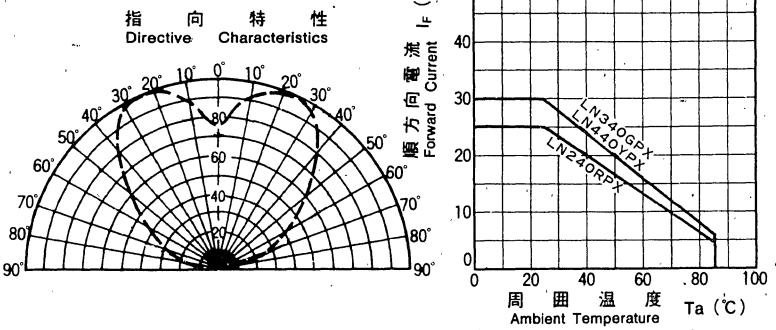
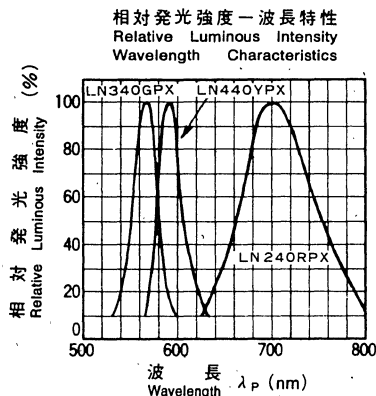
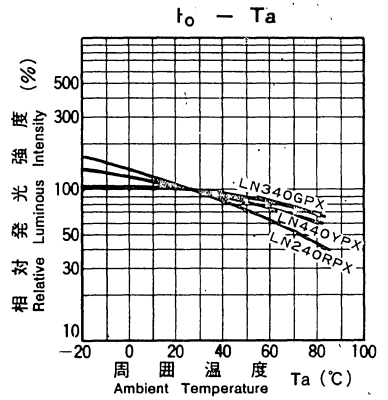
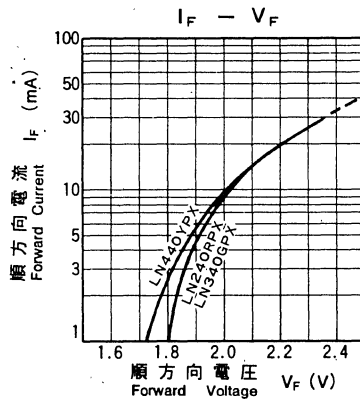
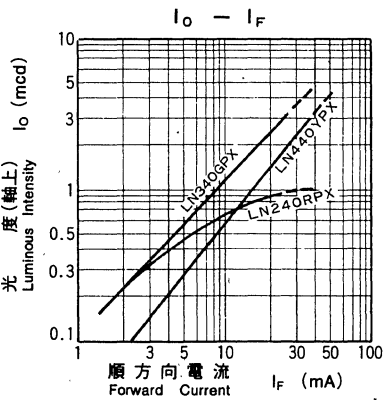
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN240RPX	Red	Red Diffused	0.8	0.30	15	2.2	2.8	700	100	20	5	4
LN340GPX	Green	Green Diffused	2.5	0.95	20	2.2	2.8	565	30	20	10	4
LN440YPX	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



丸

形

Round Type

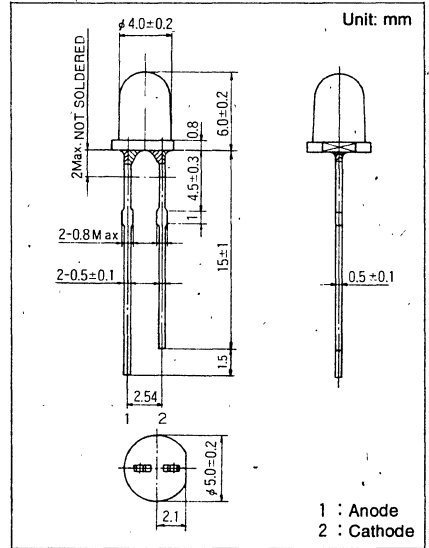
φ 4.0mm Series

Type No.	Lighting Color
LN29RP	Red
LN29RCP	Red
LN29WP	Red
LN29CP	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

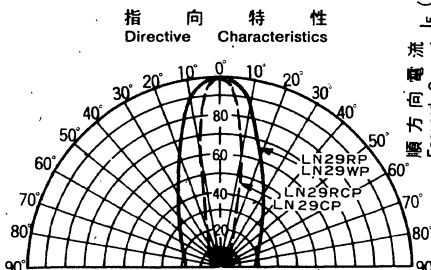
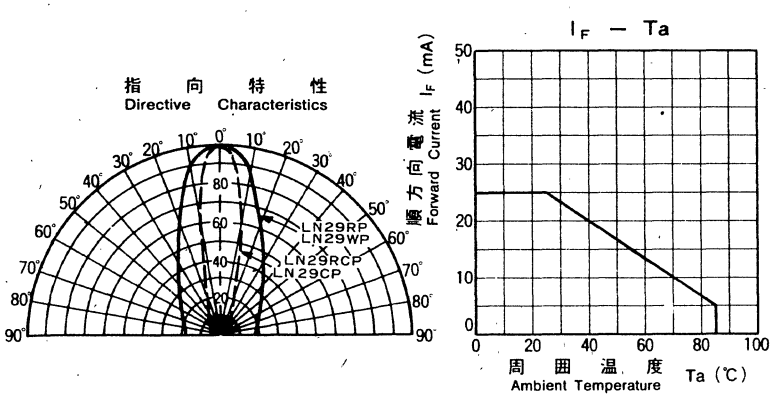
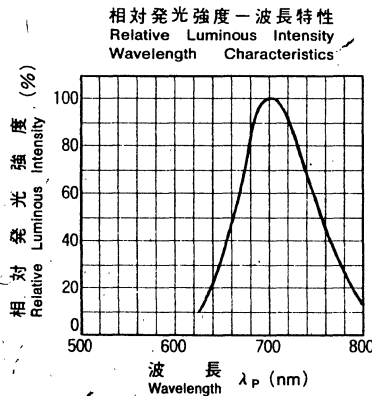
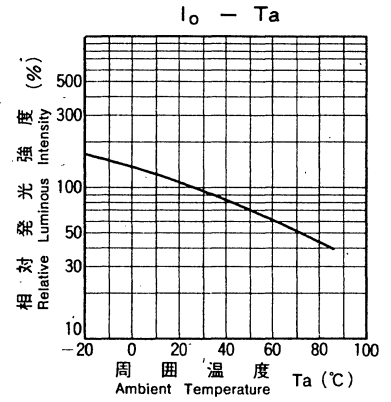
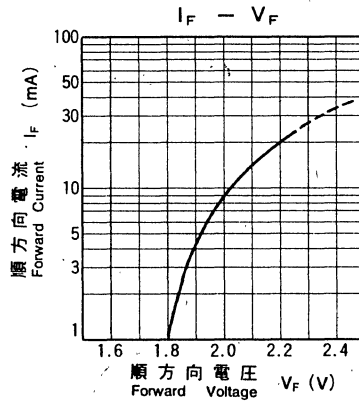
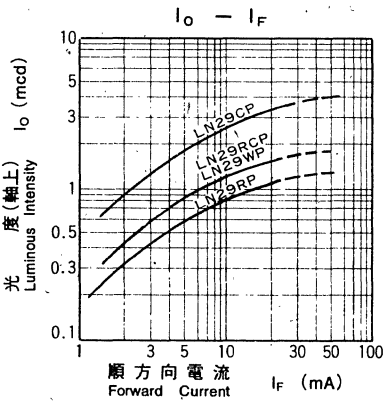
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN29RP	Red	Red Diffused	1.0	0.3	15	2.2	2.8	700	100	20	5	4
LN29RCP	Red	Red Clear	1.5	0.8	15	2.2	2.8	700	100	20	5	4
LN29WP	Red	White Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN29CP	Red	Clear	3.0	0.8	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

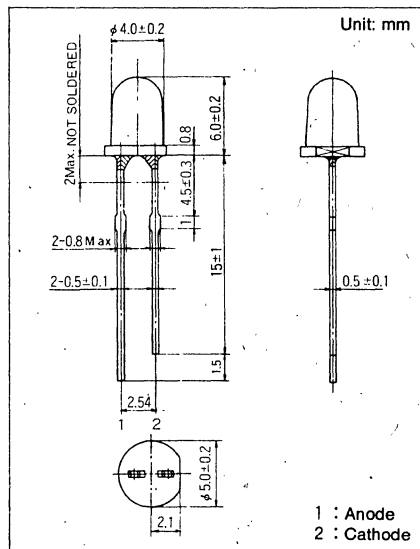


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Round Type

φ 4.0mm Series

Type No.	Lighting Color
LN49YP	Amber
LN49YCP	Amber
LN49WP	Amber
LN49CP	Amber



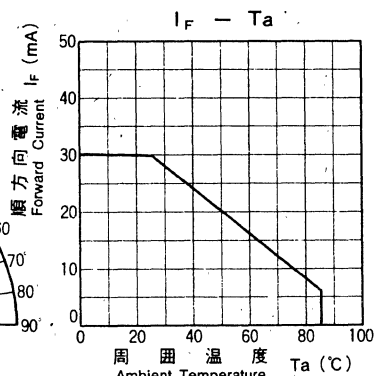
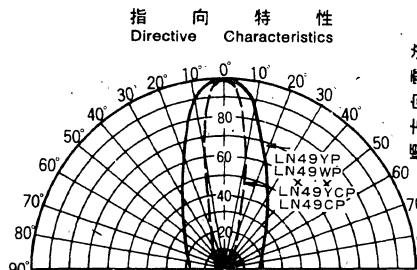
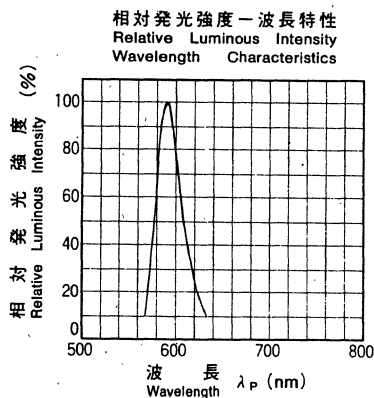
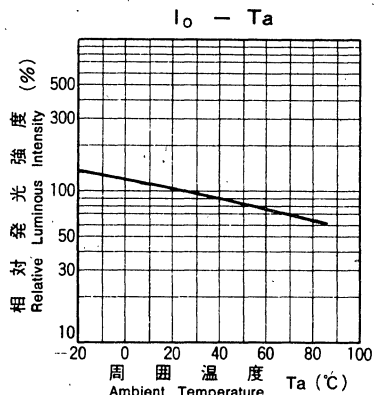
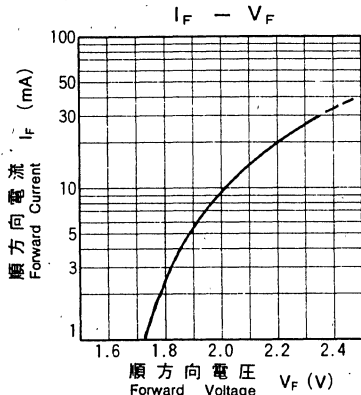
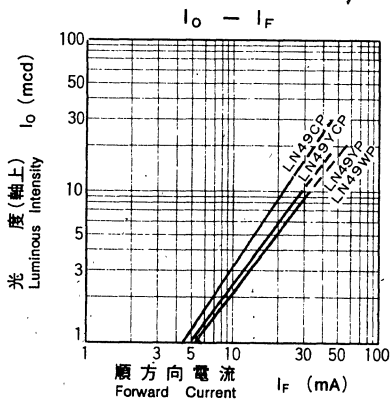
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN49YP	Amber	Amber Diffused	5.0	1.5	20	2.2	2.8	590	30	20	10	4
LN49YCP	Amber	Amber Clear	6.0	2.0	20	2.2	2.8	590	30	20	10	4
LN49WP	Amber	White Diffused	5.0	1.5	20	2.2	2.8	590	30	20	10	4
LN49CP	Amber	Clear	9.0	3.5	20	2.2	2.8	590	30	20	10	4
Unit			mcd	mcd	mA	V	V	nm	nm	mA	μA	V



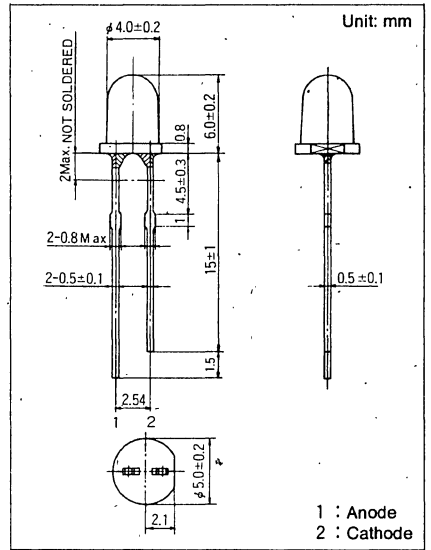
φ 4.0mm Series

Type No.	Lighting Color
LN29RPP	Red
LN29RCPP	Red
LN29WPP	Red
LN29CPP	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

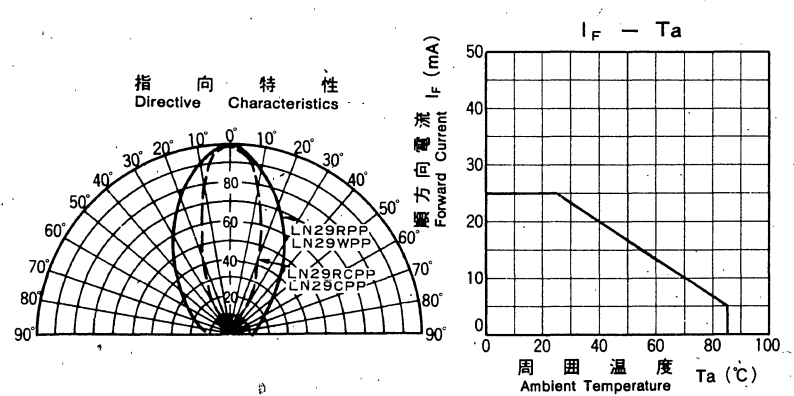
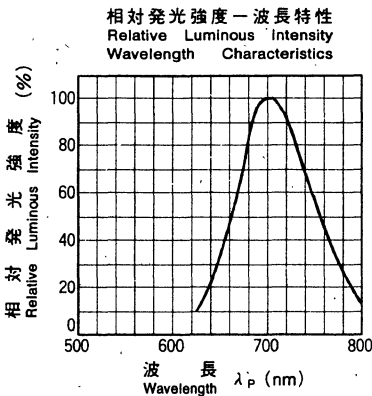
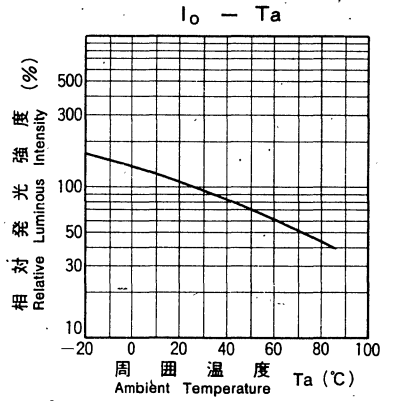
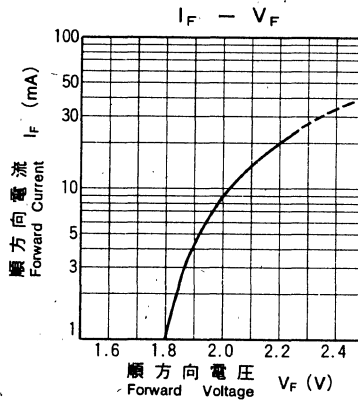
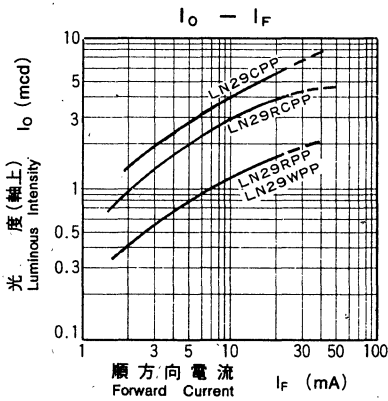
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _{FR}	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN29RPP	Red	Red Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN29RCPP	Red	Red Clear	3.5	1.5	15	2.2	2.8	700	100	20	5	4
LN29WPP	Red	White Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN29CPP	Red	Clear	5.0	1.9	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



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Round Type

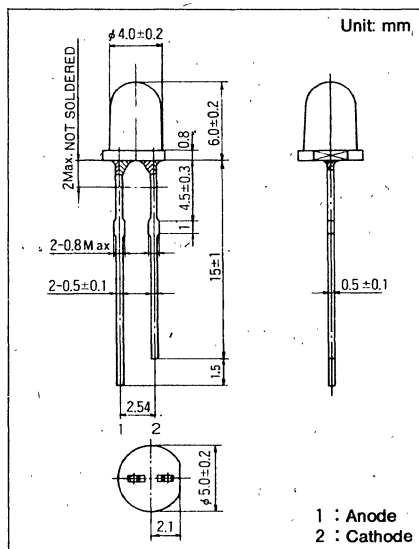
φ 4.0mm Series

Type No.	Lighting Color
LN39GPP	Green
LN39GCPP	Green
LN39CPP	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100

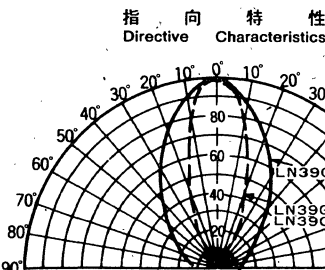
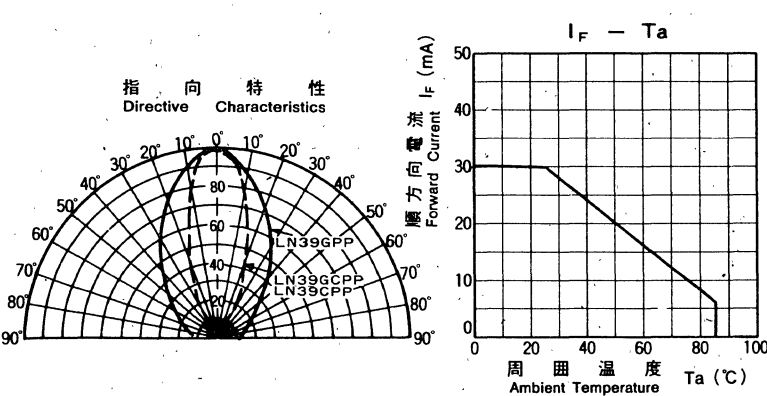
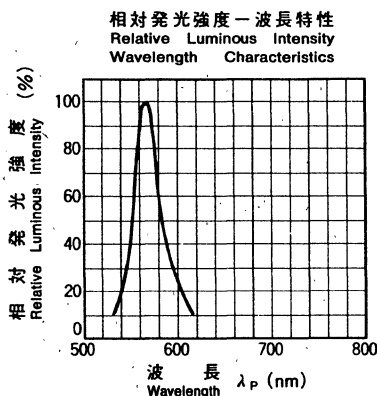
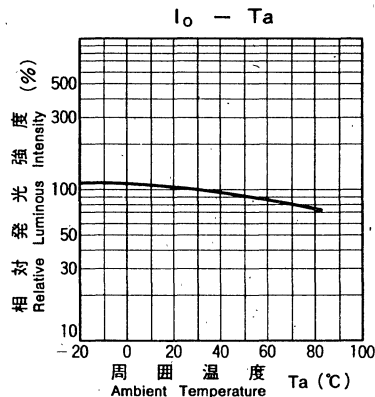
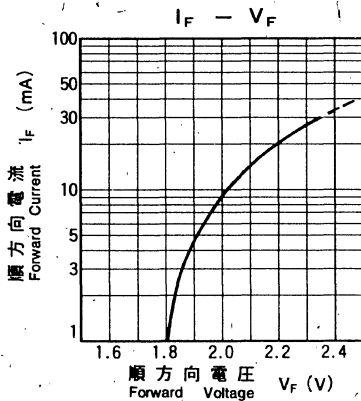
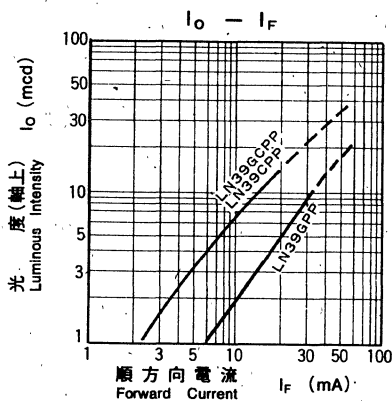
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec.



1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN39GPP	Green	Green Diffused	5.0	2.0	20	2.2	2.8	565	30	20	10	4
LN39GCPP	Green	Green Clear	15.0	6.0	20	2.2	2.8	565	30	20	10	4
LN39CPP	Green	Clear	15.0	6.0	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



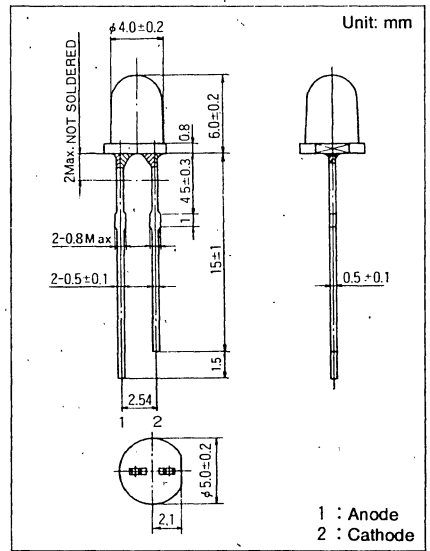
φ 4.0mm Series

Type No.	Lighting Color
LN49YPP	Amber
LN49YCPP	Amber
LN89RPP	Orange
LN89RCPP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

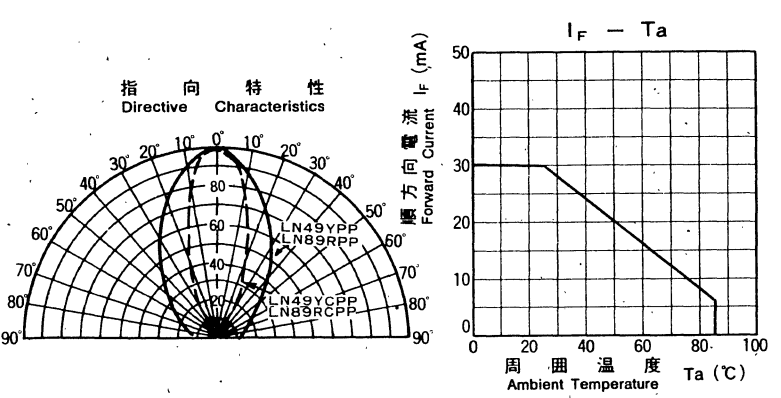
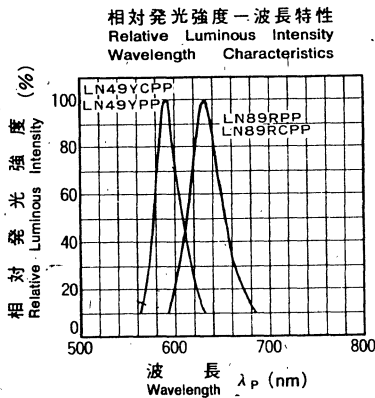
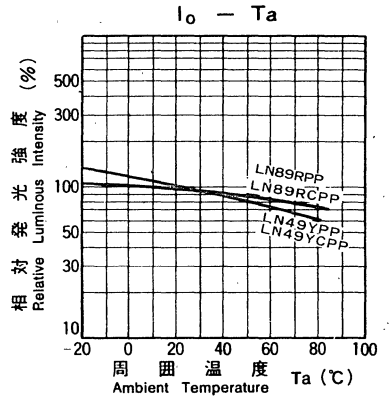
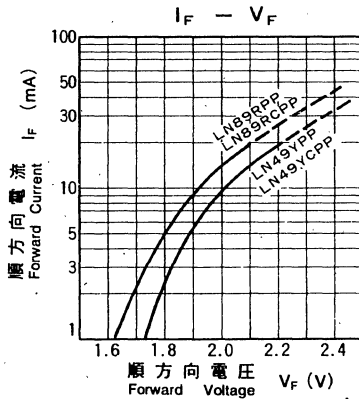
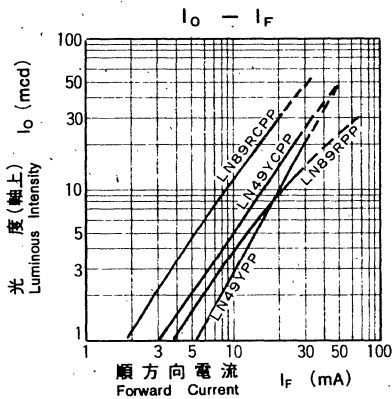
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN49YPP	Amber	Amber Diffused	10.0	3.5	20	2.2	2.8	590	30	20	10	4
LN49YCPP	Amber	Amber Clear	15.0	6.0	20	2.2	2.8	590	30	20	10	4
LN89RPP	Orange	Red Diffused	10.0	3.5	20	2.1	2.8	630	40	20	10	3
LN89RCPP	Orange	Red Clear	30.0	10.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



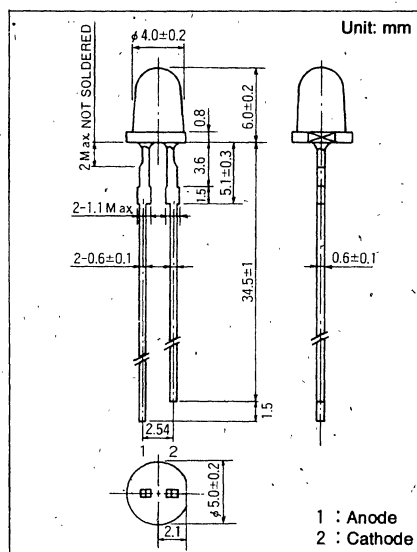
φ 4.0mm Series

Type No. Lighting Color
 LN29RPL Red
 LN39GPL Green
 LN49YPL Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

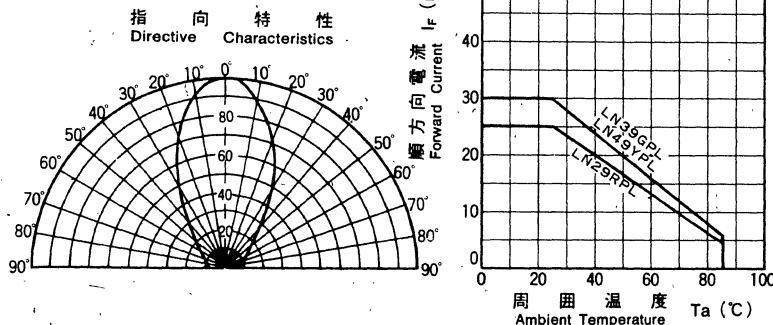
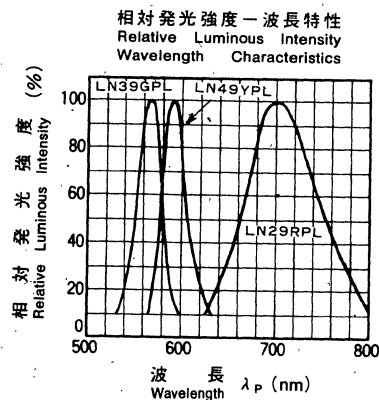
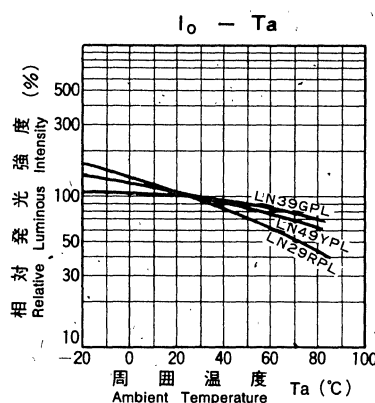
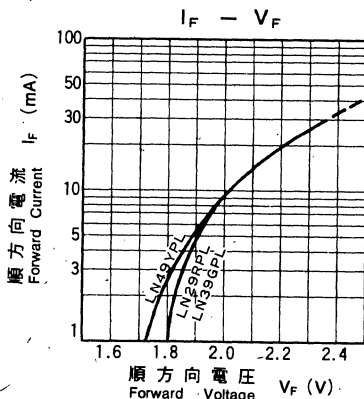
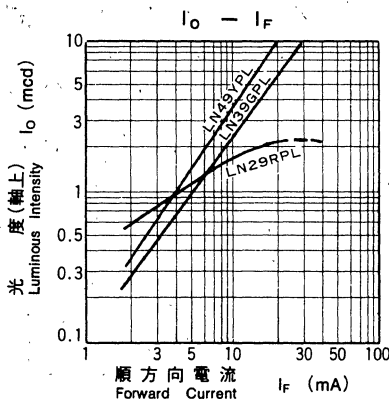
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN29RPL	Red	Red Diffused	2.0	0.8	15	2.2	2.8	700	100	20	5	4
LN39GPL	Green	Green Diffused	6.0	2.0	20	2.2	2.8	565	30	20	10	4
LN49YPL	Amber	Amber Diffused	10.0	3.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



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Round Type

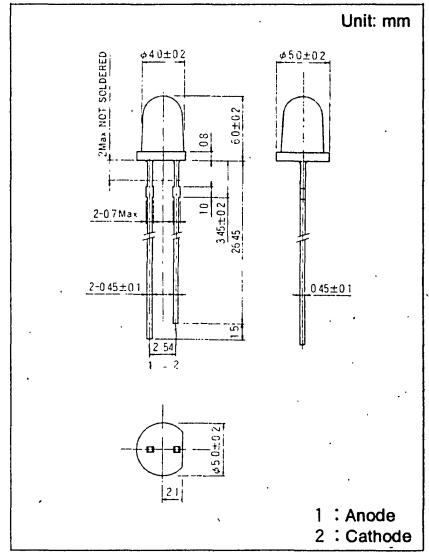
φ 4.0mm Series

Type No.	Lighting Color
LN29RPX	Red
LN39GPX	Green
LN49YPX	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

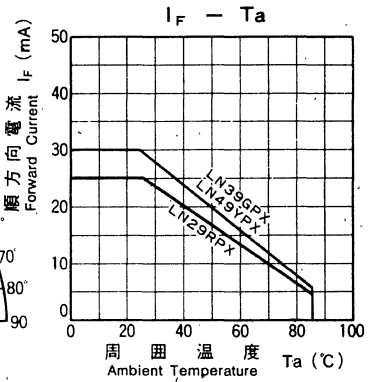
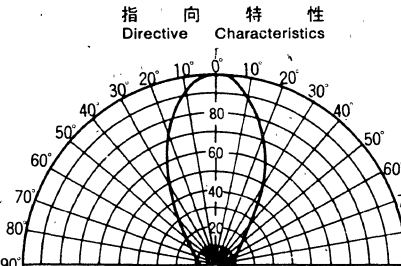
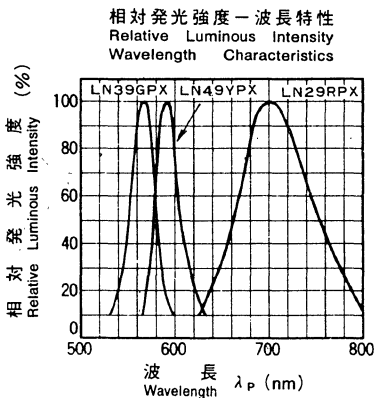
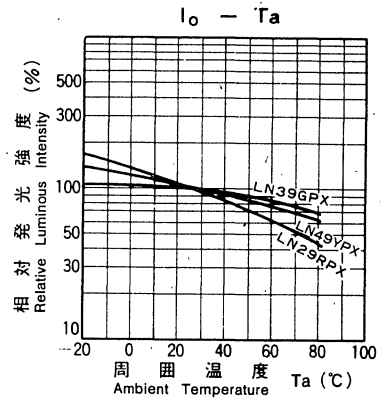
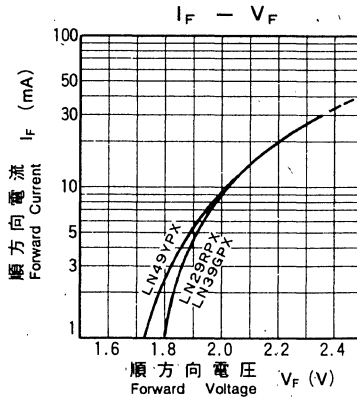
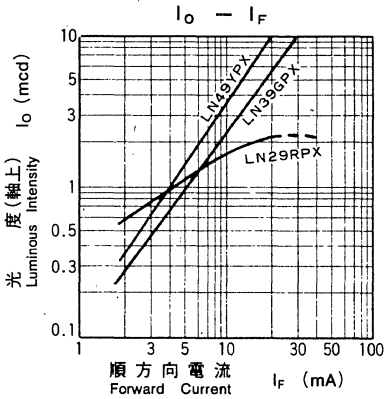
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN29RPX	Red	Red Diffused	2.0	0.8	15	2.2	2.8	700	30	20	5	4
LN39GPX	Green	Green Diffused	6.0	2.0	20	2.2	2.8	565	30	20	10	4
LN49YPX	Amber	Amber Diffused	10.0	3.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



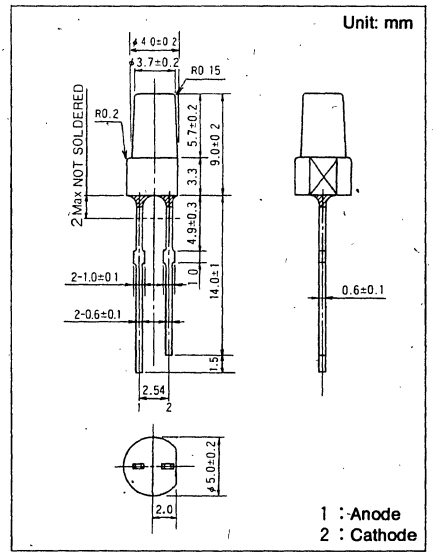
φ 3.7mm Series

Type No.	Lighting Color
LN253RP	Red
LN353GP	Green
LN453YP	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

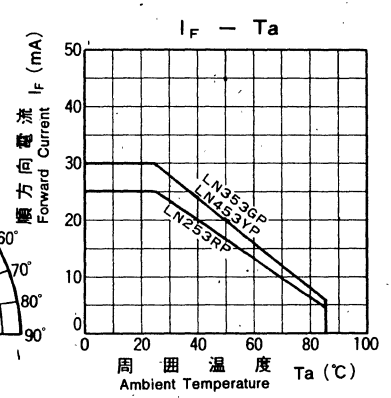
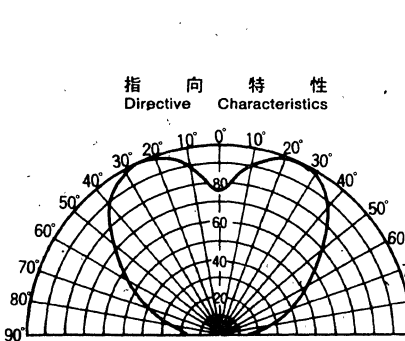
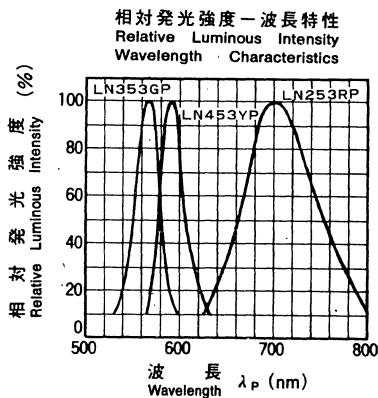
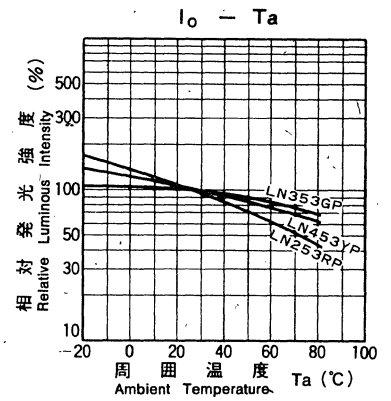
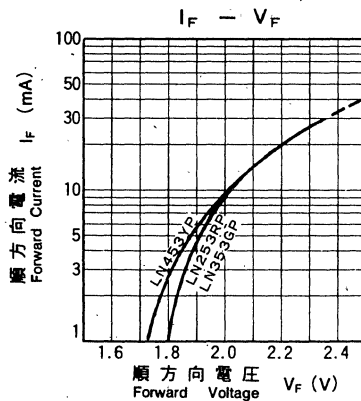
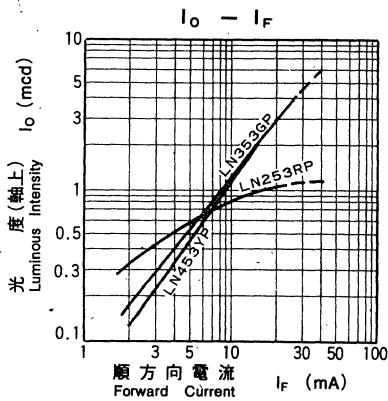
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	Max.	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN253RP	Red	Red Diffused	1.0	0.40	15	2.2	2.8	700	100	20	5	4
LN353GP	Green	Green Diffused	3.0	1.15	20	2.2	2.8	565	30	20	10	4
LN453YP	Amber	Amber Diffused	3.0	1.00	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



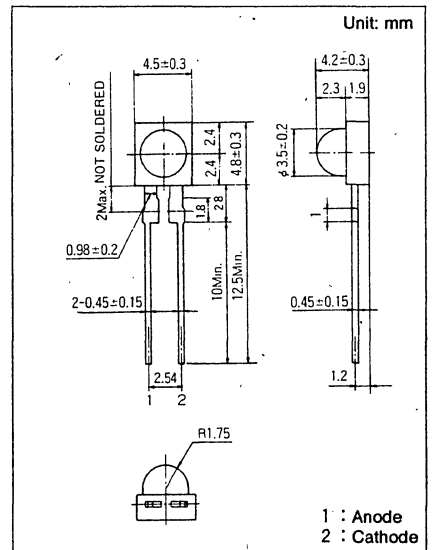
φ 3.5mm Series

Type No.	Lighting Color
LN25RP	Red
LN25RCP	Red
LN25WP	Red
LN25CP	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

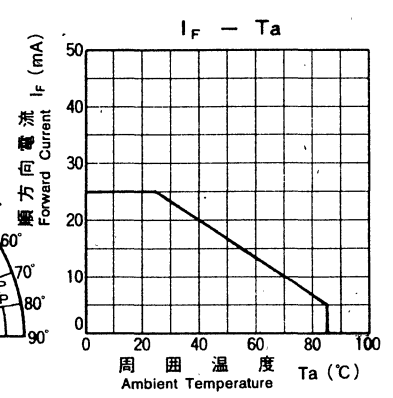
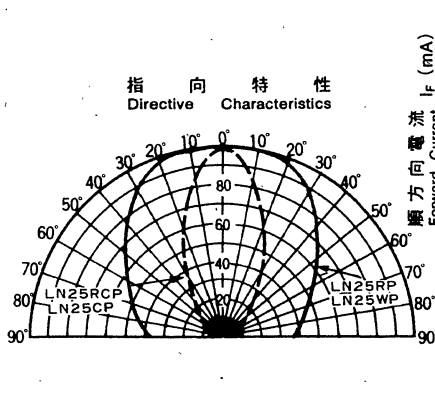
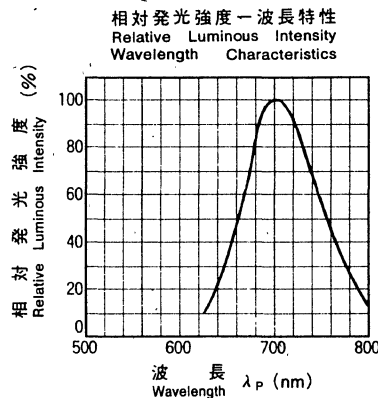
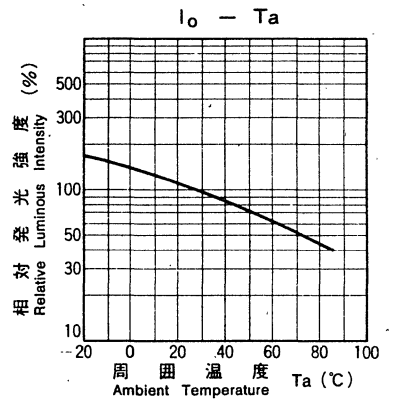
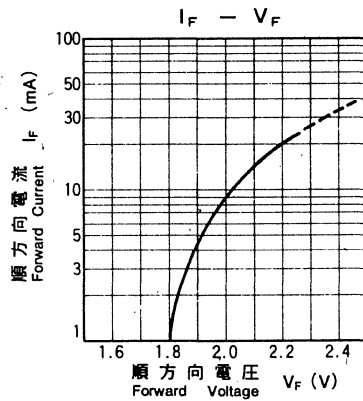
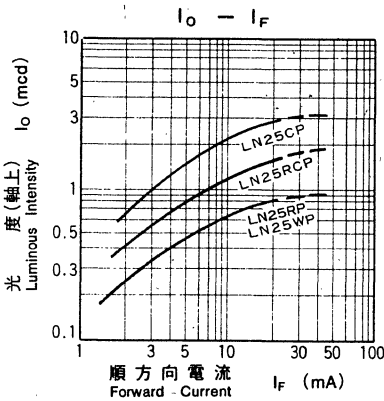
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN25RP	Red	Red Diffused	0.7	0.2	15	2.2	2.8	700	100	20	5	4
LN25RCP	Red	Red Clear	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN25WP	Red	White Diffused	0.7	0.2	15	2.2	2.8	700	100	20	5	4
LN25CP	Red	Clear	2.5	0.7	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



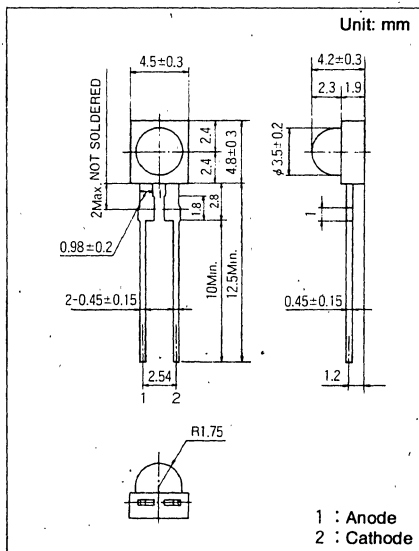
φ 3.5mm Series

Type No.	Lighting Color
LN35BP	Green
LN35GP	Green
LN35GCP	Green
LN35YCP	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

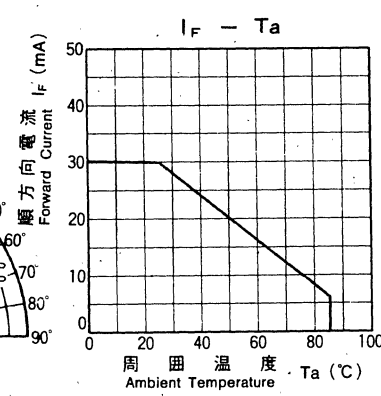
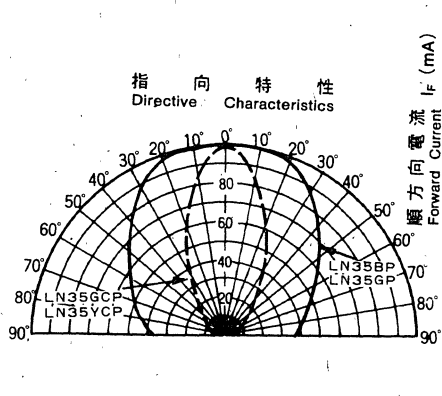
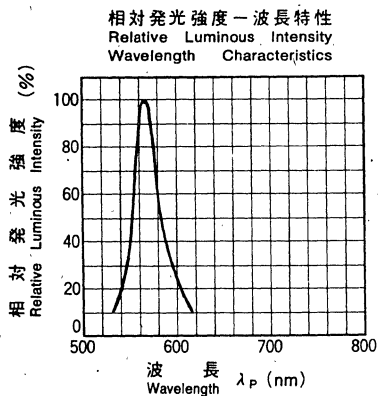
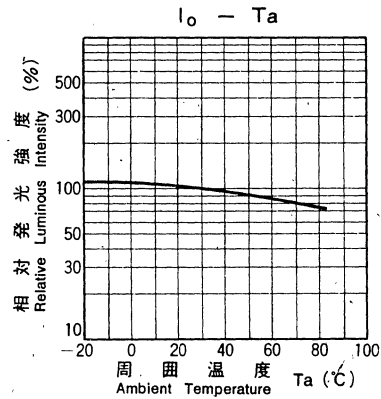
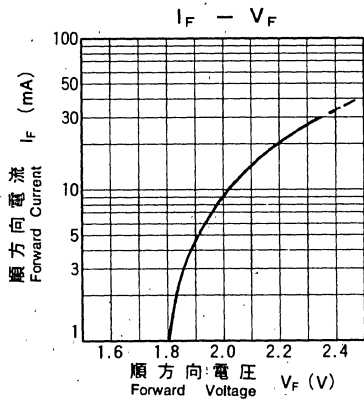
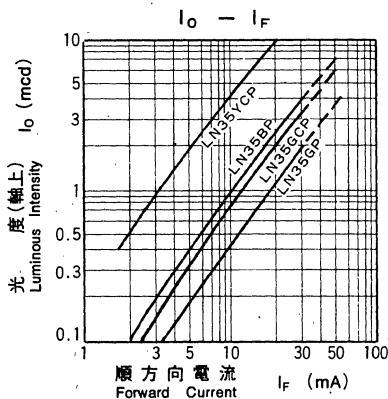
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN35BP	Green	Blue Diffused	2.5	0.7	20	2.2	2.8	565	30	20	10	4
LN35GP	Green	Green Diffused	1.2	0.3	20	2.2	2.8	565	30	20	10	4
LN35GCP	Green	Green Clear	2.0	0.5	20	2.2	2.8	565	30	20	10	4
LN35YCP	Green	Yellow Clear	10.0	4.0	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



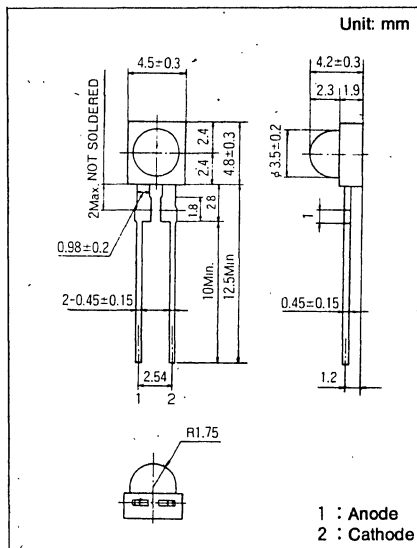
φ 3.5mm Series

Type No.	Lighting Color
LN45YP	Amber
LN45YCP	Amber
LN85RP	Orange
LN85RCP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

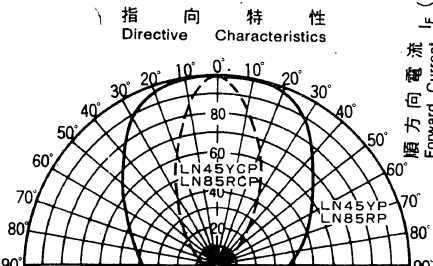
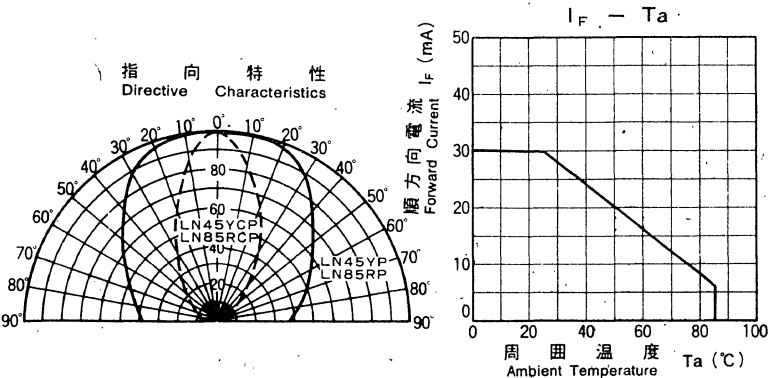
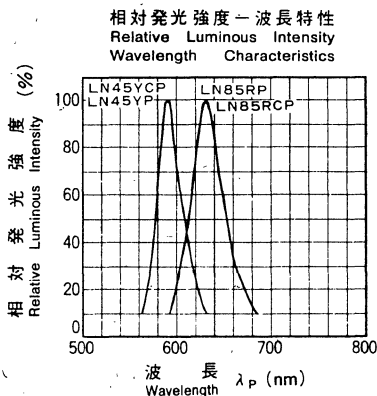
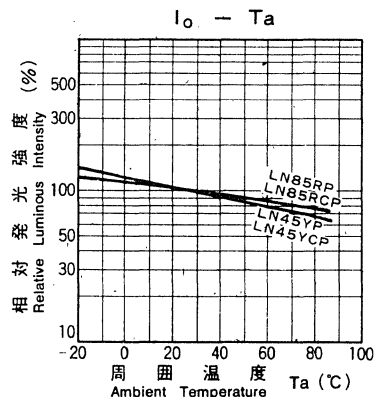
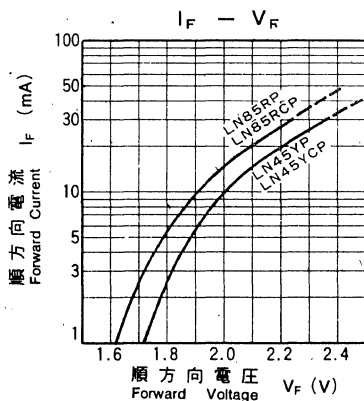
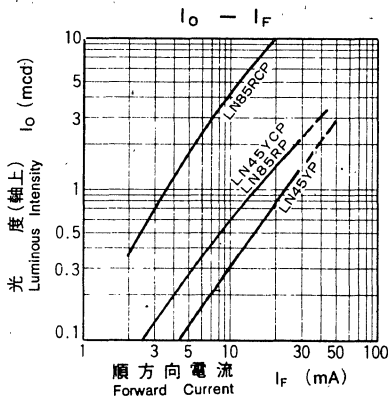
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN45YP	Amber	Amber Diffused	0.8	0.3	20	2.2	2.8	590	30	20	10	4
LN45YCP	Amber	Amber Clear	1.5	0.5	20	2.2	2.8	590	30	20	10	4
LN85RP	Orange	Red Diffused	1.5	0.5	20	2.1	2.8	630	40	20	10	3
LN85RCP	Orange	Red Clear	10.0	4.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



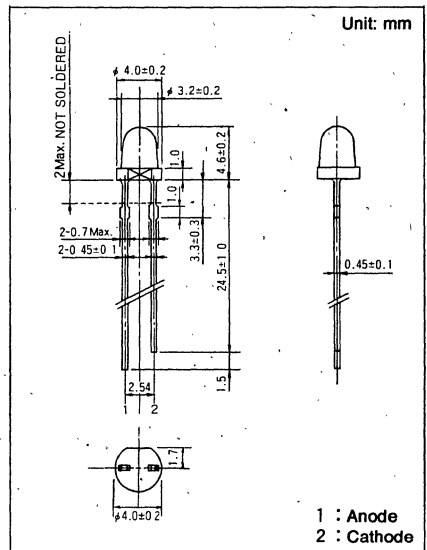
φ 3.2mm Series

Type No.	Lighting Color
LN276RCPX	Red
LN376GCPX	Green
LN476YCPX	Amber
LN876RCPX	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	/ 150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

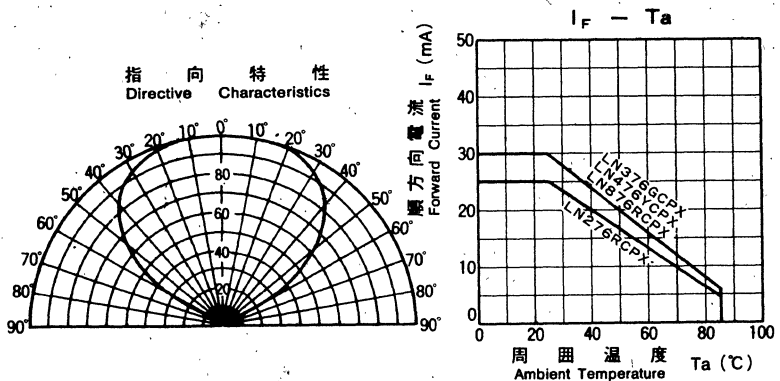
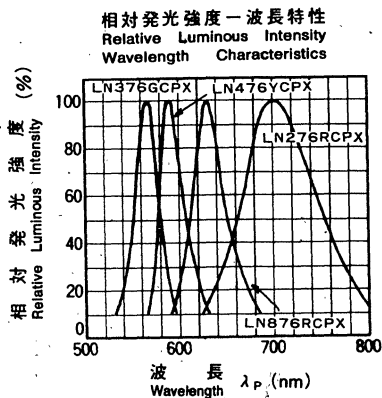
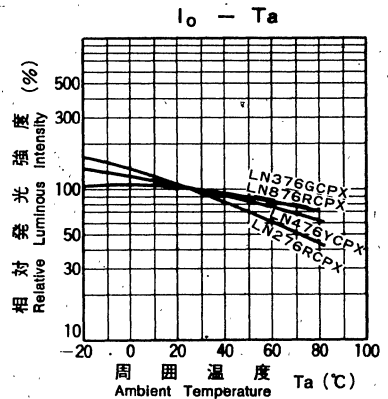
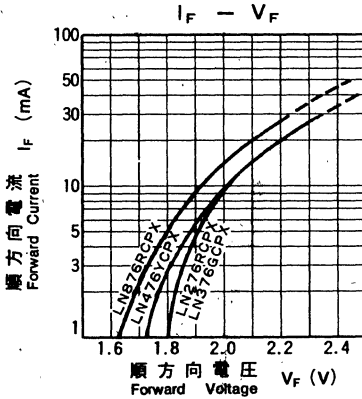
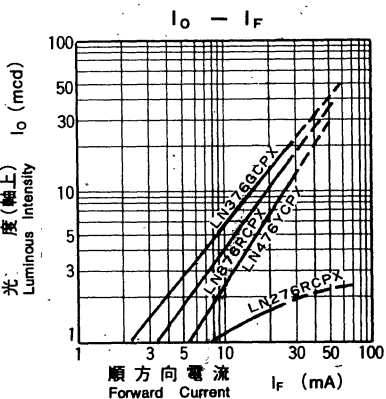


1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
△ LN276RCPX	Red	Red Clear	1.5	0.6	15	2.2	2.8	700	100	20	5	4
△ LN376GCPX	Green	Green Clear	15.0	6.0	20	2.2	2.8	565	30	20	10	4
△ LN476YCPX	Amber	Amber Clear	7.0	2.5	20	2.2	2.8	590	30	20	10	4
△ LN876RCPX	Orange	Red Clear	10.0	4.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



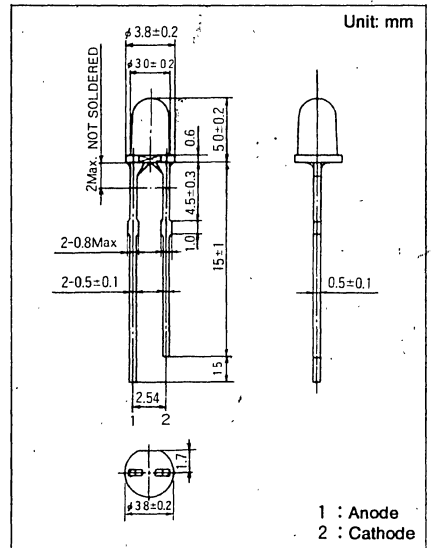
φ 3.0mm Series

Type No.	Lighting Color
LN28RP	Red
LN28RCP	Red
LN28WP	Red
LN28CP	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

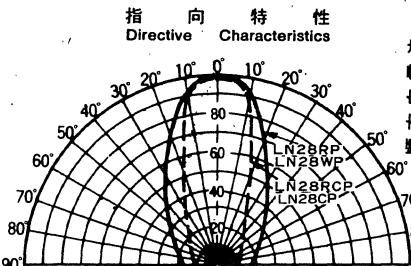
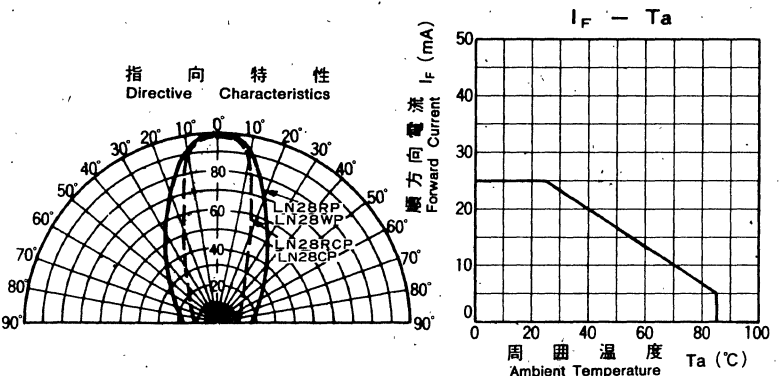
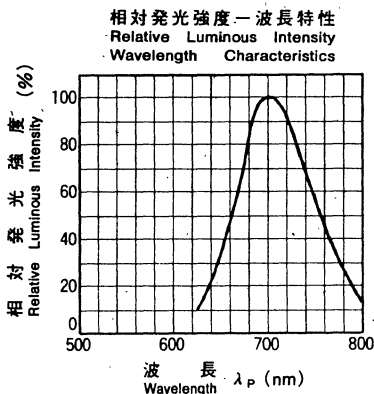
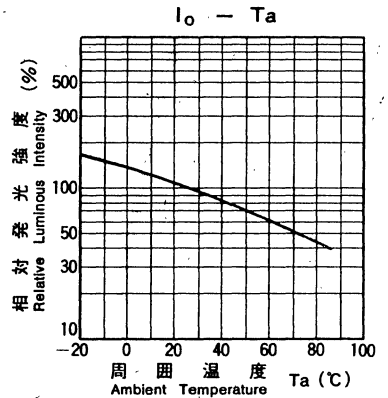
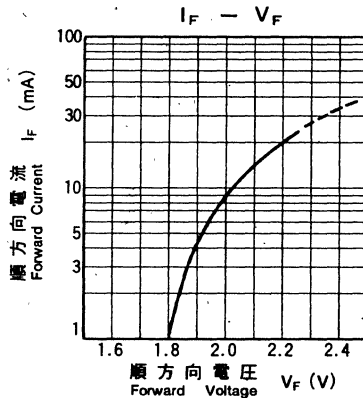
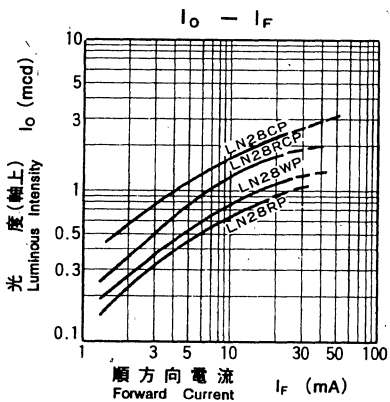
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN28RP	Red	Red Diffused	0.8	0.3	15	2.2	2.8	700	100	20	5	4
LN28RCP	Red	Red Clear	1.5	0.6	15	2.2	2.8	700	100	20	5	4
LN28WP	Red	White Diffused	1.0	0.3	15	2.2	2.8	700	100	20	5	4
LN28CP	Red	Clear	2.0	0.8	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



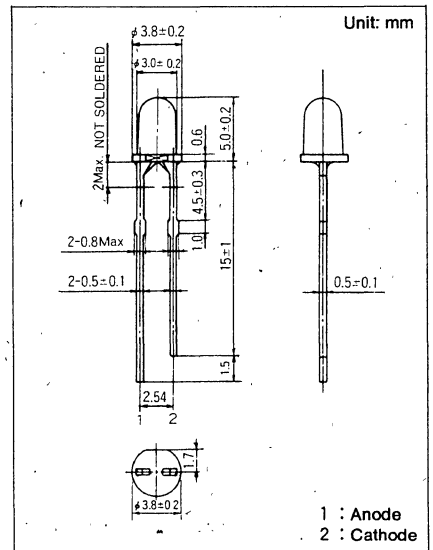
φ 3.0mm Series

Type No.	Lighting Color
LN38GP	Green
LN38GCP	Green
LN38WP	Green
LN38CP	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

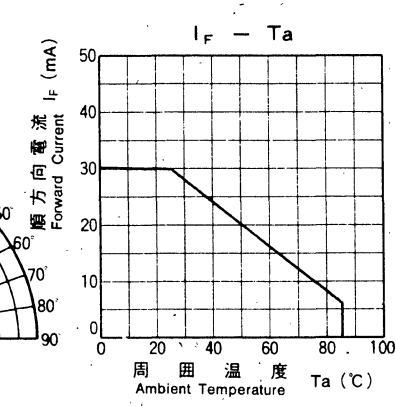
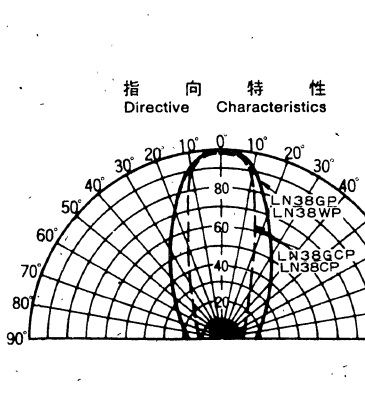
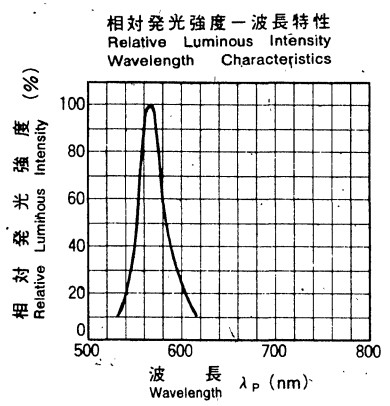
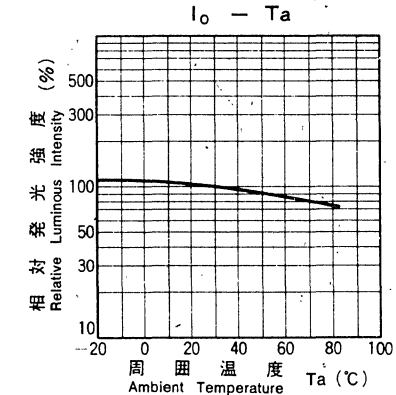
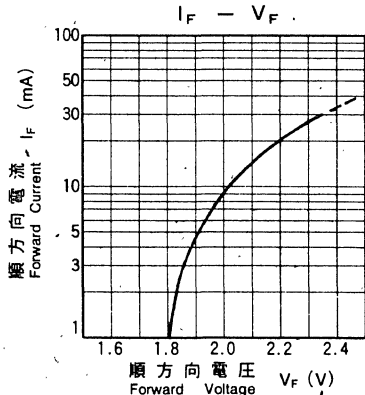
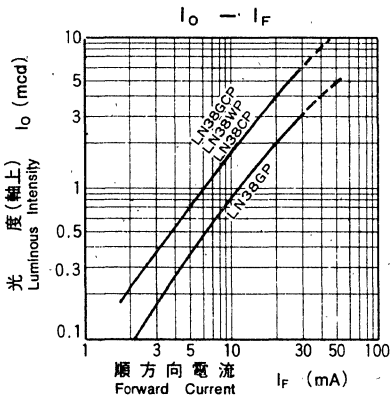
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN38GP	Green	Green Diffused	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN38GCP	Green	Green Clear	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN38WP	Green	White Diffused	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN38CP	Green	Clear	4.0	1.5	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type

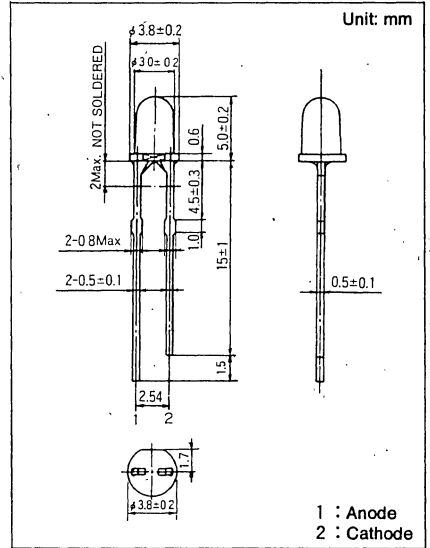
φ 3.0mm Series

Type No.	Lighting Color
LN48YP	Amber
LN48YCP	Amber
LN48WP	Amber
LN48CP	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

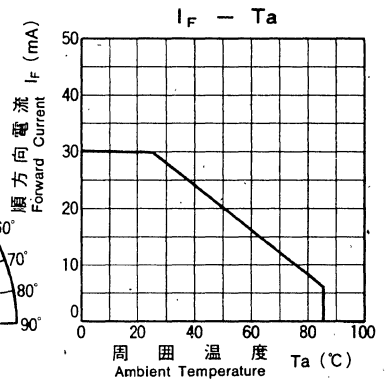
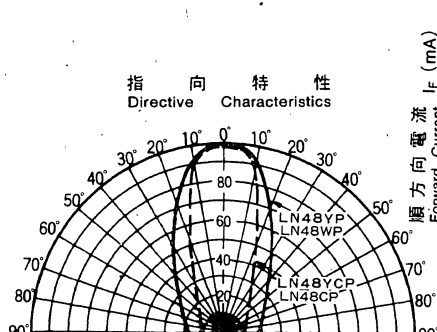
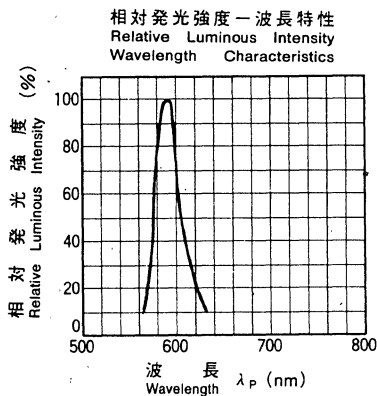
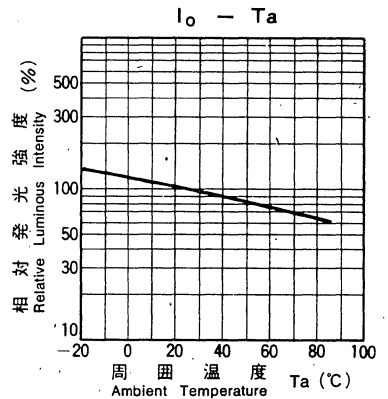
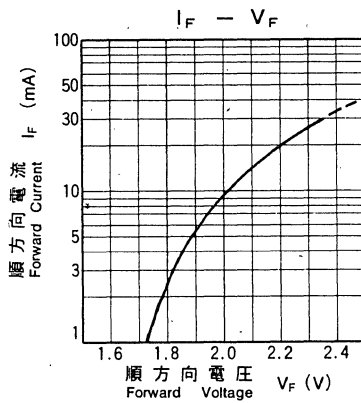
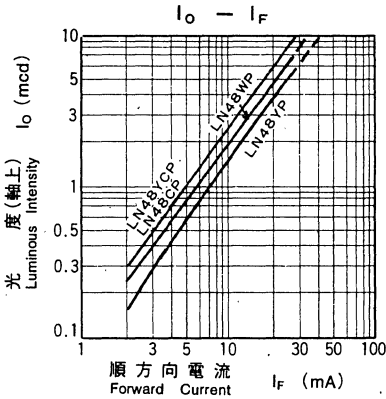
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN48YP	Amber	Amber Diffused	4.0	1.4	20	2.2	2.8	590	30	20	10	4
LN48YCP	Amber	Amber Clear	6.0	2.0	20	2.2	2.8	590	30	20	10	4
LN48WP	Amber	White Diffused	5.0	1.9	20	2.2	2.8	590	30	20	10	4
LN48CP	Amber	Clear	6.0	2.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



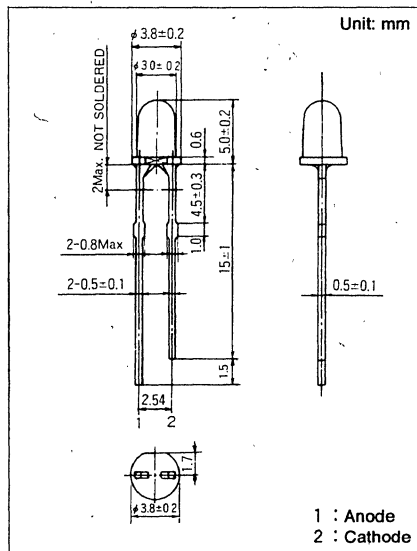
φ 3.0mm Series

Type No.	Lighting Color
LN28RPP	Red
LN28RCPP	Red
LN28WPP	Red
LN28CPP	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

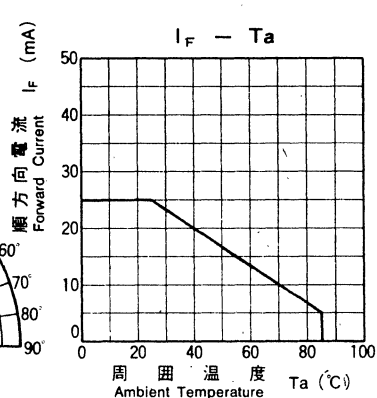
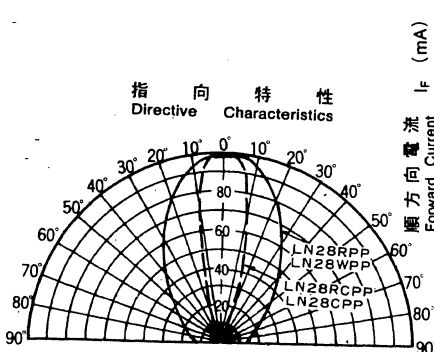
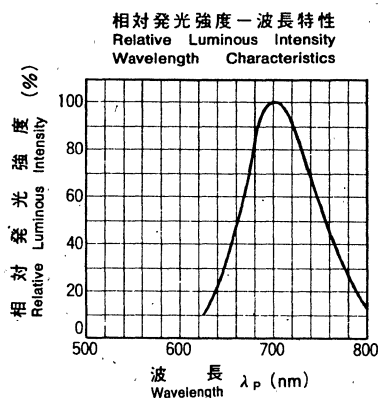
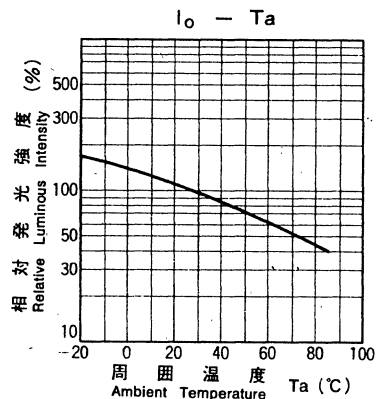
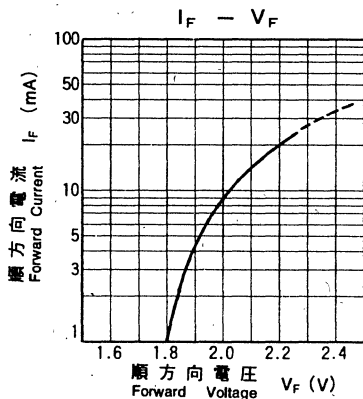
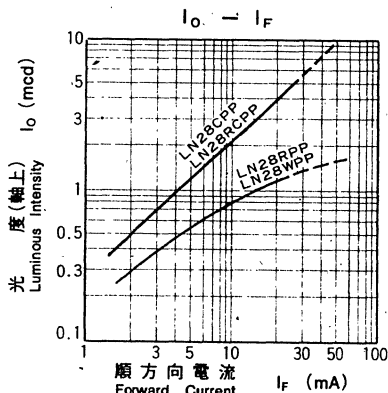
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN28RPP	Red	Red Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN28RCPP	Red	Red Clear	3.0	1.3	15	2.2	2.8	700	100	20	5	4
LN28WPP	Red	White Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN28CPP	Red	Clear	3.0	1.3	15	2.2	2.8	700	100	20	5	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



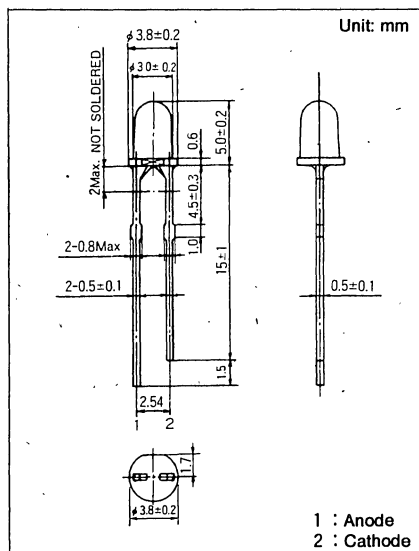
φ 3.0mm Series

Type No.	Lighting Color
LN38GPP	Green
LN38GCPP	Green
LN38CPP	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100

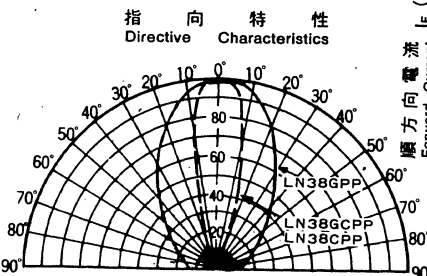
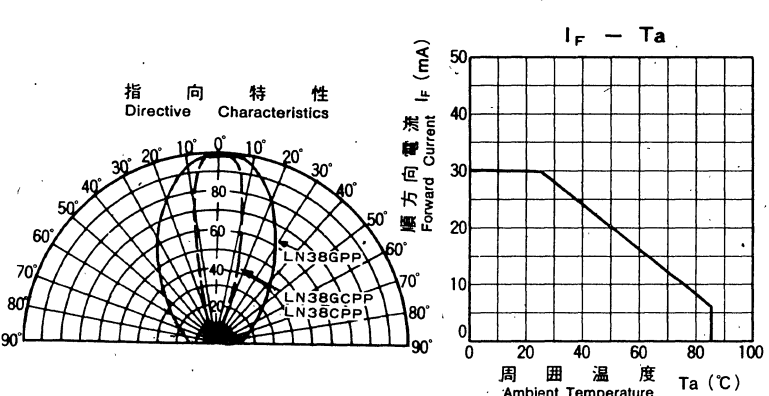
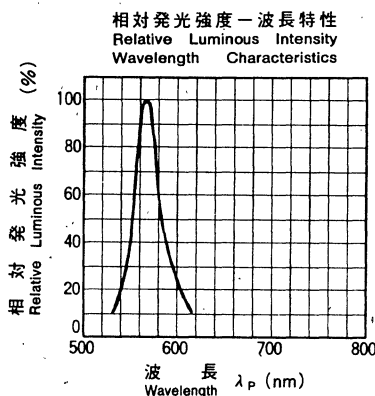
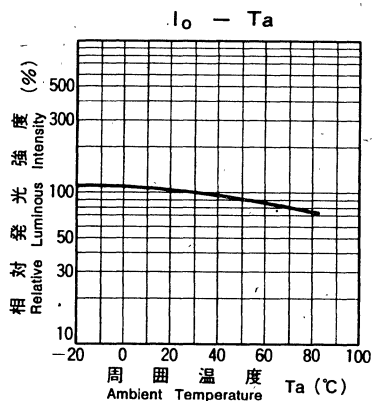
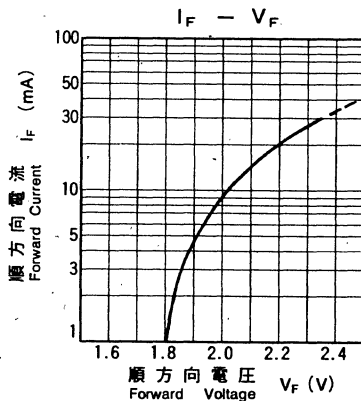
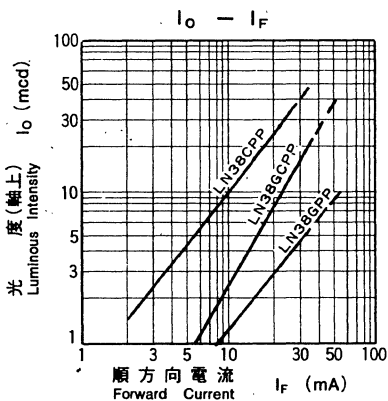
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.		Typ.	Max.				Max.	V _R
LN38GPP	Green	Green Diffused	3.0	1.2	20	2.2	2.8	565	30	20	10	4
LN38GCPP	Green	Green Clear	8.0	2.5	20	2.2	2.8	565	30	20	10	4
LN38CPP	Green	Clear	25.0	9.5	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



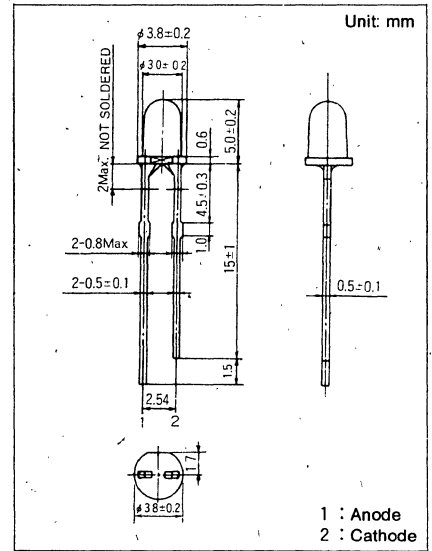
φ 3.0mm Series

Type No.	Lighting Color
LN48YPP	Amber
LN48YCPP	Amber
LN48CPP	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

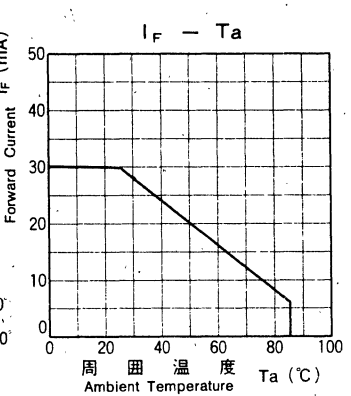
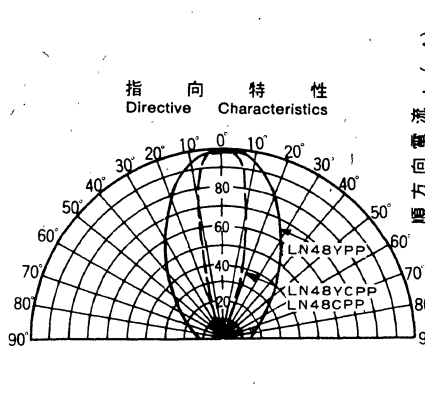
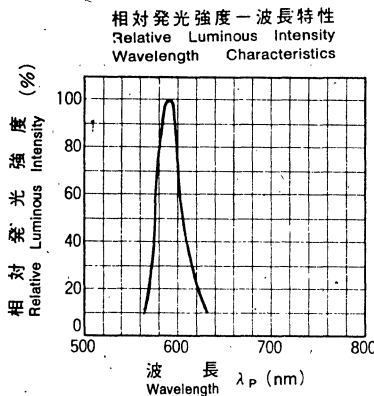
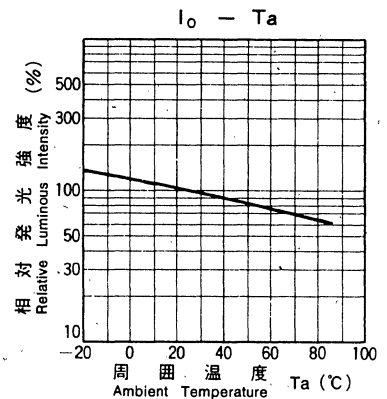
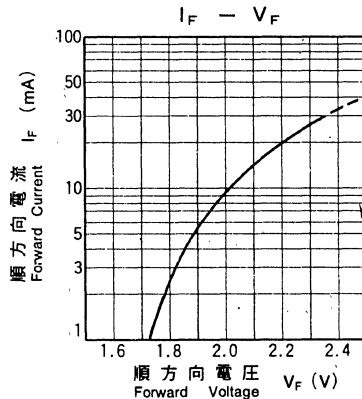
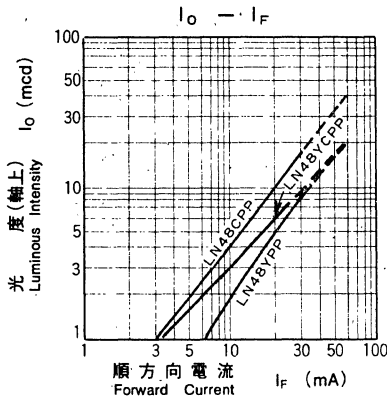
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN48YPP	Amber	Amber Diffused	5.0	1.7	20	2.2	2.8	590	30	20	10	4
LN48YCPP	Amber	Amber Clear	6.0	3.0	20	2.2	2.8	590	30	20	10	4
LN48CPP	Amber	Clear	10.0	4.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



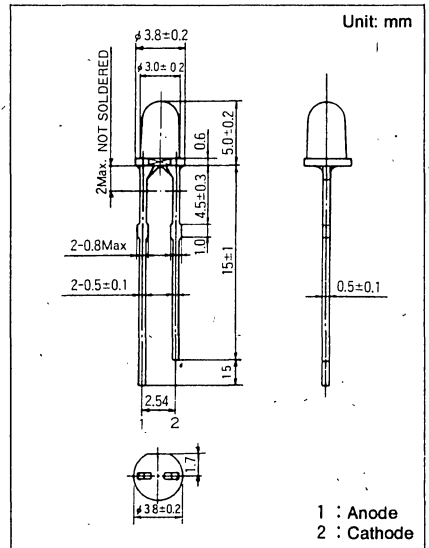
φ 3.0mm Series

Type No.	Lighting Color
LN88RPP	Orange
LN88RCPP	Orange
LN88CPP(S)	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

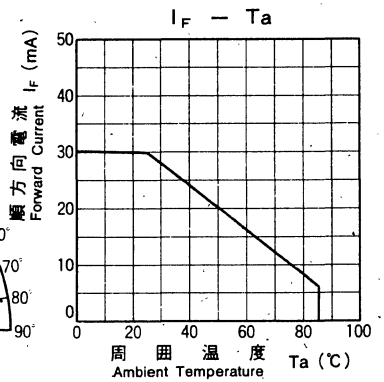
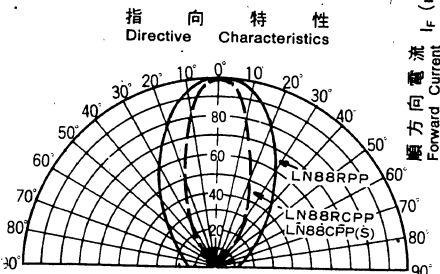
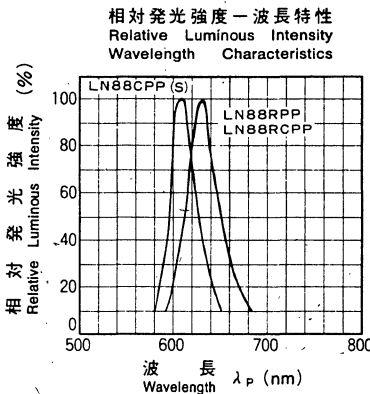
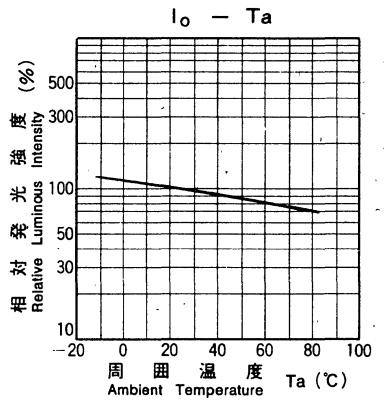
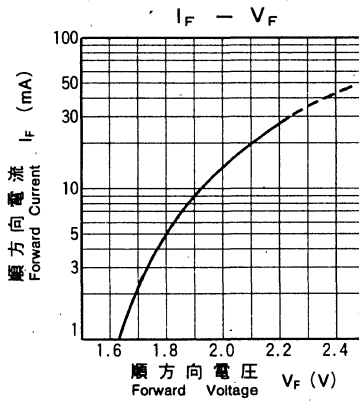
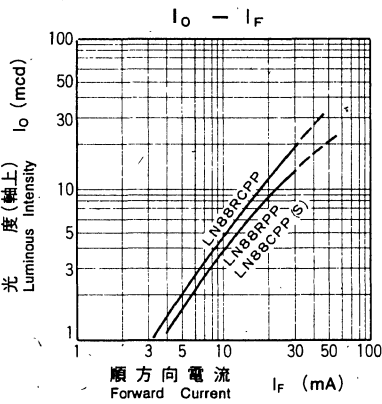
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



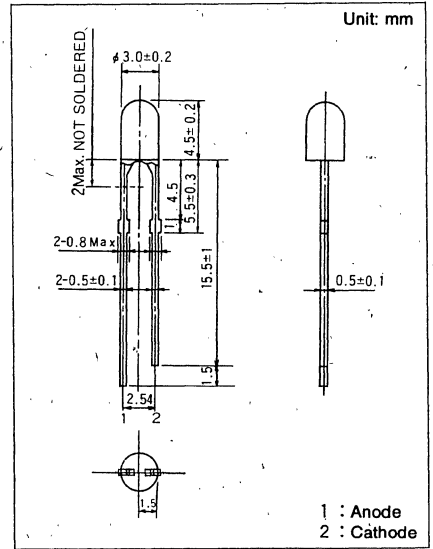
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN88RPP	Orange	Red Diffused	9.0	3.0	20	2.1	2.8	630	40	20	10	3
LN88RCPP	Orange	Red Clear	12.0	5.0	20	2.1	2.8	630	40	20	10	3
LN88CPP(S)	Orange	Clear	9.0	3.0	20	2.1	2.8	610	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



φ 3.0mm Series

Type No.	Lighting Color
LN28RPPN	Red
LN38GPPN	Green
LN48YPPN	Amber
LN88RPPN	Orange



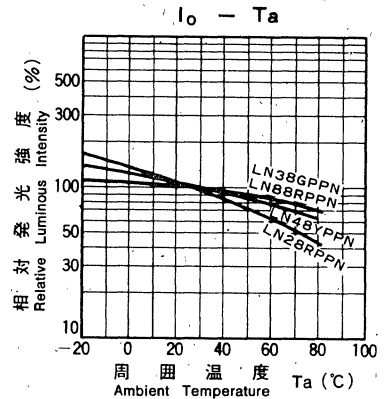
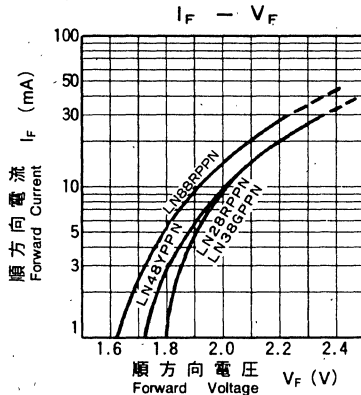
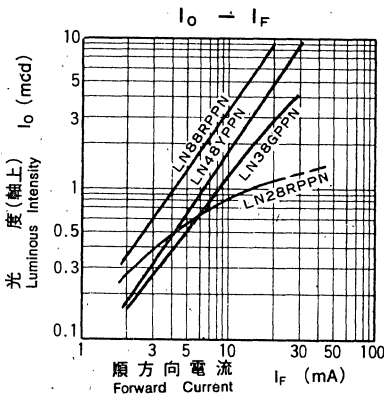
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

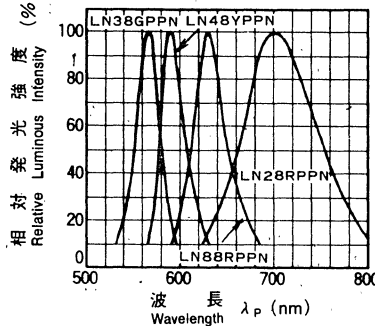
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

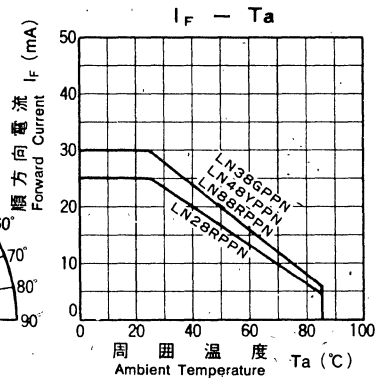
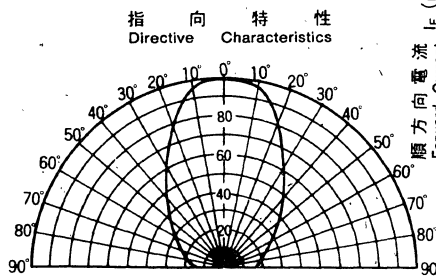
Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.					
LN28RPPN	Red	Red Diffused	1.0	0.8	15	2.2	2.8	700	100	20	5	4
LN38GPPN	Green	Green Diffused	3.0	1.2	20	2.2	2.8	565	30	20	10	4
LN48YPPN	Amber	Amber Diffused	5.0	1.7	20	2.2	2.8	590	30	20	10	4
LN88RPPN	Orange	Red Diffused	9.0	3.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



相对発光強度—波長特性
Relative Intensity Wavelength Characteristics



指向特性
Directive Characteristics



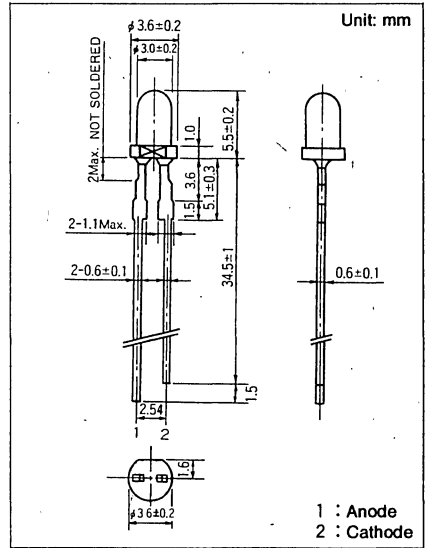
φ 3.0mm Series

Type No.	Lighting Color
LN28RPL	Red
LN38GPL	Green
LN48YPL	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

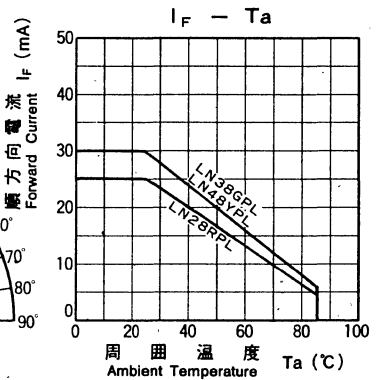
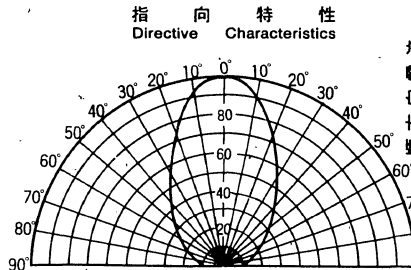
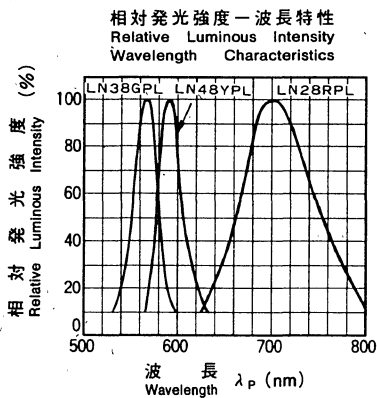
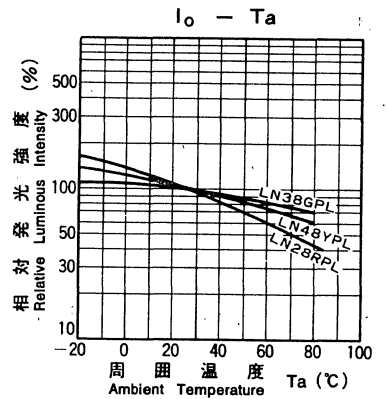
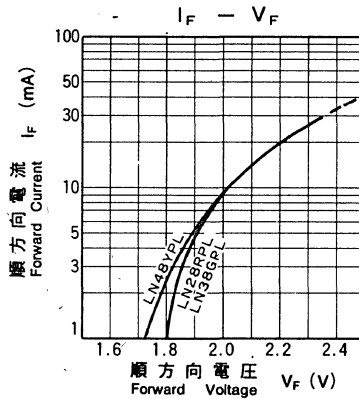
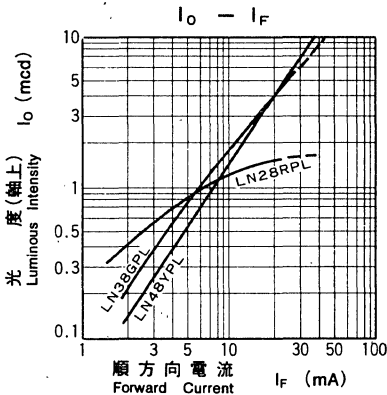
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN28RPL	Red	Red Diffused	1.5	0.6	15	2.2	2.8	700	100	20	5	4
LN38GPL	Green	Green Diffused	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN48YPL	Amber	Amber Diffused	4.0	1.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



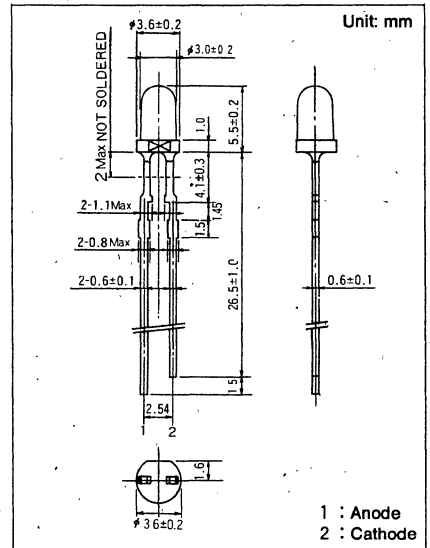
φ 3.0mm Series

Type No.	Lighting Color
LN28RPH	Red
LN28RCPH	Red
LN38GPH	Green
LN38GCPH	Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

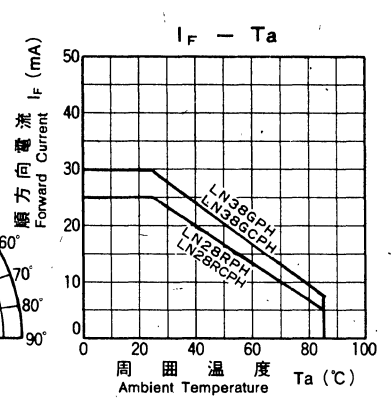
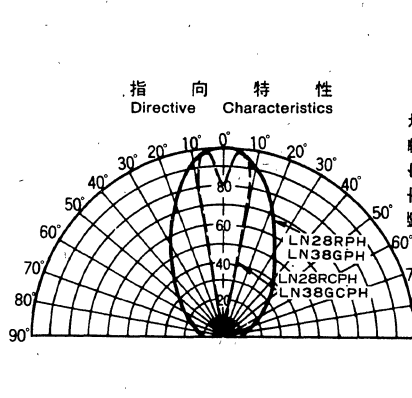
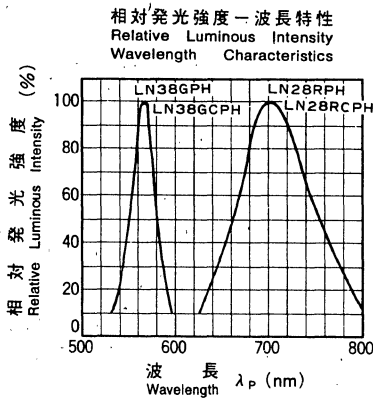
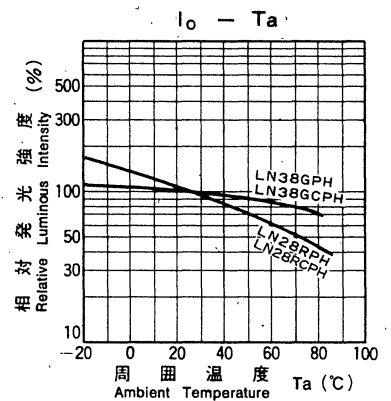
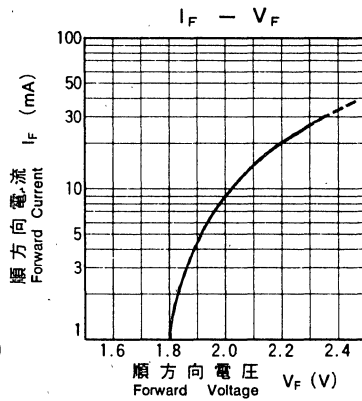
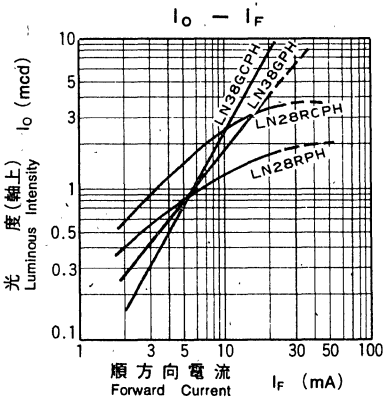
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%、Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN28RPH	Red	Red Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN28RCPH	Red	Red Clear	3.0	1.3	15	2.2	2.8	700	100	20	5	4
LN38GPH	Green	Green Diffused	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN38GCPH	Green	Green Clear	8.0	2.5	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



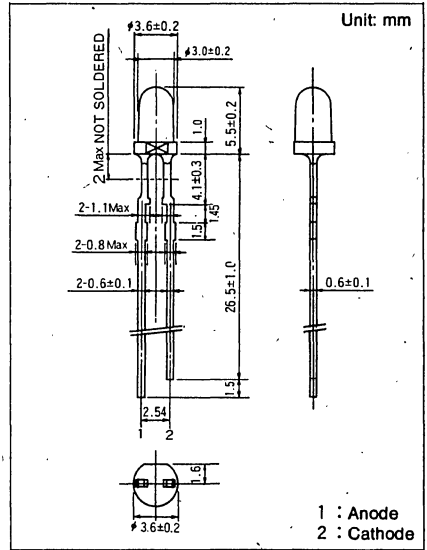
φ 3.0mm Series

Type No. Lighting Color
 LN48YPH Amber
 LN88RPH Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

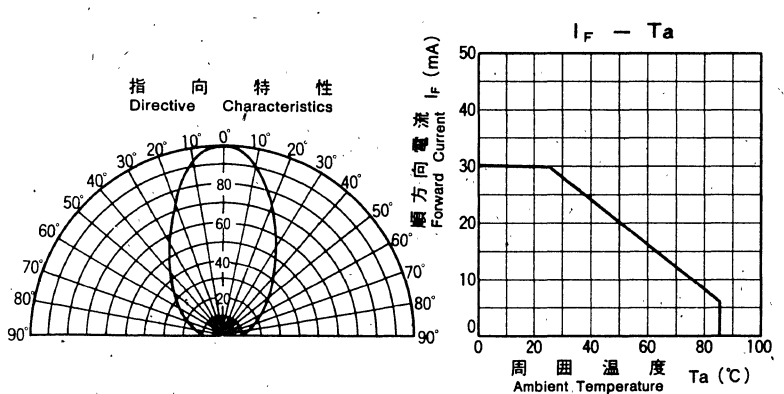
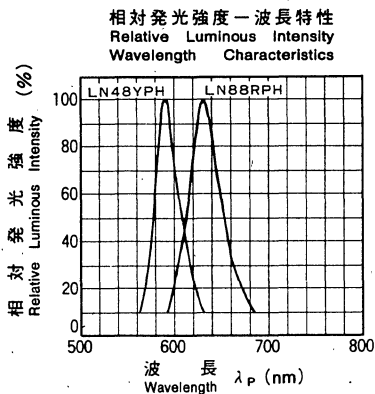
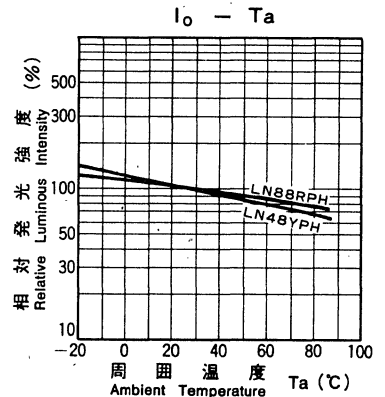
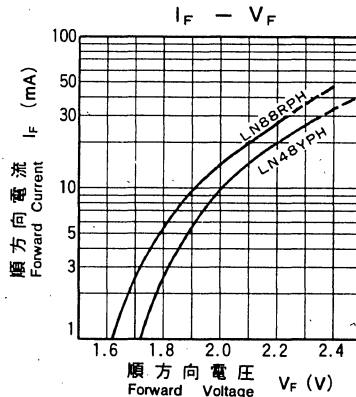
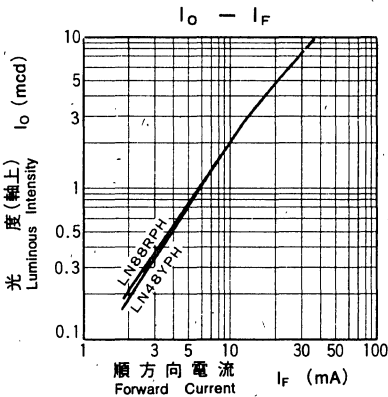
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN48YPH	Amber	Amber Diffused	5.0	1.9	20	2.2	2.8	590	30	20	10	4
LN88RPH	Orange	Red Diffused	5.0	1.9	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



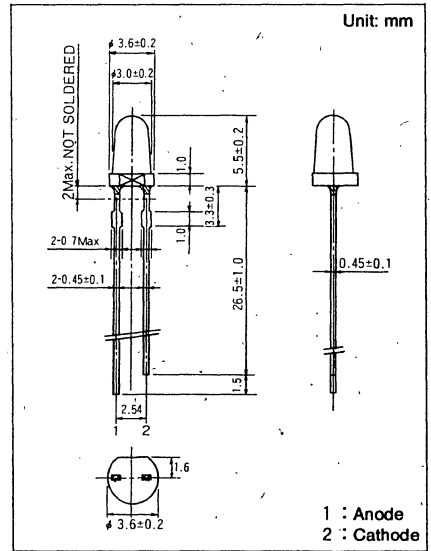
φ 3.0mm Series

Type No. Lighting Color
 LN28RPX Red
 LN38GPX Green
 LN48YPX Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

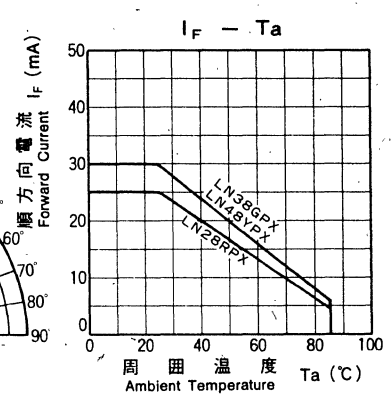
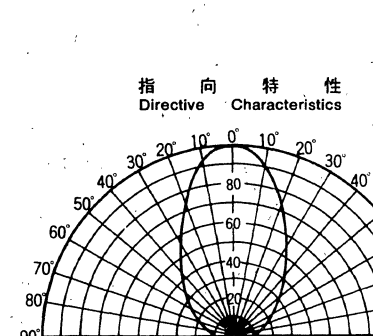
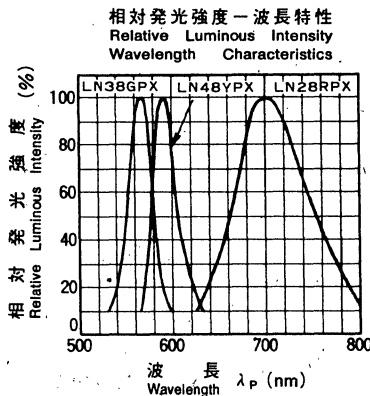
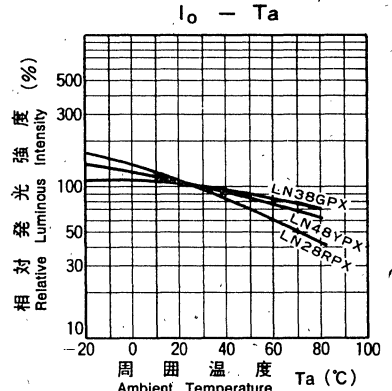
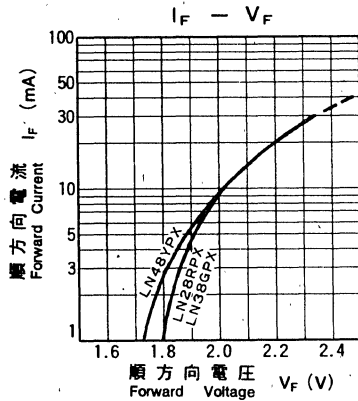
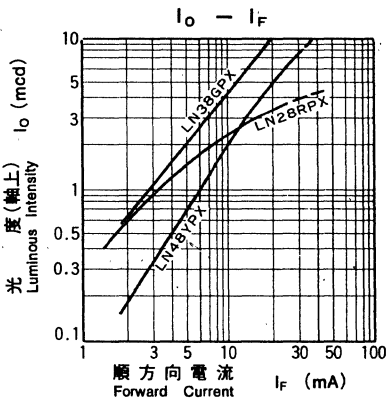
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



1 : Anode
 2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN28RPX	Red	Red Diffused	2.8	1.6	15	2.2	2.8	700	100	20	5	4
LN38GPX	Green	Green Diffused	10.0	5.6	20	2.2	2.8	565	30	20	10	4
LN48YPX	Amber	Amber Diffused	5.0	1.9	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形

Round Type

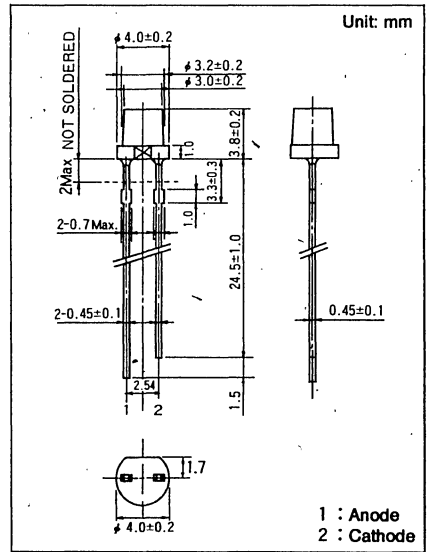
φ 3.0mm Series

Type No. Lighting Color
 LN277RPXRed
 LN377GPXGreen
 LN477YPXAmber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

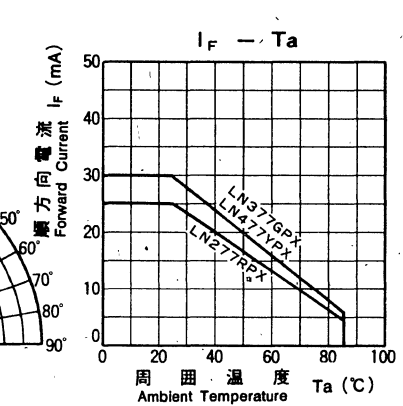
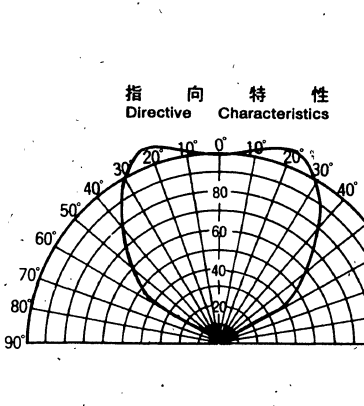
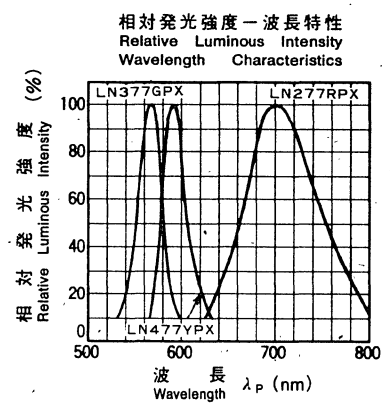
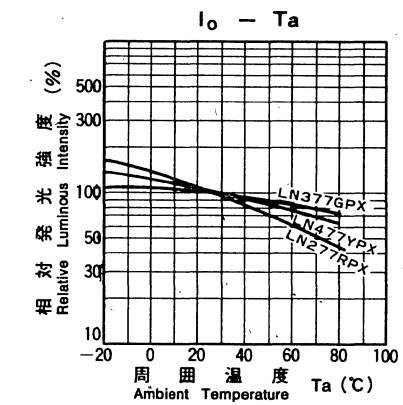
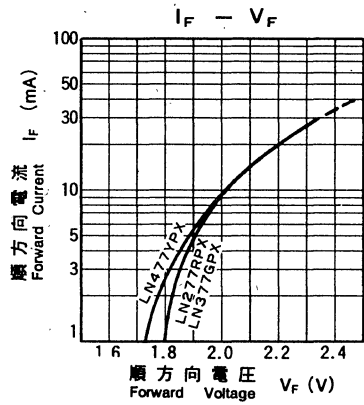
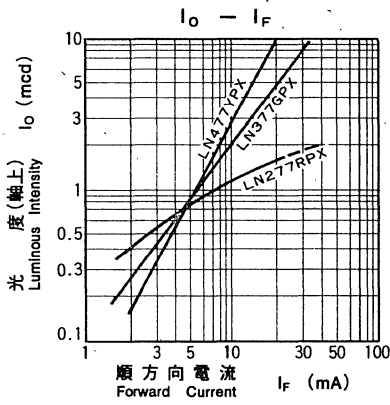
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _n	
			Typ	Min	I _F	Typ	Max				I _F	Max
LN277RPX	Red	Red Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN377GPX	Green	Green Diffused	5.0	2.0	20	2.2	2.8	565	30	20	10	4
LN477YPX	Amber	Amber Diffused	10.0	3.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



φ 3.0mm Series

Type No.	Lighting Color
LN238RPH	Red
LN338GPH	Green
LN438YPH	Amber
LN838RPH	Orange

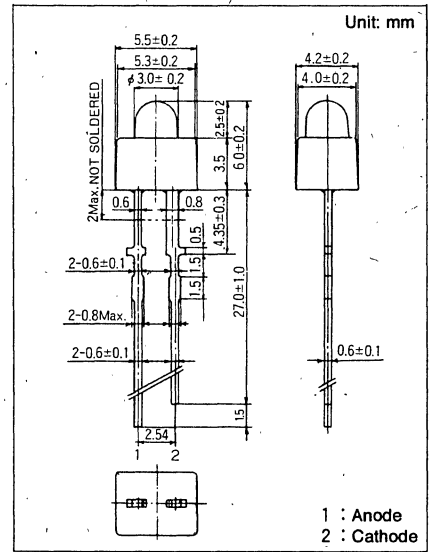
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

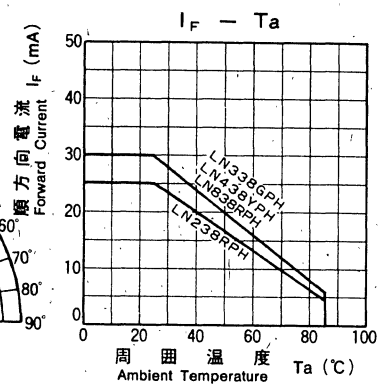
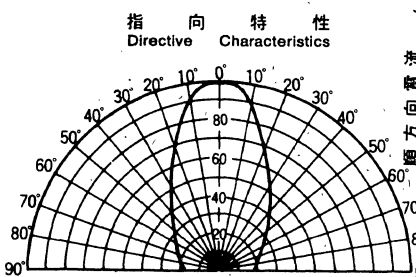
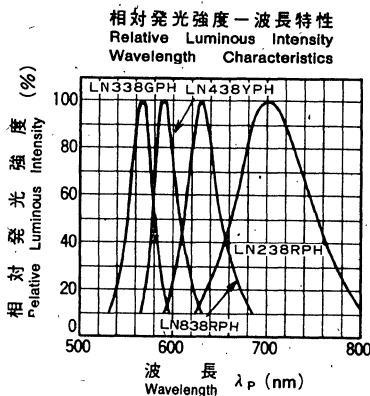
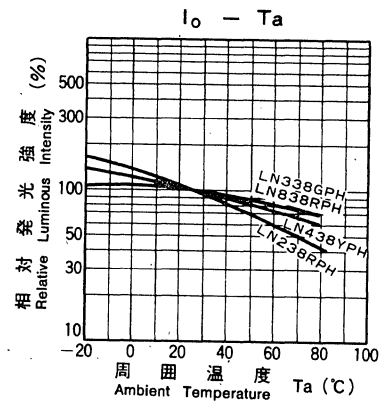
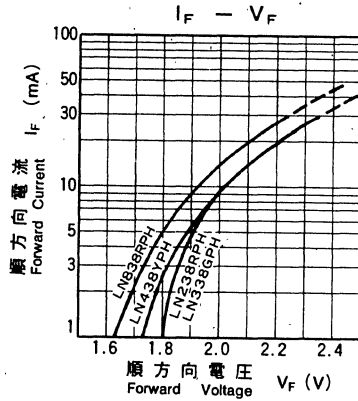
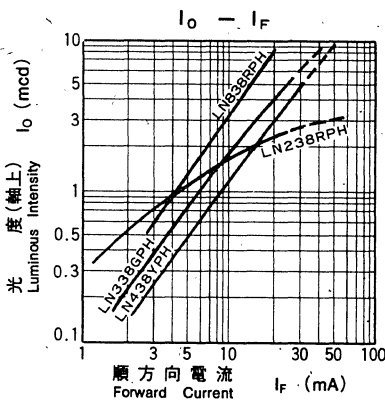
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN238RPH	Red	Red Diffused	2.0	1.0	15	2.2	2.8	700	100	20	5	4
LN338GPH	Green	Green Diffused	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN438YPH	Amber	Amber Diffused	3.0	1.0	20	2.2	2.8	590	30	20	10	4
LN838RPH	Orange	Red Diffused	8.0	3.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



1 : Anode
2 : Cathode



丸形

Round Type

φ 3.0mm Series

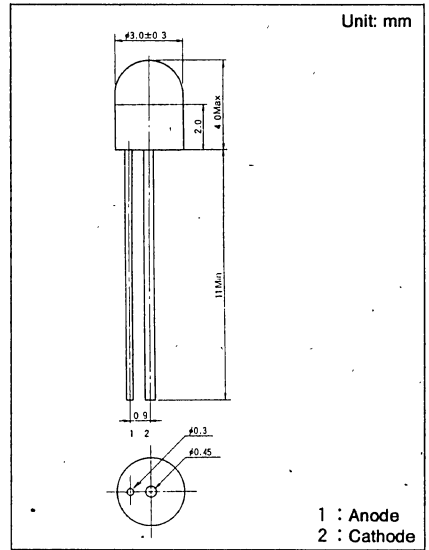
Type No. Lighting Color

- LN23SRP(H) Red
- LN33SGP(H) Green
- LN43SYP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

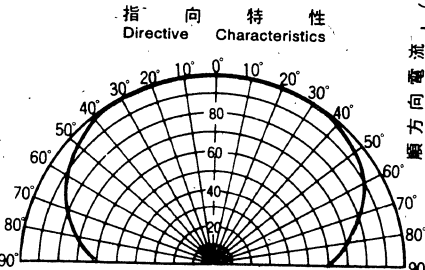
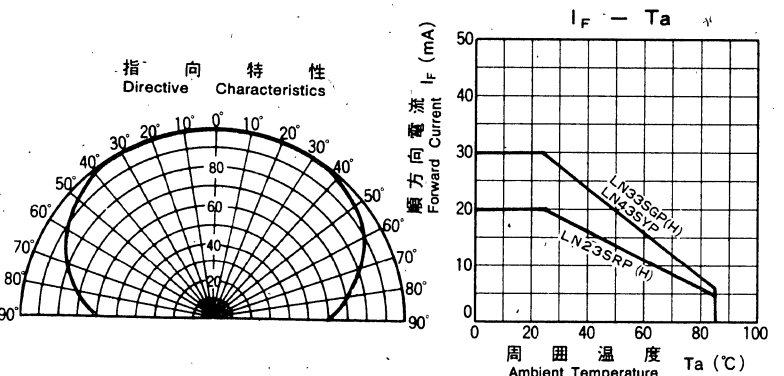
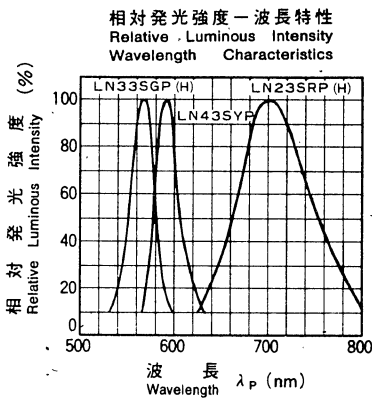
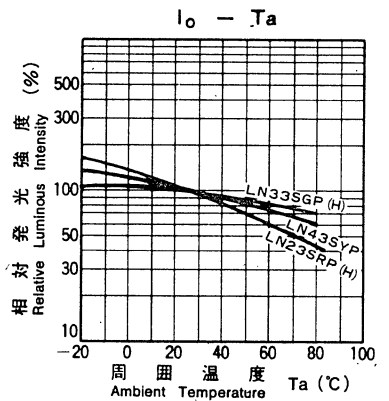
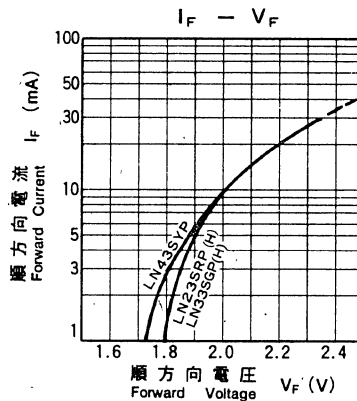
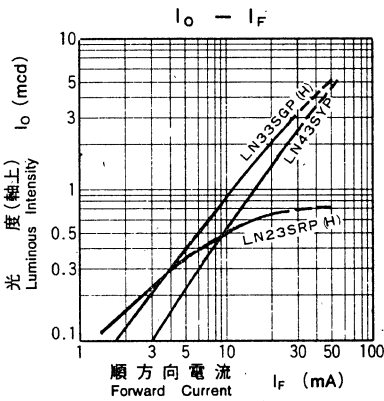
Lighting Color	P _O (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	20	100	4	-25~+85	-30~+100
Green	90	30	100	4	-25~+85	-30~+100
Amber	90	30	100	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN23SRP(H)	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN33SGP(H)	Green	Green Diffused	2.0	0.4	20	2.2	2.8	565	30	20	10	4
LN43SYP	Amber	Amber Diffused	1.5	0.2	20	2.2	2.8	590	30	20	10	4
Unit	—	←	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



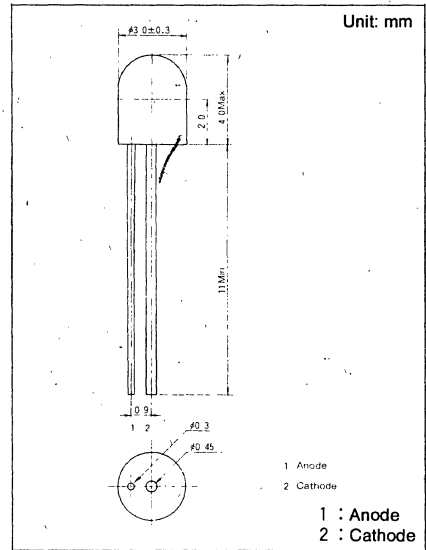
φ 3.0mm Series

Type No.	Lighting Color
LN23SCP(H)	Red
LN33SCP(H)	Green
LN43SCP(H)	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

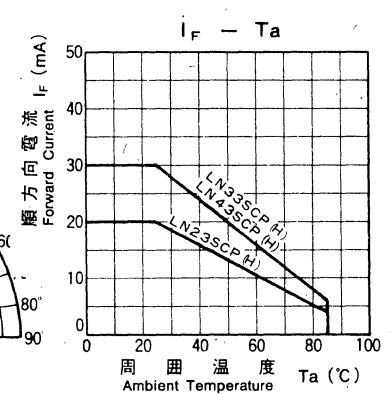
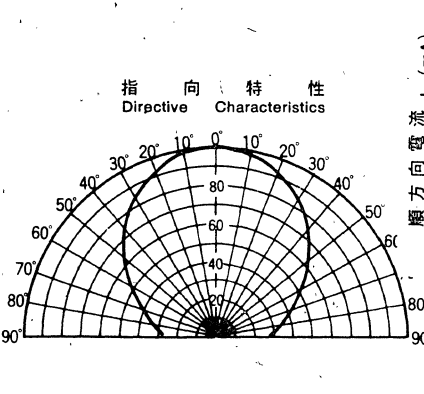
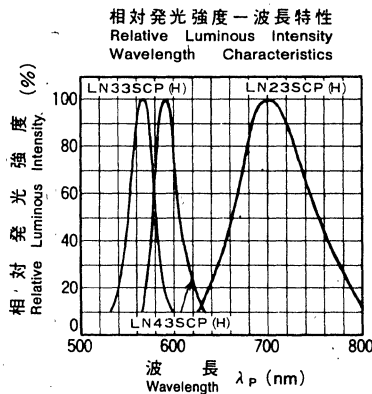
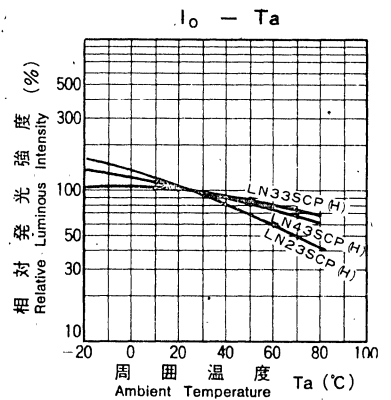
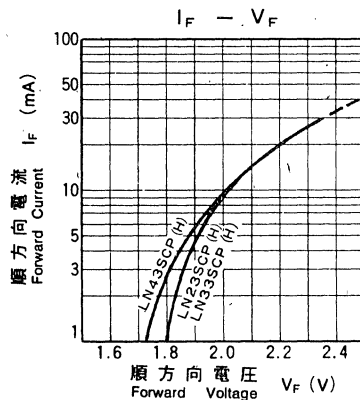
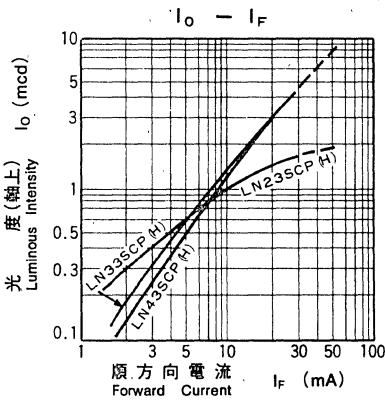
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	20	100	4	-25~+85	-30~+100
Green	90	30	100	4	-25~+85	-30~+100
Amber	90	30	100	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width, 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ_p	$\Delta \lambda$	I _R		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN23SCP(H)	Red	Clear	1.3	0.8	15	2.2	2.8	700	100	20	5	4
LN33SCP(H)	Green	Clear	3.0	2.0	20	2.2	2.8	565	30	20	10	4
LN43SCP(H)	Amber	Clear	3.0	2.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V



丸形 Round Type

φ 2.8mm Series

Type No.	Lighting Color
LN263CPP	Red
LN363GCPP	Green
LN463YCPP	Amber
LN863RCPP	Orange

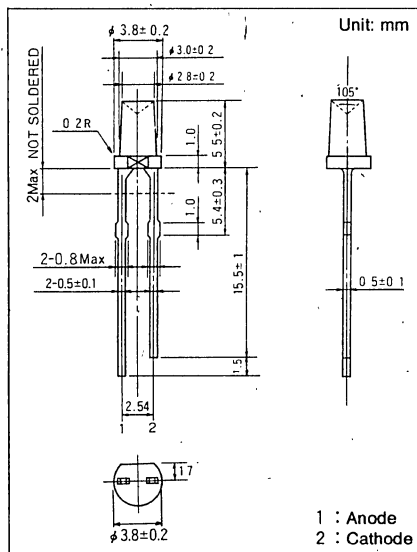
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

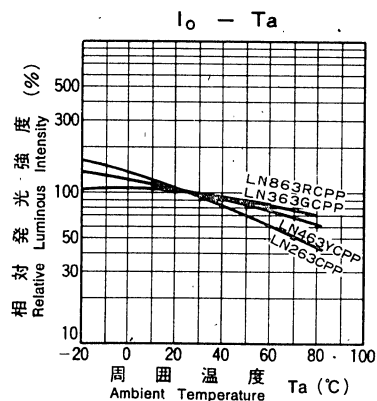
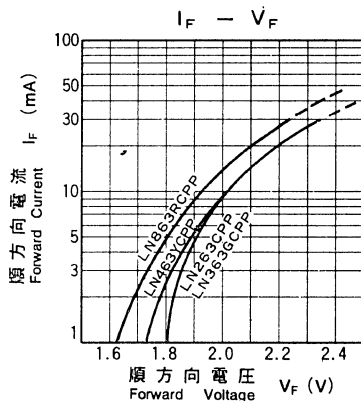
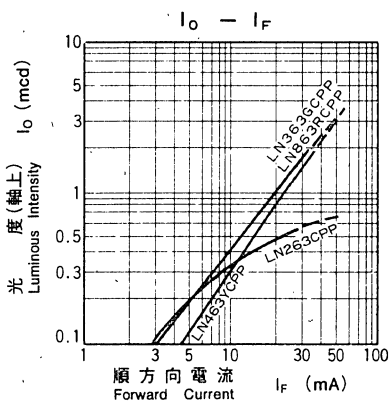
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

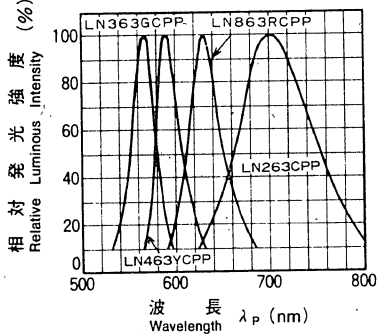
Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN263CPP	Red	Clear	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN363GCPP	Green	Green Clear	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN463YCPP	Amber	Amber Clear	0.8	0.30	20	2.2	2.8	590	30	20	10	4
LN863RCPP	Orange	Red Clear	1.0	0.40	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



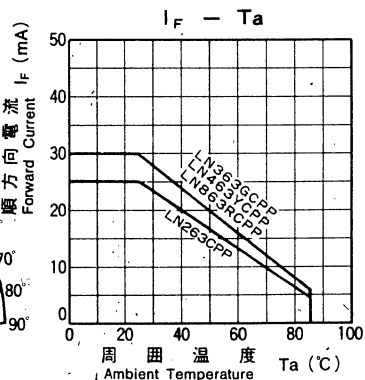
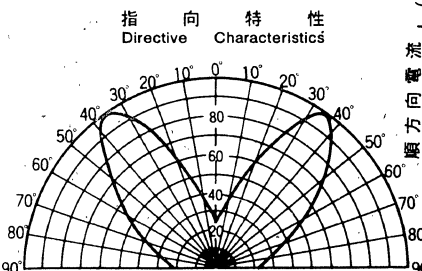
1 : Anode
2 : Cathode



相对発光強度-波長特性
Relative Luminous Intensity
Wavelength Characteristics



指向特性
Directive Characteristics



丸凸形

Round-Top View Type

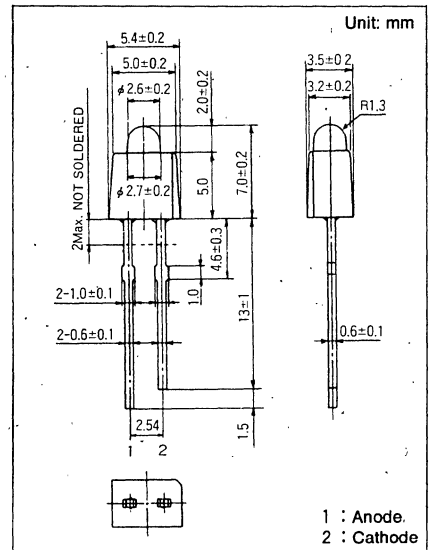
φ 2.6mm Series

Type No. Lighting Color
LN831RP Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

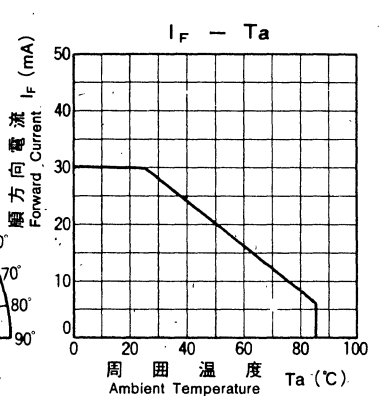
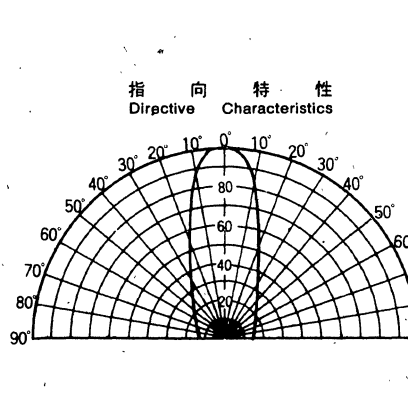
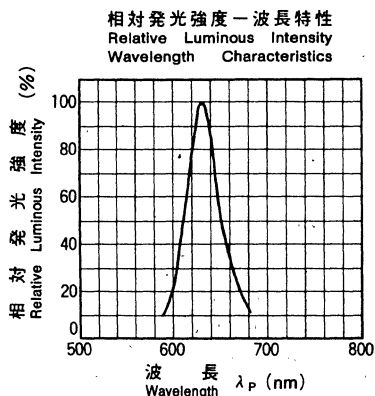
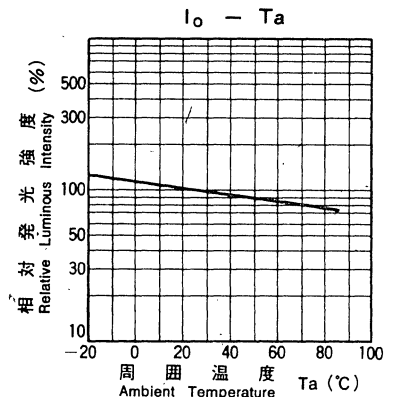
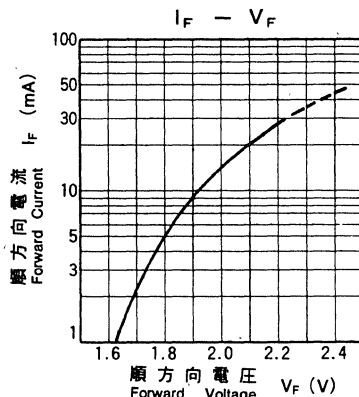
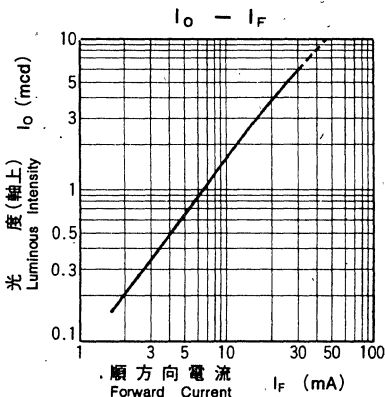
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN831RP	Orange	Red Diffused	4.0	1.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸凸形

Round-Top View Type

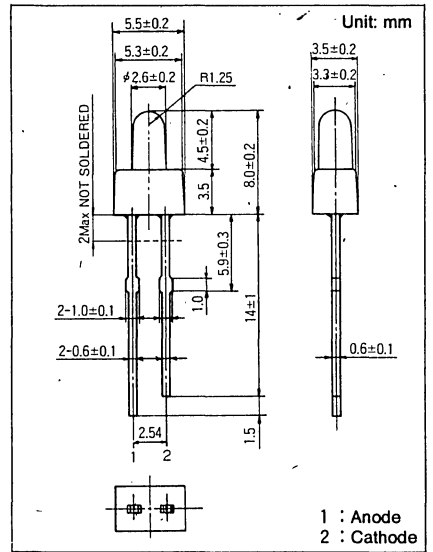
φ 2.6mm Series

Type No. Lighting Color
 LN221RP Red
 LN321GP Green
 LN421YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

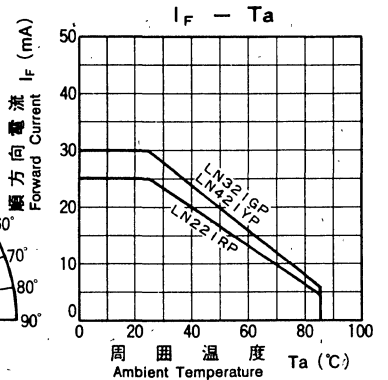
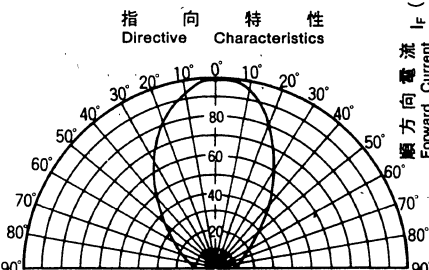
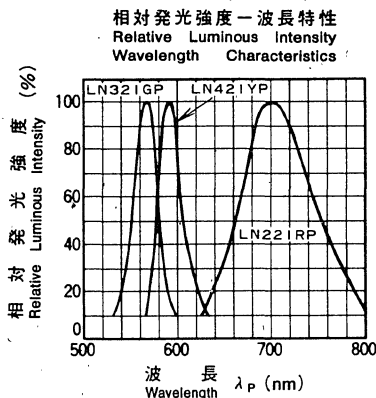
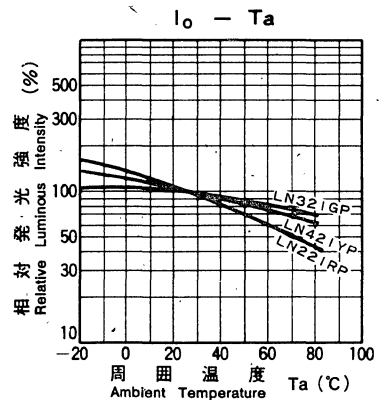
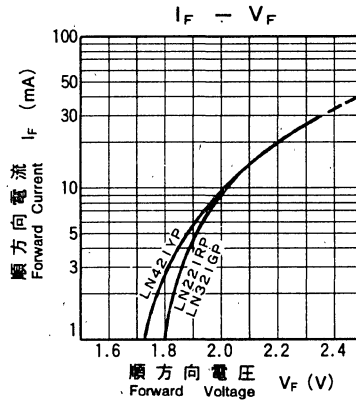
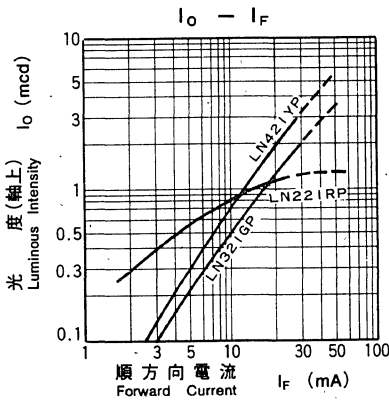
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN221RP	Red	Red Diffused	1.0	0.5	15	2.2	2.8	700	100	20	5	4
LN321GP	Green	Green Diffused	1.2	0.5	20	2.2	2.8	565	30	20	10	4
LN421YP	Amber	Amber Diffused	2.0	1.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸凸形

Round-Top View Type

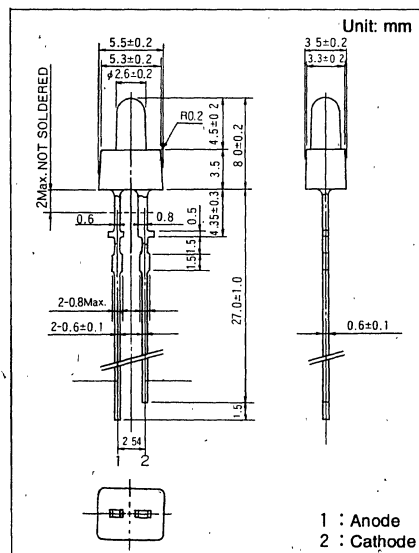
φ 2.6mm Series

Type No.	Lighting Color
LN221RPH	Red
LN321GPH	Green
LN421YPH	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

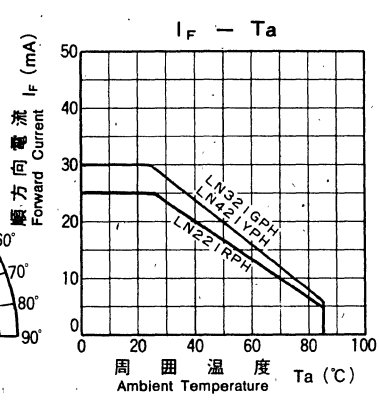
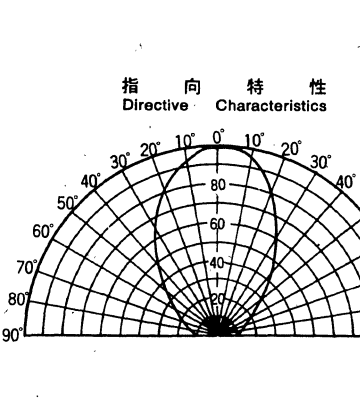
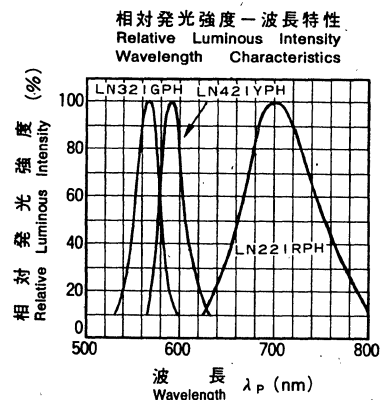
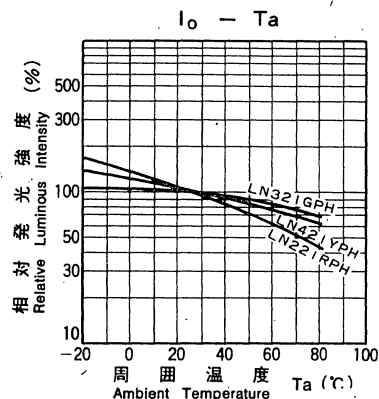
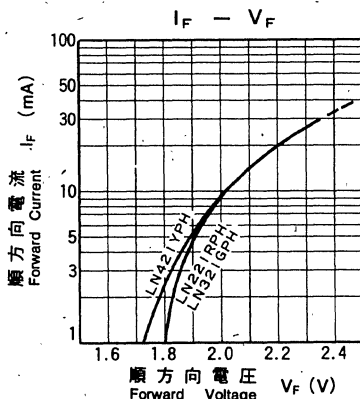
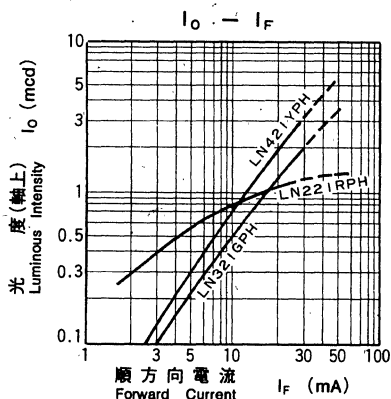
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN221RPH	Red	Red Diffused	1.0	0.5	15	2.2	2.8	700	100	20	5	4
LN321GPH	Green	Green Diffused	1.2	0.5	20	2.2	2.8	565	30	20	10	4
LN421YPH	Amber	Amber Diffused	2.0	1.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸凸形

Round-Top View Type

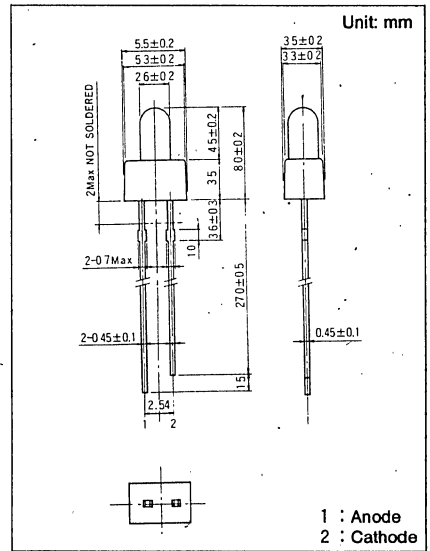
φ 2.6mm Series

Type No.	Lighting Color
LN221RPX	Red
LN321GPX	Green
LN421YPX	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

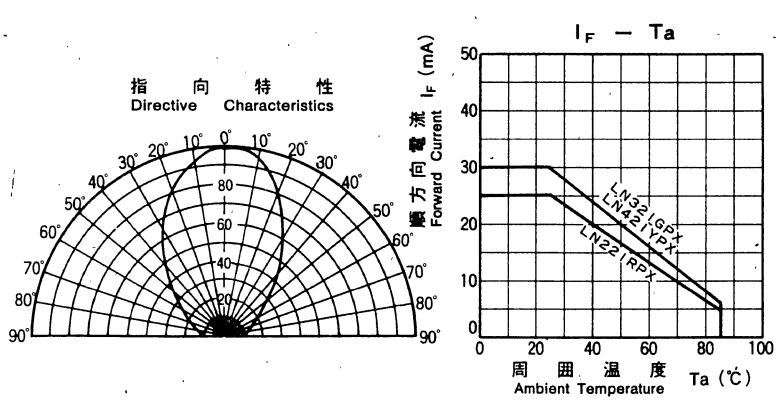
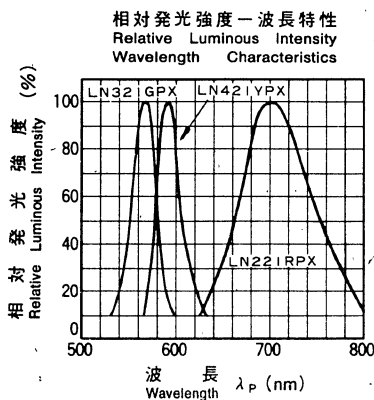
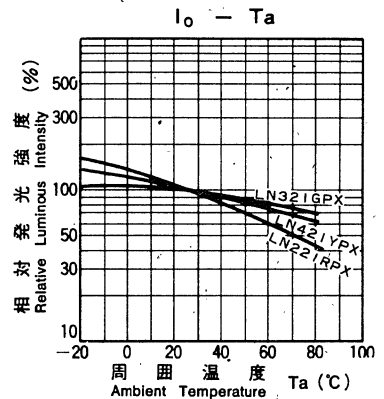
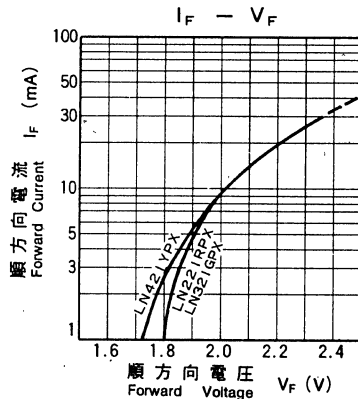
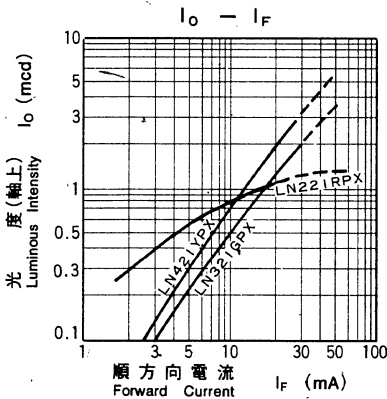
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _r	I _r	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN221RPX	Red	Red Diffused	1.0	0.5	15	2.2	2.8	700	100	20	5	4
LN321GPX	Green	Green Diffused	1.2	0.5	20	2.2	2.8	565	30	20	10	4
LN421YPX	Amber	Amber Diffused	2.0	1.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification

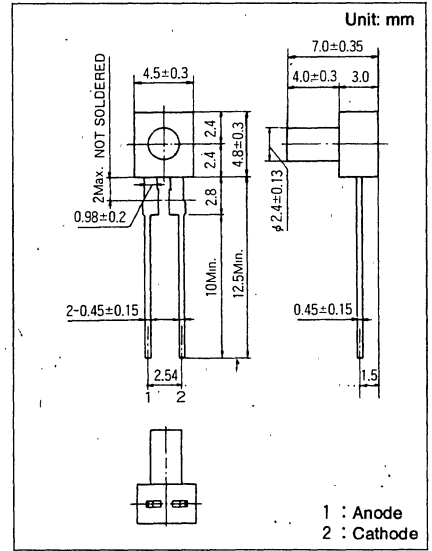


丸 横 形

Round—Side View Type

φ 2.4mm Series

Type No.	Lighting Color
LN26RP	Red
LN36BP	Green
LN46YP	Amber



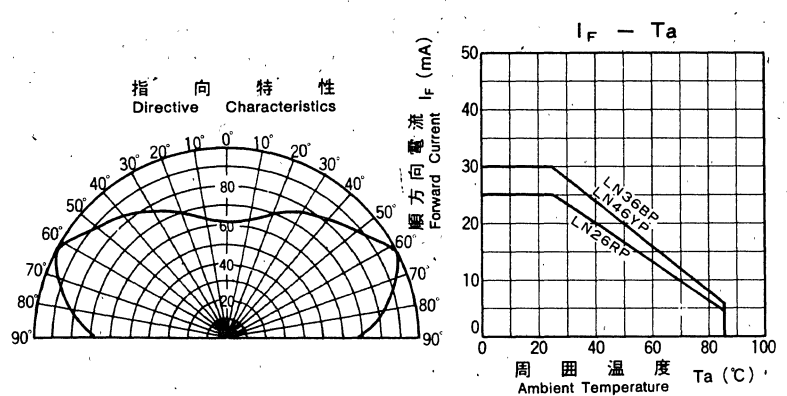
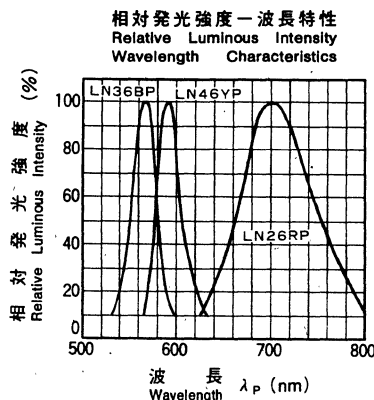
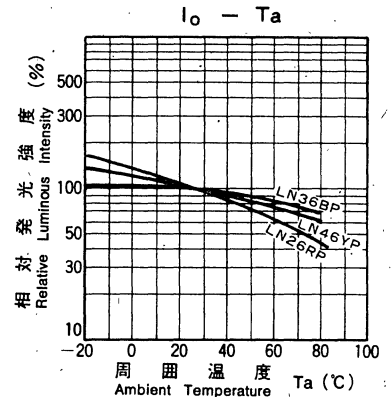
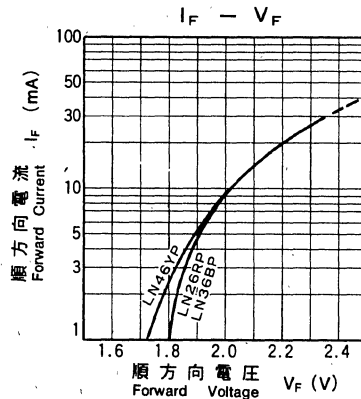
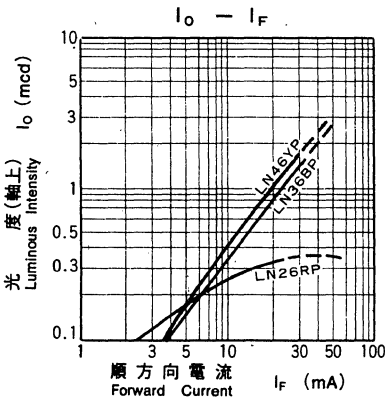
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	Max.	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN26RP	Red	Red Diffused	0.3	0.1	15	2.2	2.8	700	100	20	5	4
LN36BP	Green	Blue Diffused	0.8	0.2	20	2.2	2.8	565	30	20	10	4
LN46YP	Amber	Amber Diffused	1.0	0.2	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



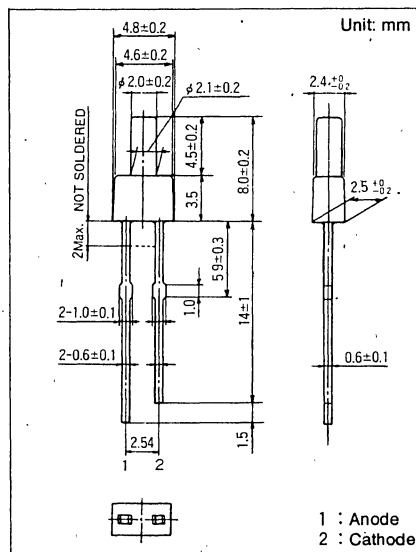
φ 2.0mm Series

Type No. Lighting Color
 LN222RP Red
 LN322GP Green
 LN422YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

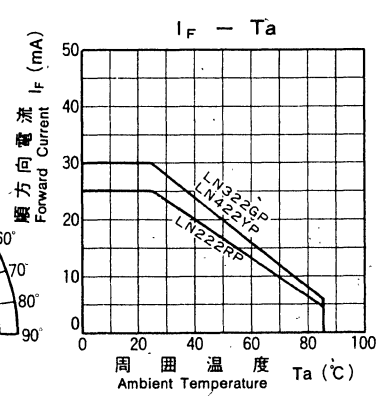
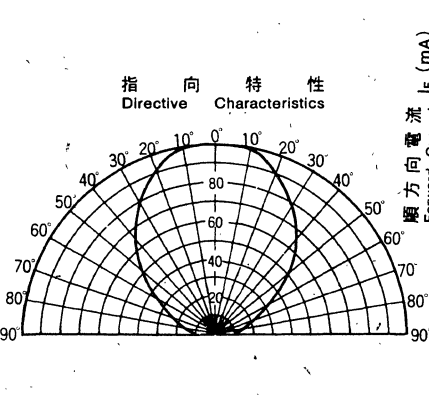
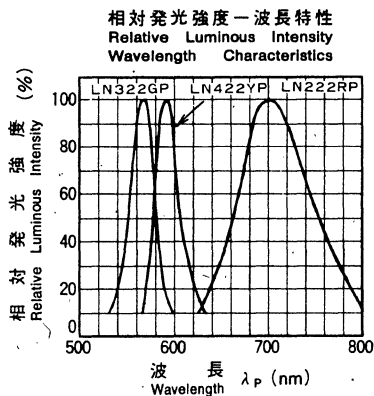
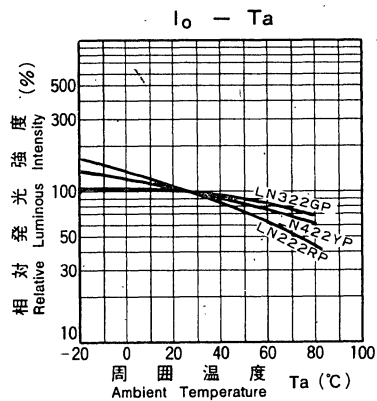
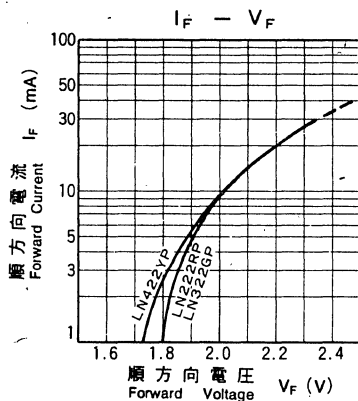
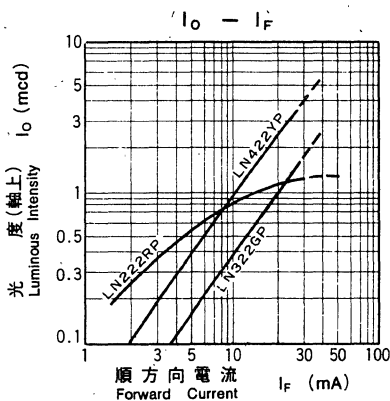
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN222RP	Red	Red Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN322GP	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4
LN422YP	Amber	Amber Diffused	2.5	1.2	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



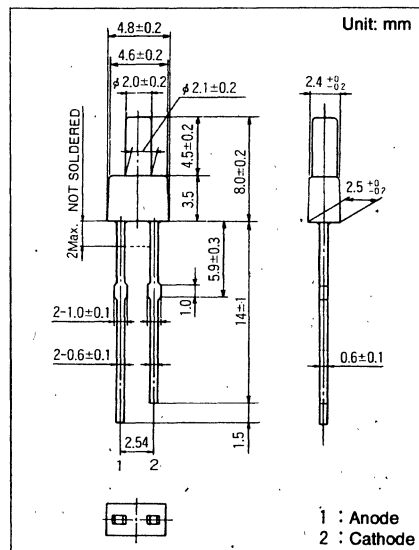
φ 2.0mm Series

Type No. Lighting Color
 LN222WP.....Red
 LN322WP.....Green
 LN422WP.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

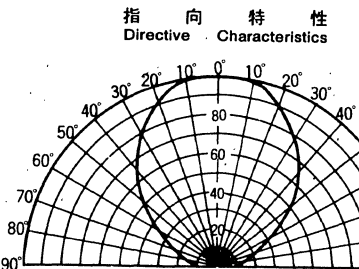
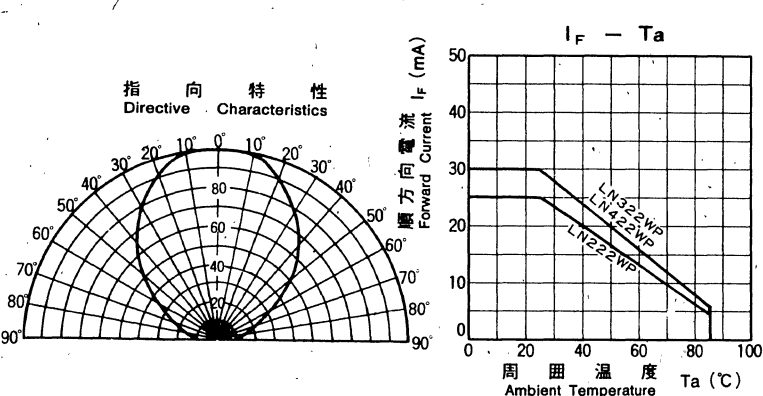
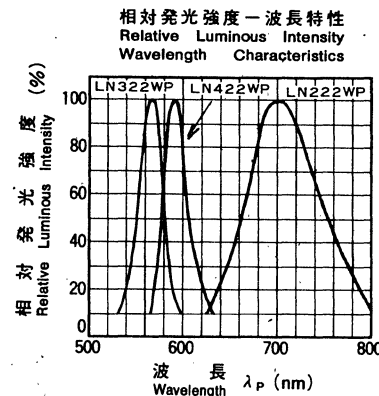
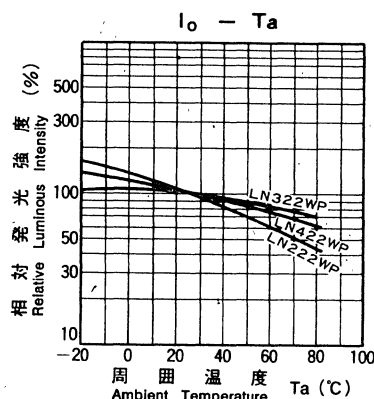
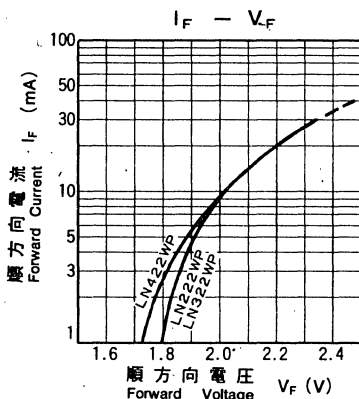
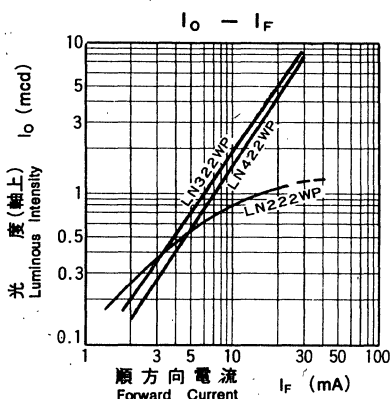
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN222WP	Red	White Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN322WP	Green	White Diffused	5.0	2.0	20	2.2	2.8	565	30	20	10	4
LN422WP	Amber	White Diffused	4.5	1.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



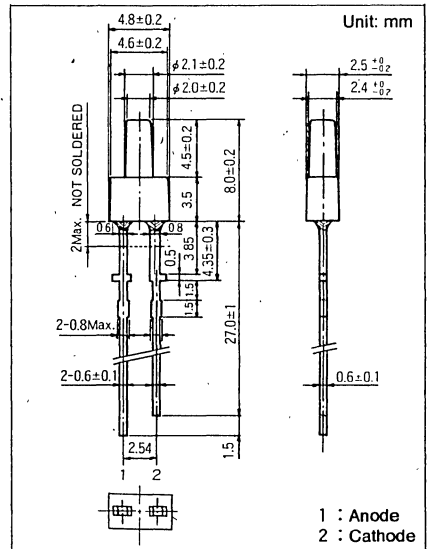
φ 2.0mm Series

Type No.	Lighting Color
LN222RPH	Red
LN322GPH	Green
LN422YPH	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

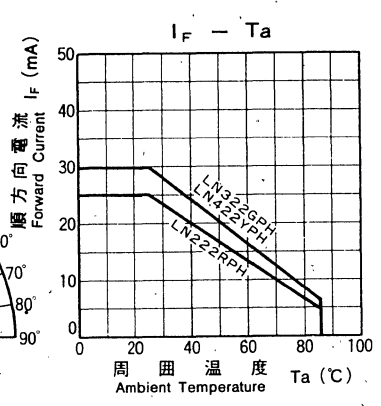
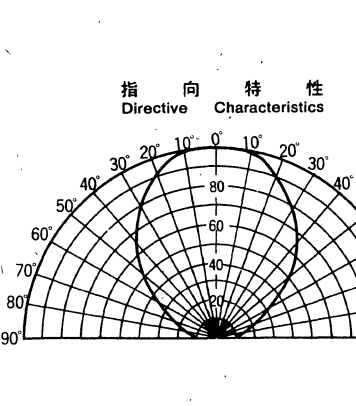
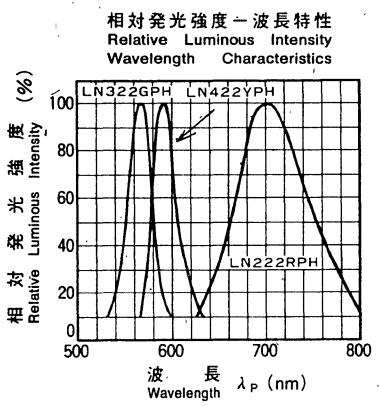
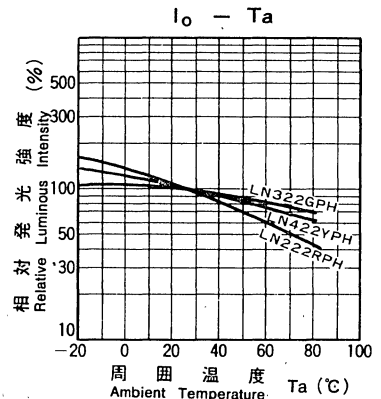
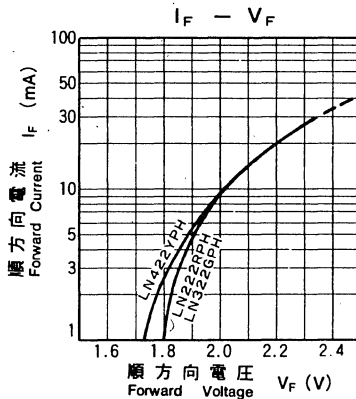
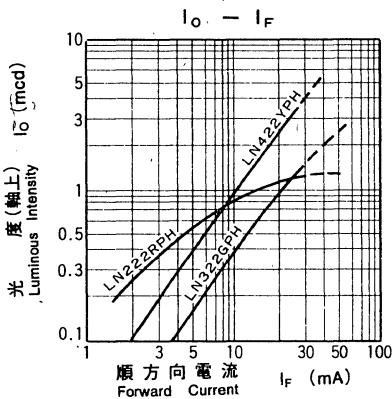
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R		V _R
			Typ.	Min.	I _F	Typ.	Max.				Max.	μA	
LN222RPH	Red	Red Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4	
LN322GPH	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4	
LN422YPH	Amber	Amber Diffused	2.5	1.2	20	2.2	2.8	590	30	20	10	4	
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V	



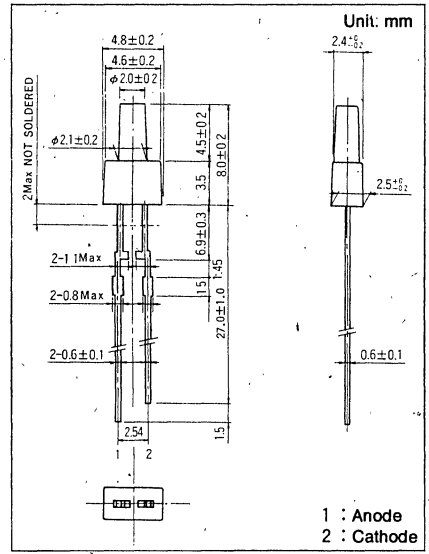
φ 2.0mm Series

Type No. Lighting Color
 LN222RPT.....Red
 LN322GPT.....Green
 LN422YPT.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

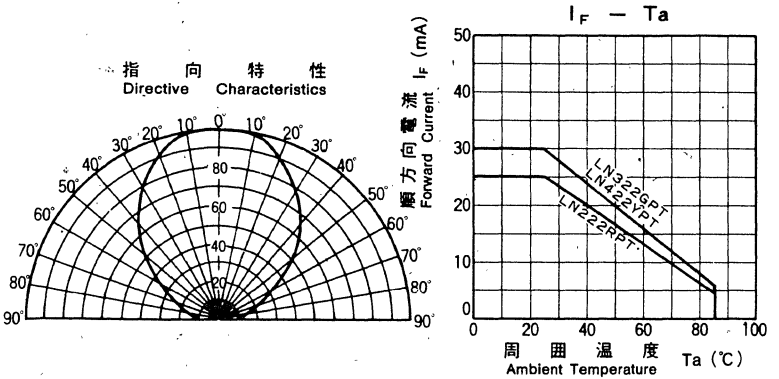
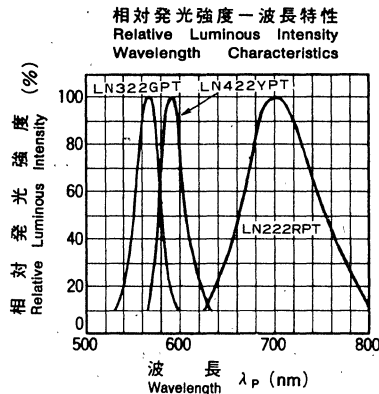
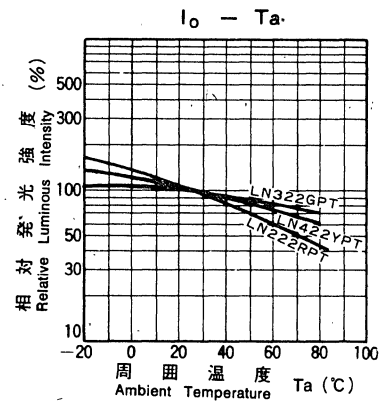
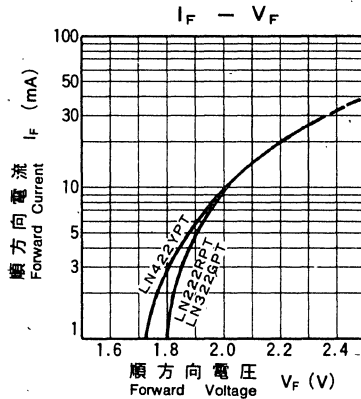
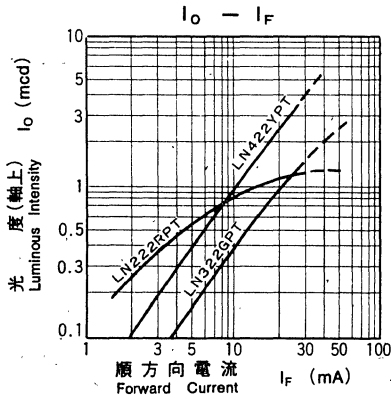
* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%、Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Mjn.	I _F	Typ.	Max.				I _F	Max.
LN222RPT	Red	Red Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN322GPT	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4
LN422YPT	Amber	Amber Diffused	2.5	1.2	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



丸凸形

Round-Top View Type

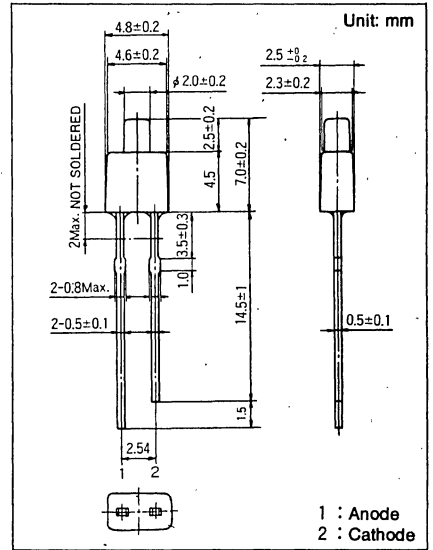
φ 2.0mm Series

Type No.	Lighting Color
LN230RPP	Red
LN330GPP	Green
LN430YPP	Amber
LN830RPP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

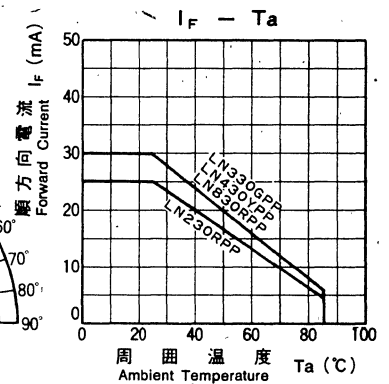
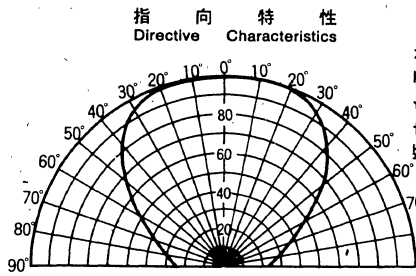
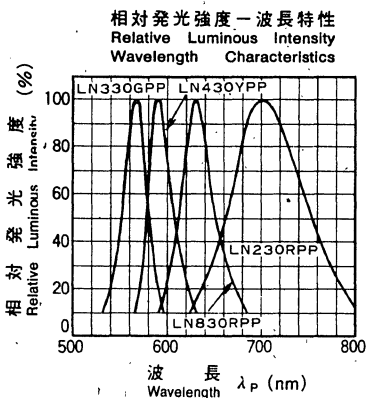
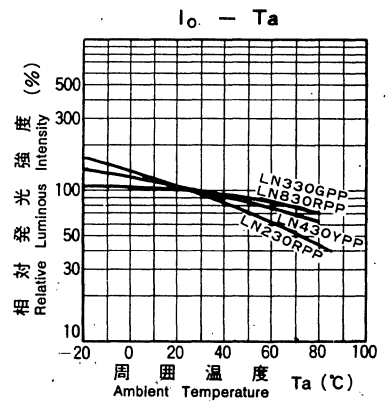
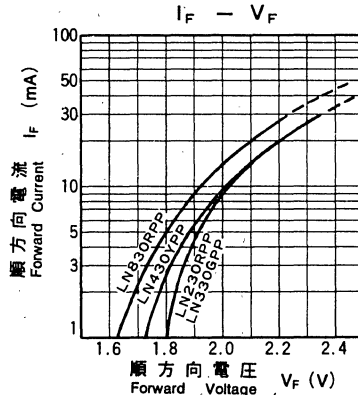
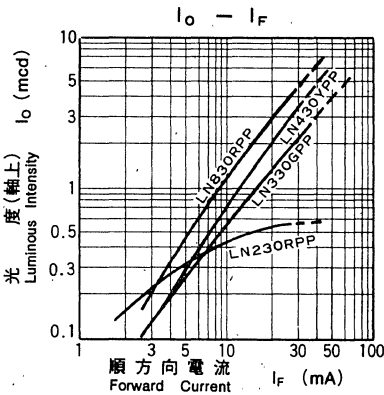
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.		Typ.	Max.				Max.	V _R
LN230RPP	Red	Red Diffused	0.5	0.20	15	2.2	2.8	700	100	20	5	4
LN330GPP	Green	Green Diffused	1.5	0.60	20	2.2	2.8	565	30	20	10	4
LN430YPP	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4
LN830RPP	Orange	Red Diffused	3.0	1.50	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸凸形

Round-Top View Type

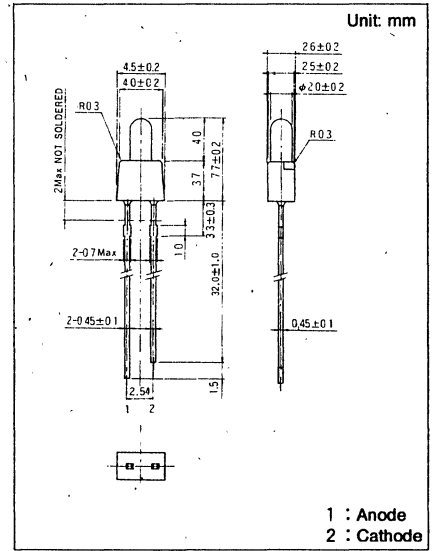
φ 2.0mm Series

Type No.	Lighting Color
LN282RPX	Red
LN382GPX	Green
LN482YPX	Amber
LN882RPX	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tatg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

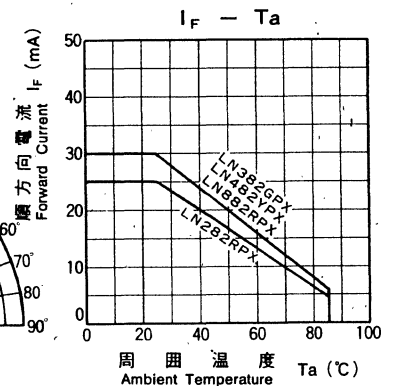
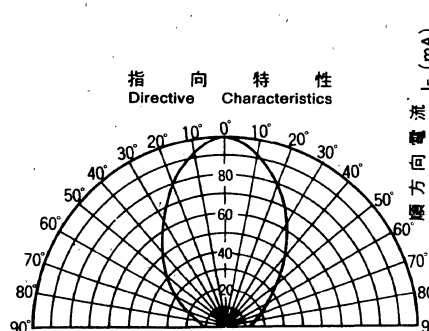
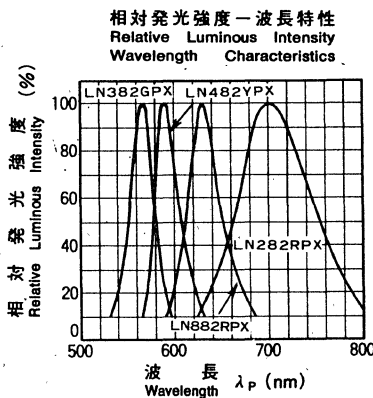
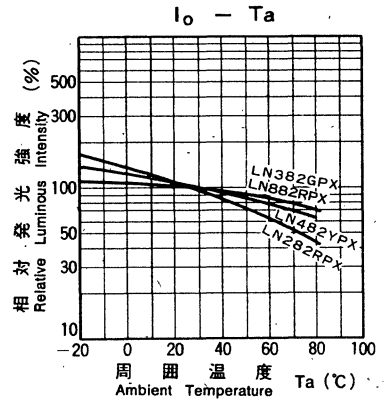
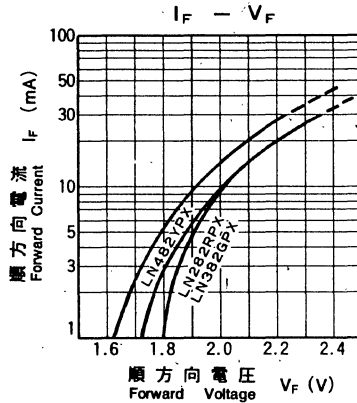
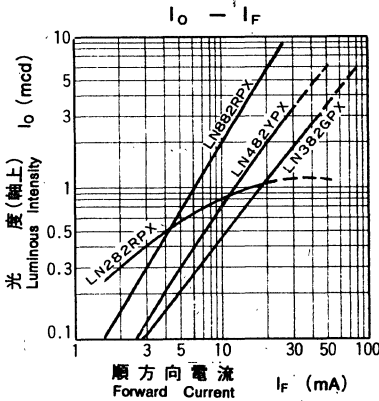
* I_{FP} の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P		I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
△ LN282RPX	Red	Red Diffused	1.0	0.5	15	2.2	2.8	700	100	20	5	4
△ LN382GPX	Green	Green Diffused	1.2	0.5	20	2.2	2.8	565	30	20	10	4
△ LN482YPX	Amber	Amber Diffused	2.0	1.0	20	2.2	2.8	590	30	20	10	4
LN882RPX	Orange	Red Diffused	6.0	2.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



可視発光ダイオード/VISIBLE LED'S

角 形

Square Type



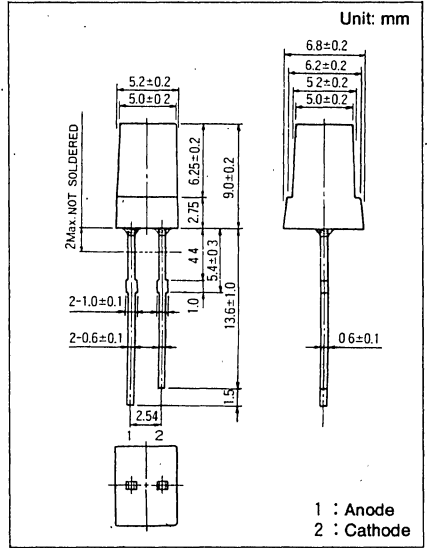
□ 5.0mm×5.0mm Series

Type No.	Lighting Color
LN250RP	Red
LN350GP	Green
LN450YP	Amber
LN850RP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

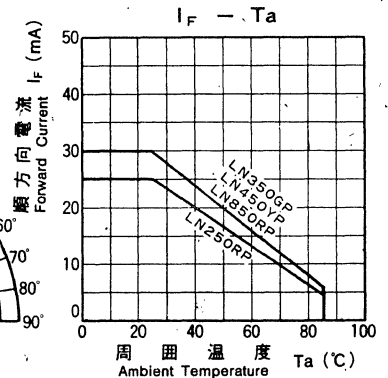
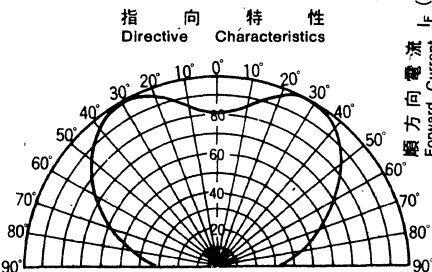
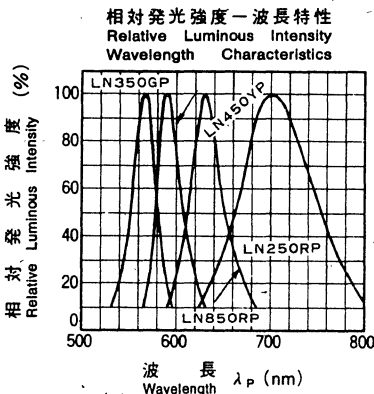
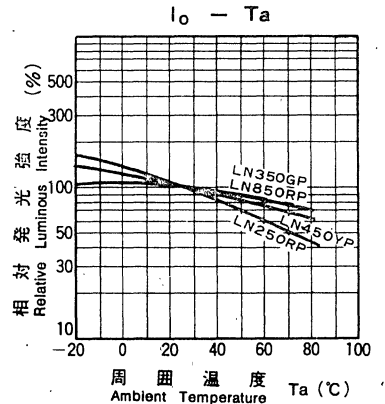
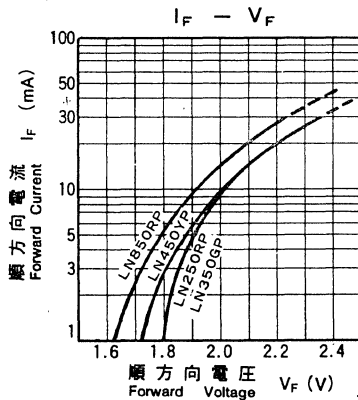
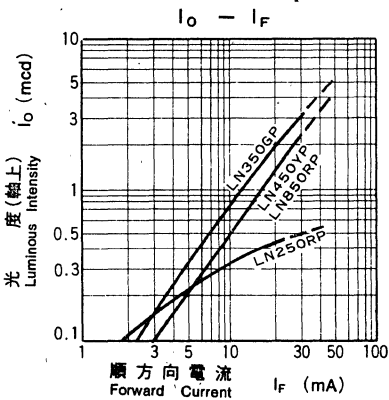
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN250RP	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN350GP	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN450YP	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN850RP	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



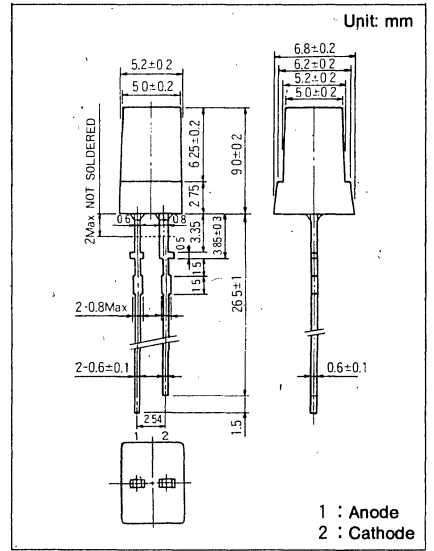
□ 5.0mm×5.0mm Series

Type No.	Lighting Color
LN250RPH	Red
LN350GPH	Green
LN450YPH	Amber
LN850RPH	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

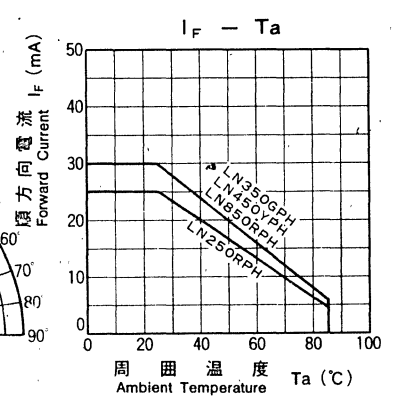
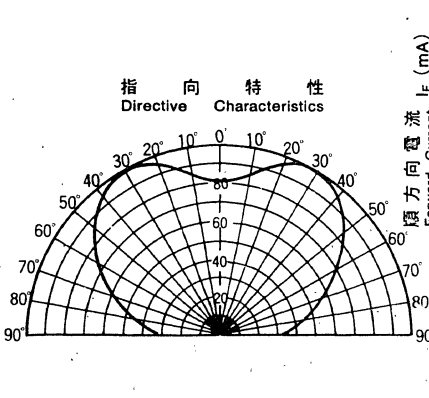
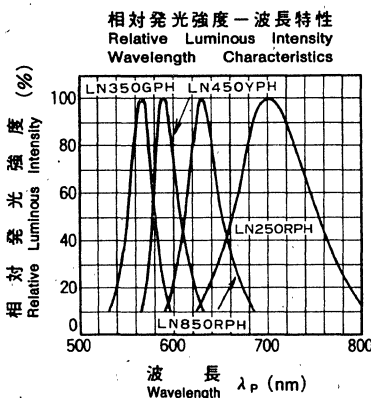
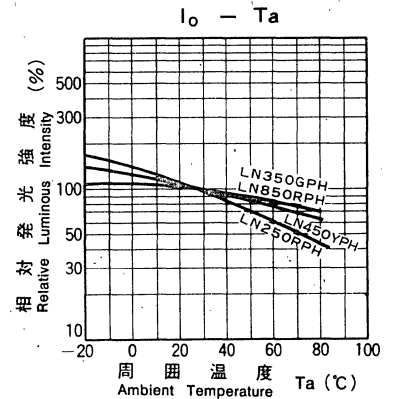
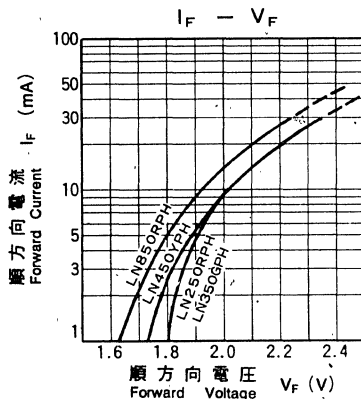
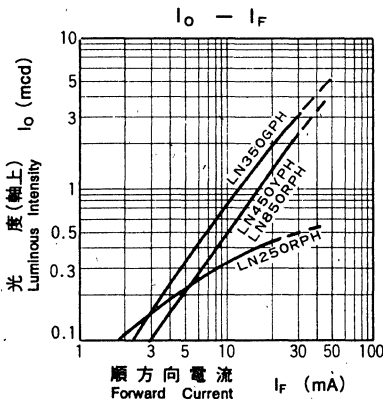
*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的・光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN250RPH	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN350GPH	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN450YPH	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN850RPH	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



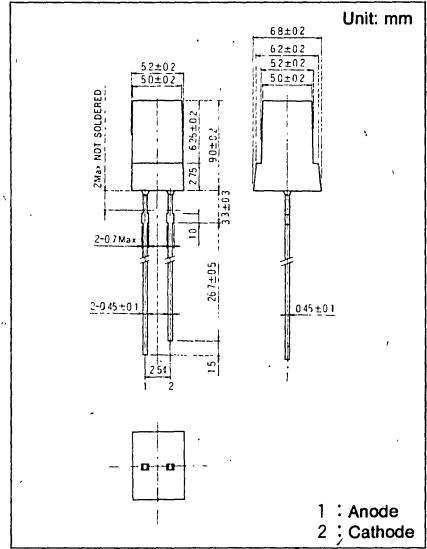
□ 5.0mm×5.0mm Series

Type No.	Lighting Color
LN250RPX	Red
LN350GPX	Green
LN450YPX	Amber
LN850RPX	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

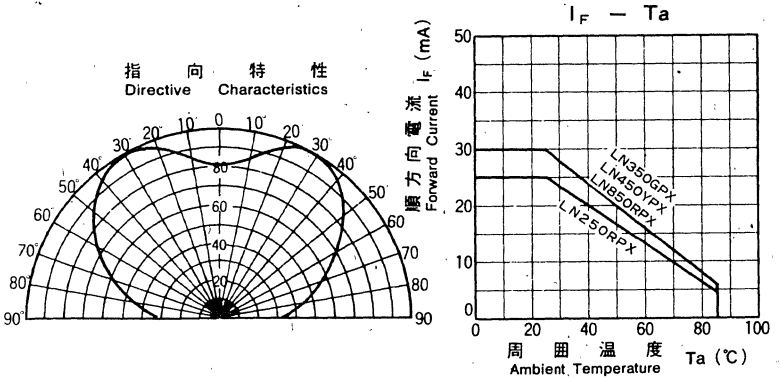
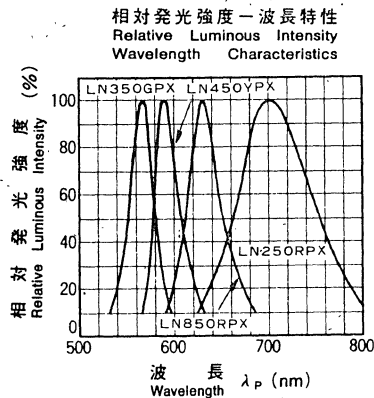
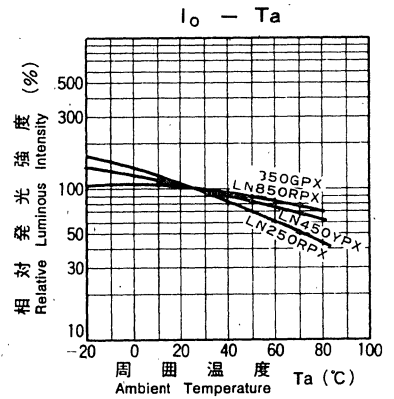
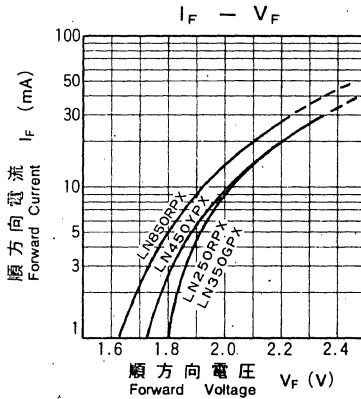
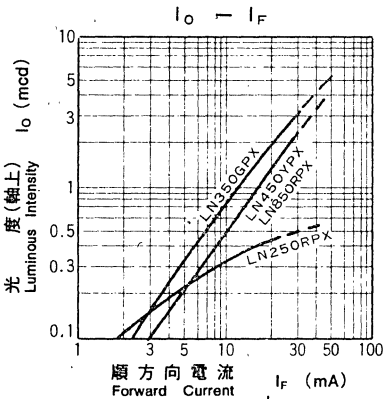
* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%、Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN250RPX	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN350GPX	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN450YPX	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN850RPX	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形

Square Type

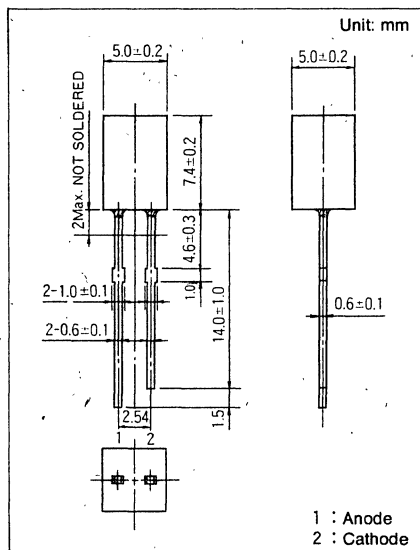
□ 5.0mm×5.0mm Series

Type No.	Lighting Color
LN273RP	Red
LN373GP	Green
LN473YP	Amber
LN873RP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

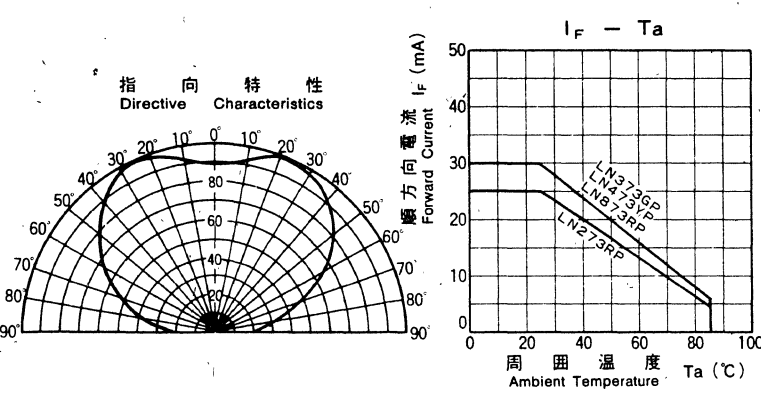
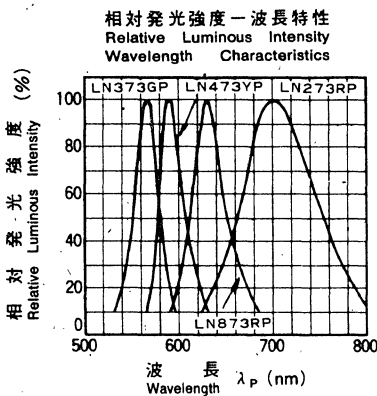
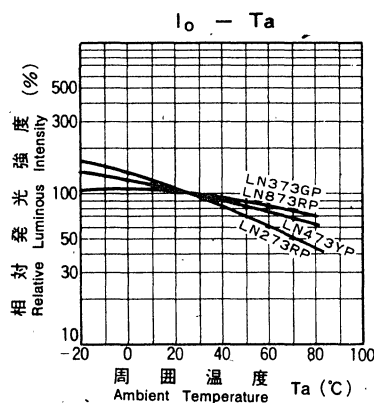
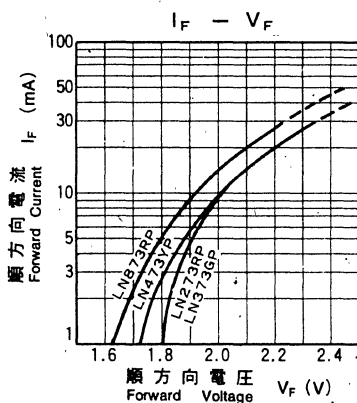
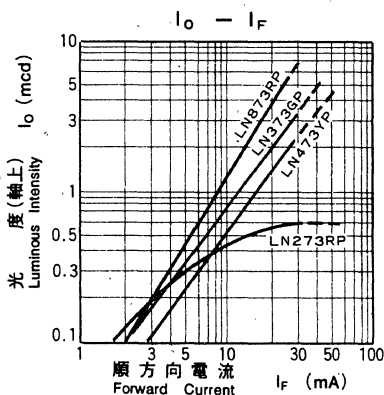
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.		Typ.	Max.				Max.	V _R
LN273RP	Red	Red Diffused	0.5	0.20	15	2.2	2.8	700	100	20	5	4
LN373GP	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN473YP	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN873RP	Orange	Red Diffused	4.0	1.50	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

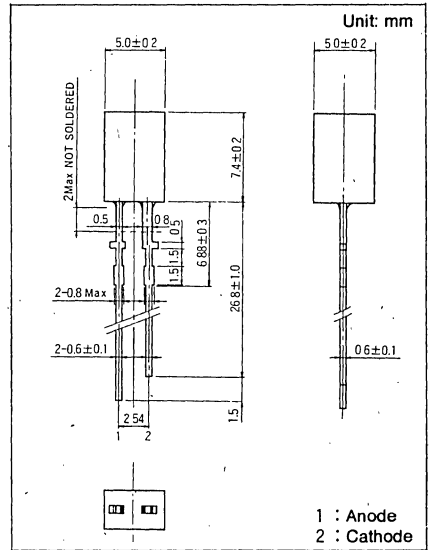
5.0mm×5.0mm Series

Type No. Lighting Color
 LN273RPH Red
 LN373GPH Green
 LN473YPH Amber
 LN873RPH Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

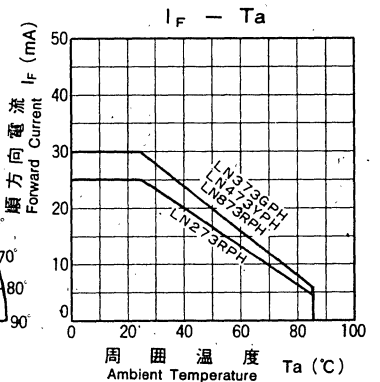
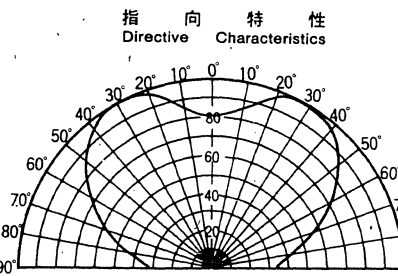
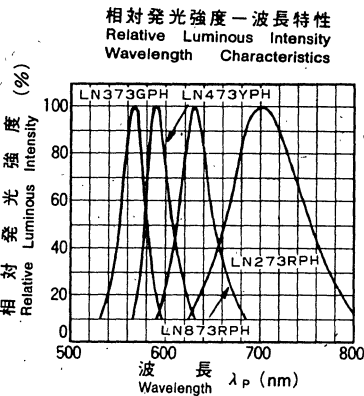
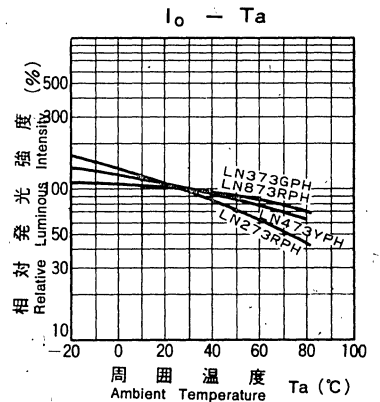
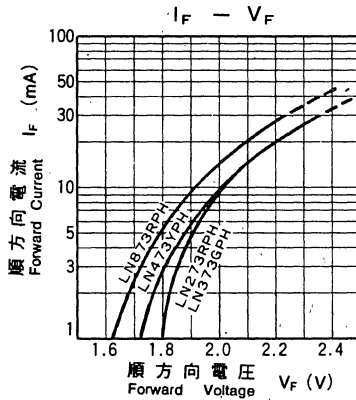
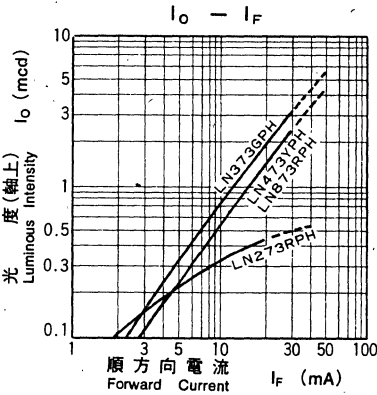
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN273RPH	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN373GPH	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN473YPH	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN873RPH	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



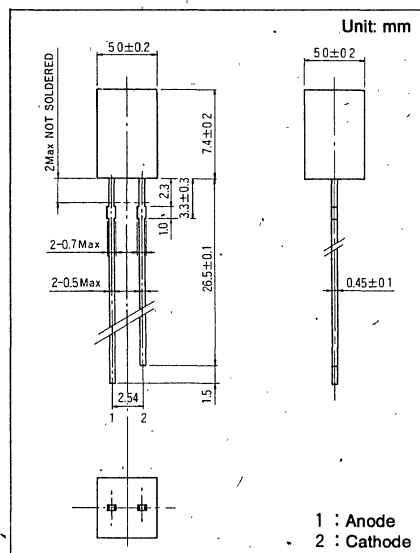
□ 5.0mm×5.0mm Series

Type No. Lighting Color
 LN273RPXRed
 LN373GPXGreen
 LN473YPXAmber
 LN873RPXOrange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

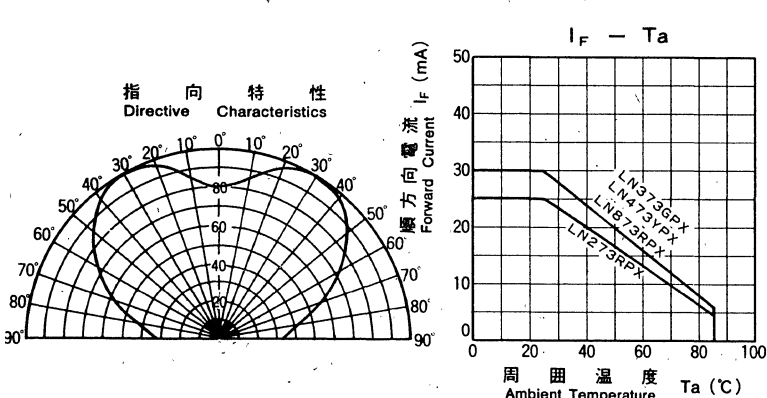
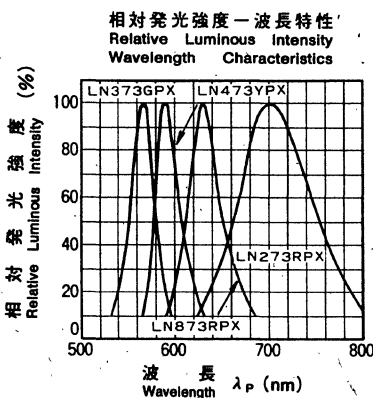
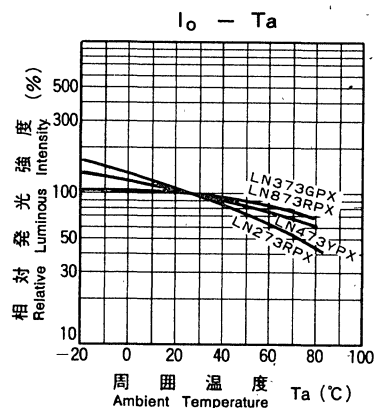
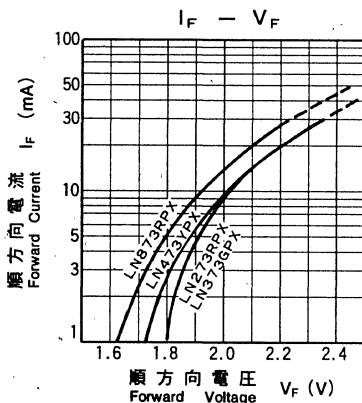
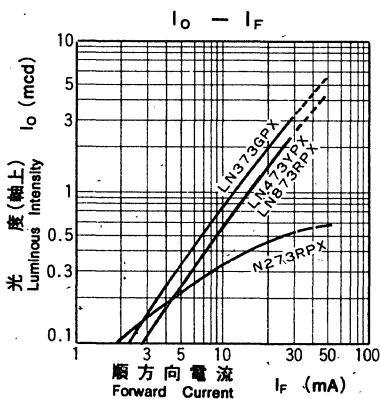
* I_{FP}の条件は、duty,10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN273RPX	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN373GPX	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN473YPX	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN873RPX	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形

Square Type

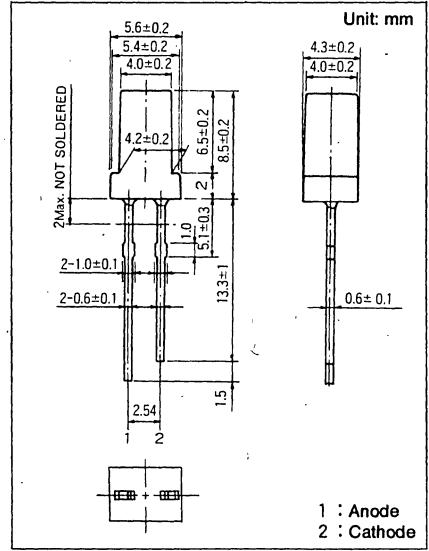
4.0mm×4.0mm Series

Type No. Lighting Color
 LN252RP Red
 LN352GP Green
 LN452YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

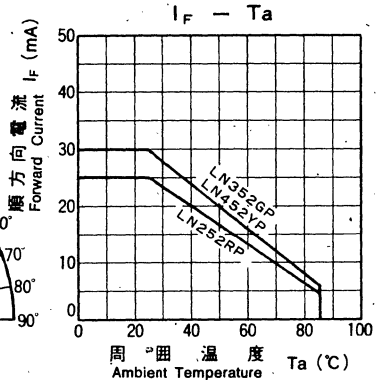
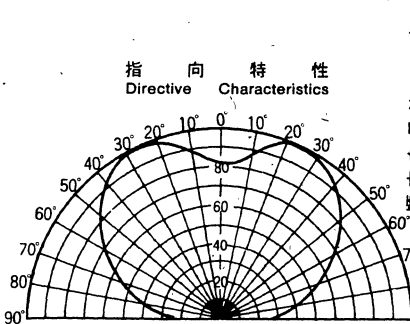
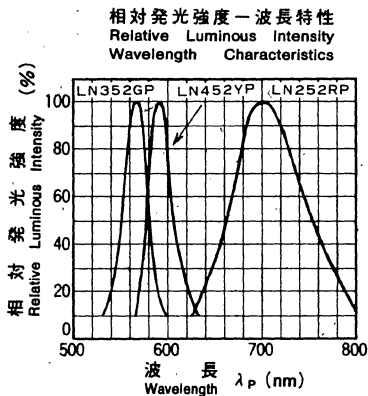
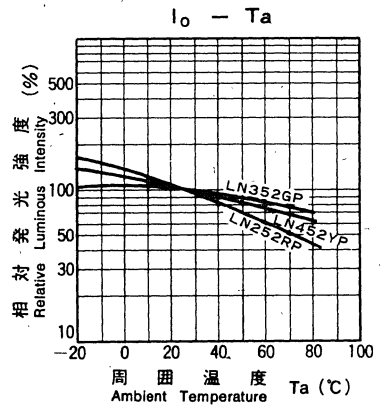
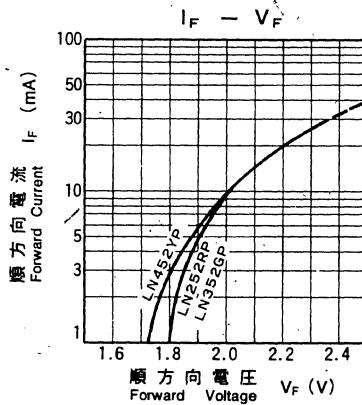
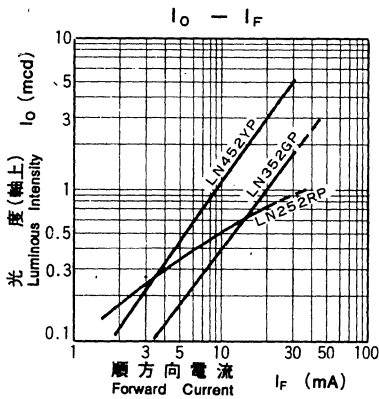
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN252RP	Red	Red Diffused	0.6	0.25	15	2.2	2.8	700	100	20	5	4
LN352GP	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN452YP	Amber	Amber Diffused	3.0	1.00	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角

形

Square Type

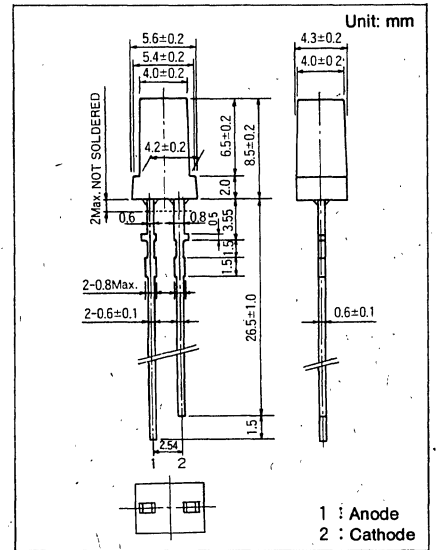
□ 4.0mm×4.0mm Series

Type No.	Lighting Color
LN252RPH	Red
LN352GPH	Green
LN452YPH	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

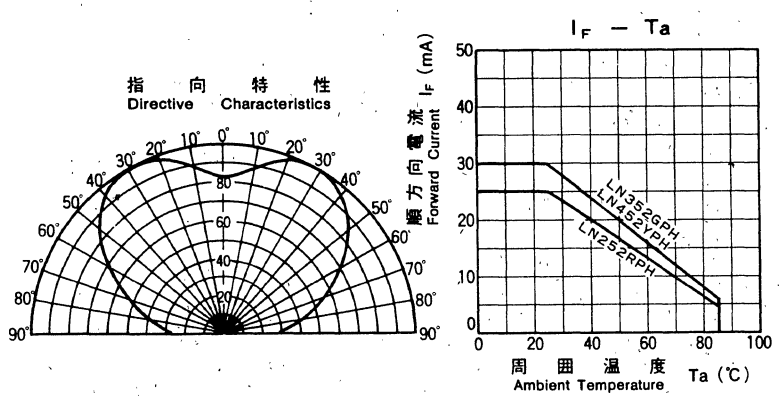
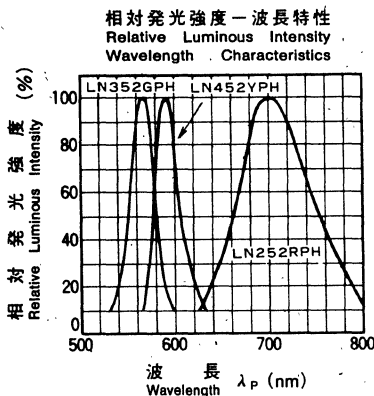
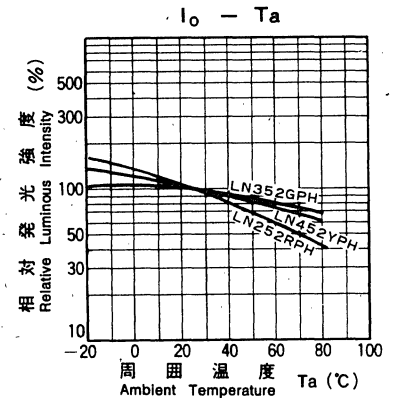
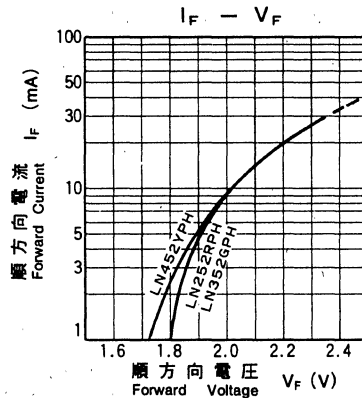
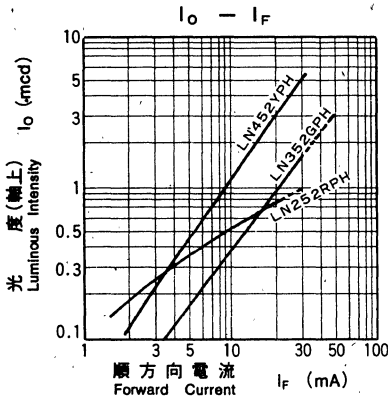
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

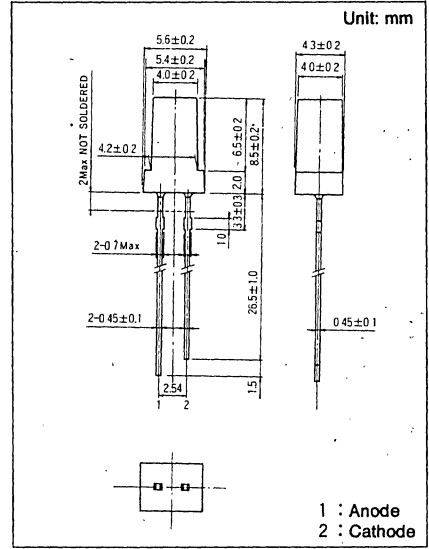
Type No.	Lighting Color	Lens Color	I ₀			V _F *		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN252RPH	Red	Red Diffused	0.6	0.25	15	2.2	2.8	700	100	20	5	4
LN352GPH	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN452YPH	Amber	Amber Diffused	3.0	1.00	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

□ 4.0mm×4.0mm Series

Type No. Lighting Color
 LN252RPX Red
 LN352GPX Green
 LN452YPX Amber



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

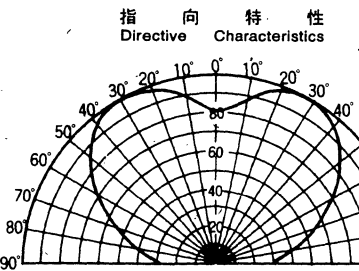
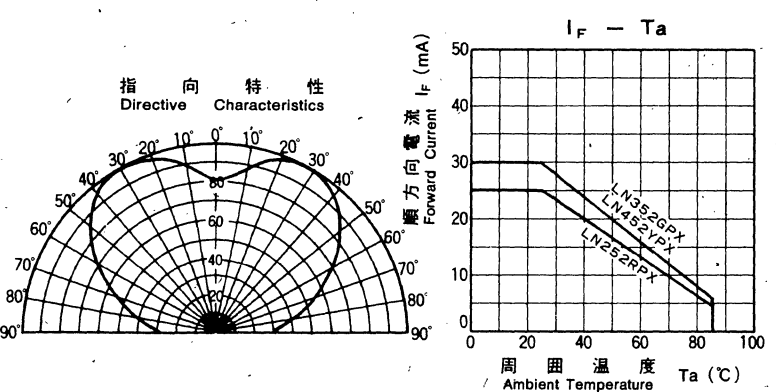
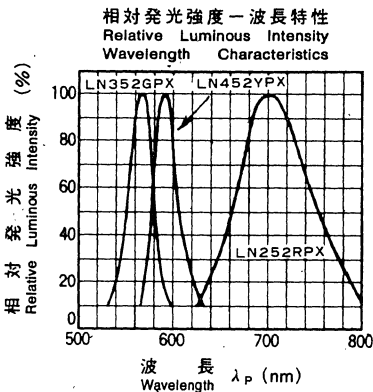
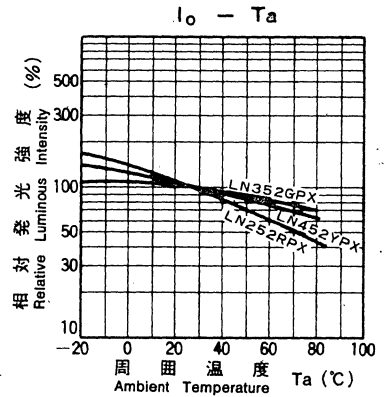
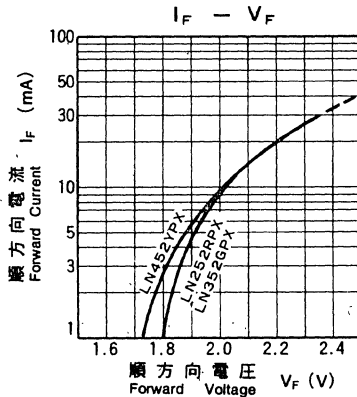
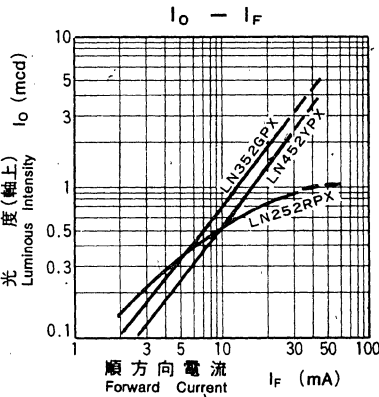
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN252RPX	Red	Red Diffused	0.6	0.2	15	2.2	2.8	700	100	20	5	4
LN352GPX	Green	Green Diffused	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN452YPX	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形

Square Type

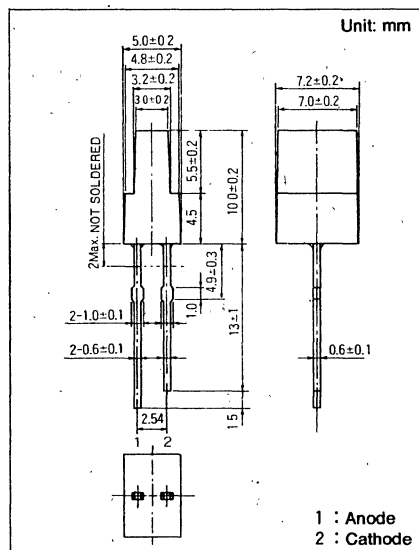
□ 3.0mm×7.0mm Series

Type No.	Lighting Color
LN216RP	Red
LN316GP	Green
LN416YP	Amber
LN816RP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

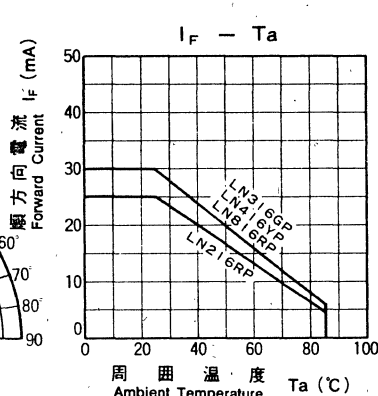
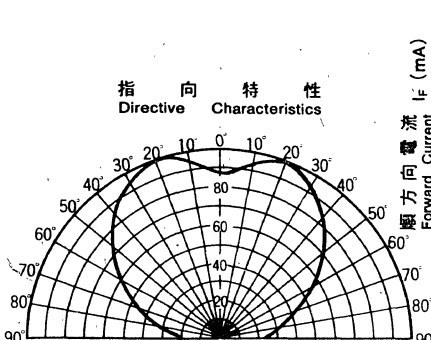
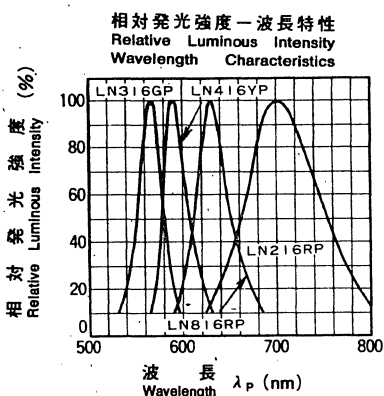
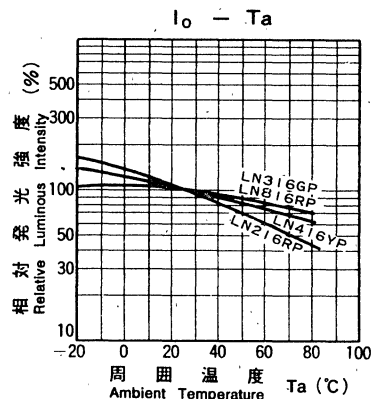
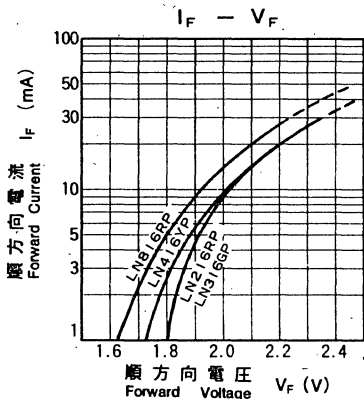
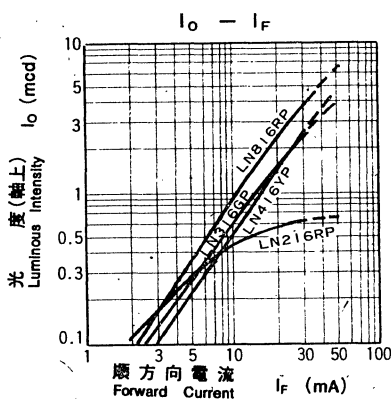
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN216RP	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN316GP	Green	Green Diffused	1.5	0.6	20	2.2	2.8	565	30	20	10	4
LN416YP	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
LN816RP	Orange	Red Diffused	2.5	1.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



3.0mm×7.0mm Series

Type No. Lighting Color
 LN216RPH Red
 LN316GPH Green
 LN416YPH Amber
 LN816RPH Orange

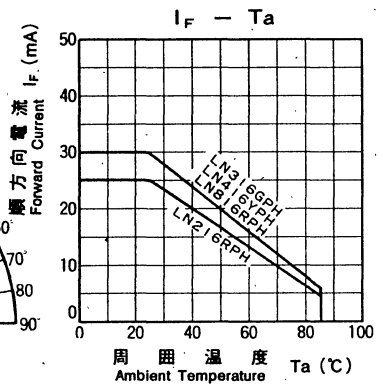
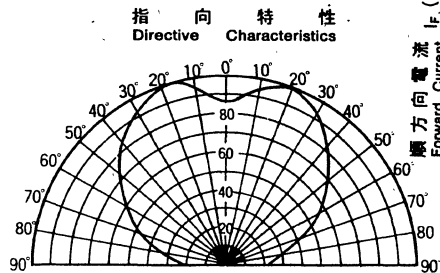
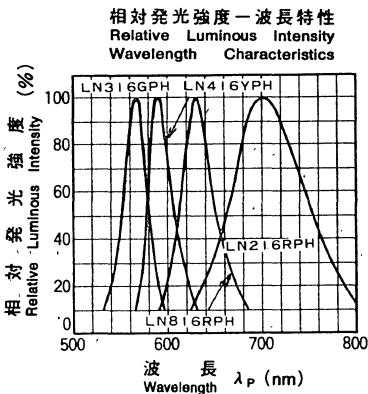
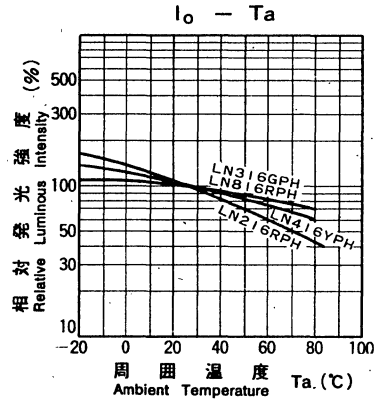
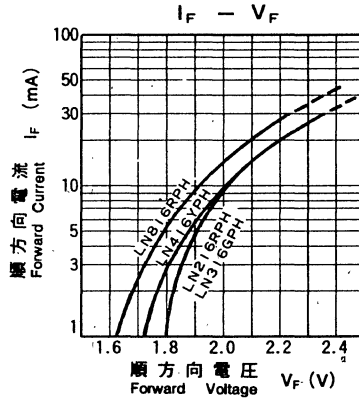
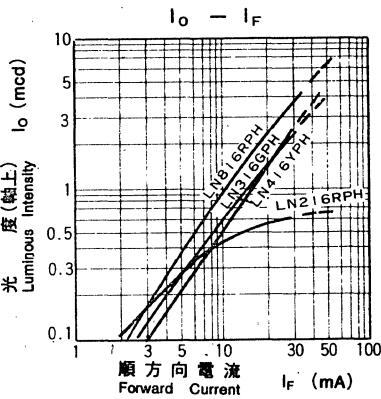
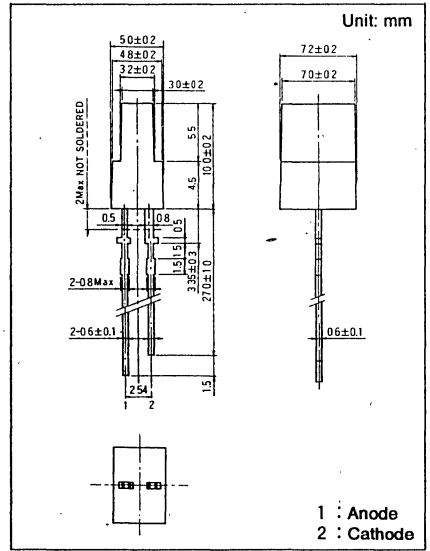
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	PD (mW)	IF (mA)	IFP (mA)*	VR (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* IFP の条件は、duty 10%, Pulse width 1 msec. The condition of IFP is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	Io		IF	VF		λP	Δλ	IF	ta	
			Typ.	Min.		Typ.	Max.				μA	VA
LN216RPH	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	20	20	5	4
LN316GPH	Green	Green Diffused	1.5	0.6	20	2.2	2.8	565	30	20	10	4
LN416YPH	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
LN816RPH	Orange	Red Diffused	2.5	1.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



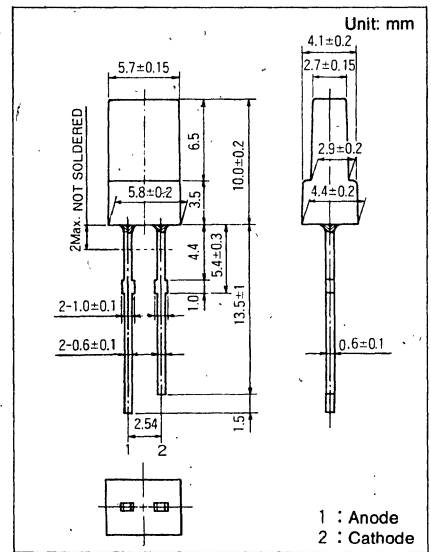
□ 2.7mm×5.7mm Series

Type No.	Lighting Color
LN249RP	Red
LN349GP	Green
LN449YP	Amber
LN849RP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

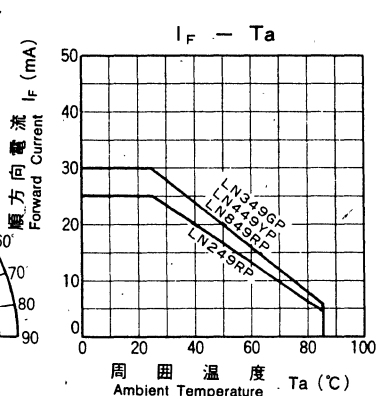
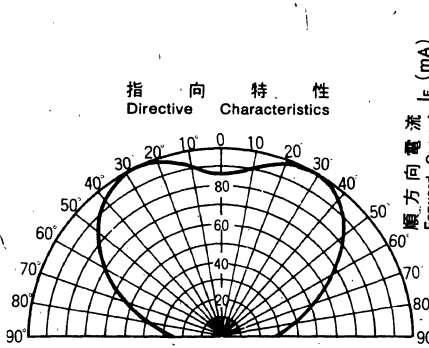
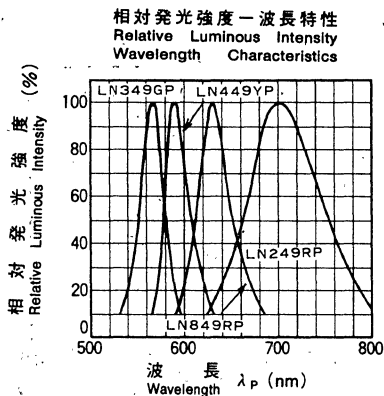
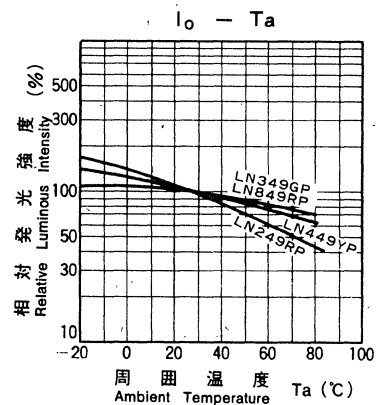
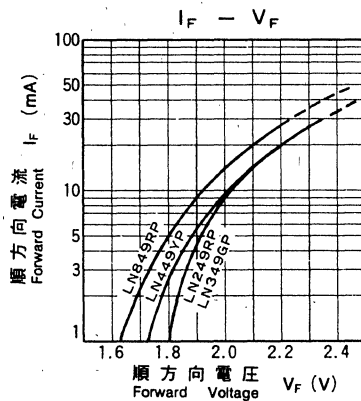
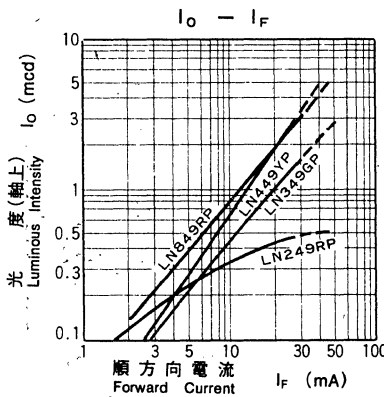
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P		Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			Max.	V _R
LN249RP	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4	
LN349GP	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4	
LN449YP	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4	
LN849RP	Orange	Red Diffused	2.0	0.75	20	2.1	2.8	630	40	20	10	3	
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V	



□ 2.7mm×5.7mm Series

Type No.	Lighting Color
LN249RPH	Red
LN349GPH	Green
LN449YPH	Amber
LN849RPH	Orange

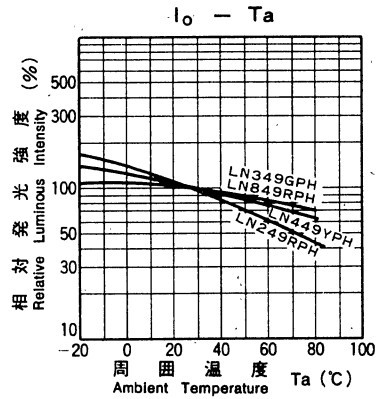
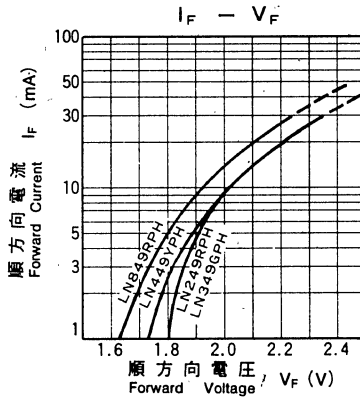
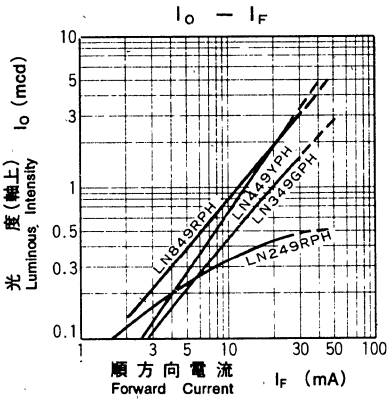
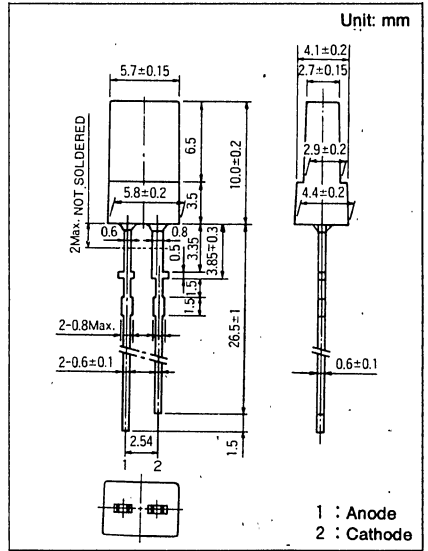
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

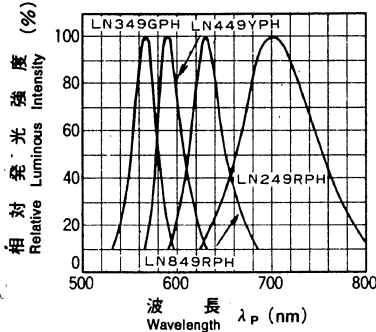
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

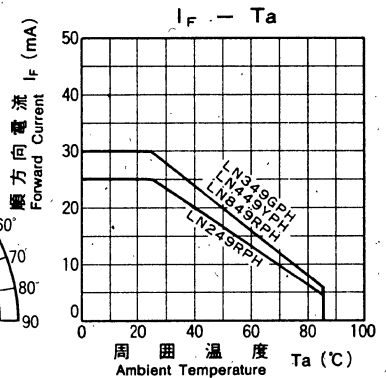
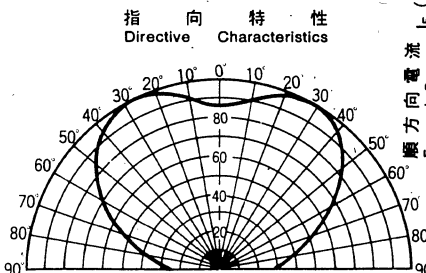
Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN249RPH	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN349GPH	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN449YPH	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4
LN849RPH	Orange	Red Diffused	2.0	0.75	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



相对発光強度一波長特性
Relative Luminous Intensity
Wavelength Characteristics



指向特性
Directive Characteristics



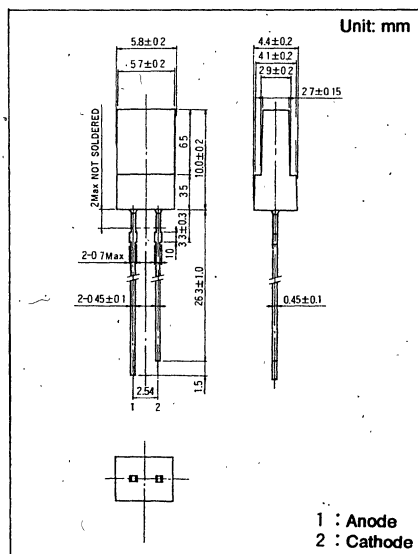
□ 2.7mm×5.7mm Series

Type No.	Lighting Color
LN249RPX	Red
LN349GPX	Green
LN449YPX	Amber
LN849RPX	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

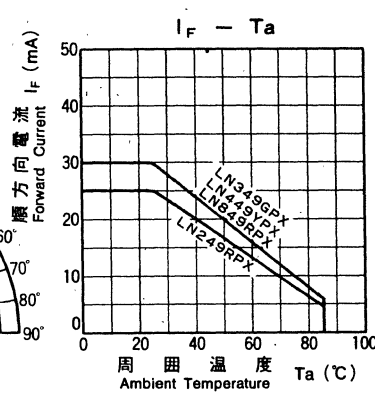
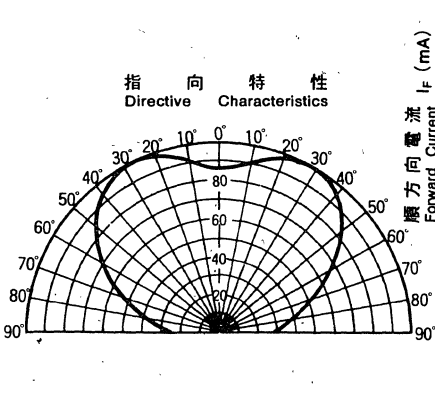
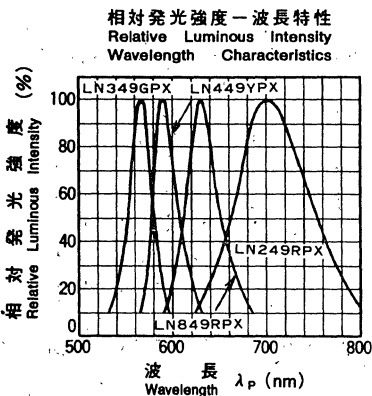
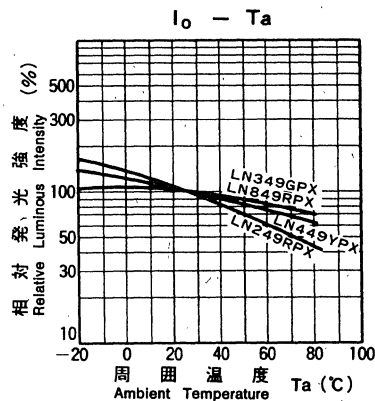
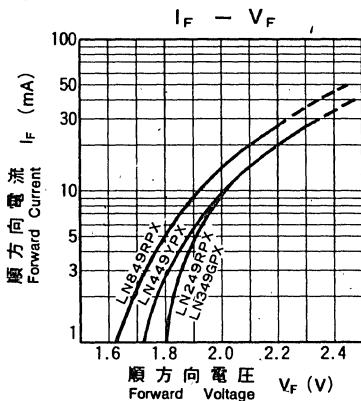
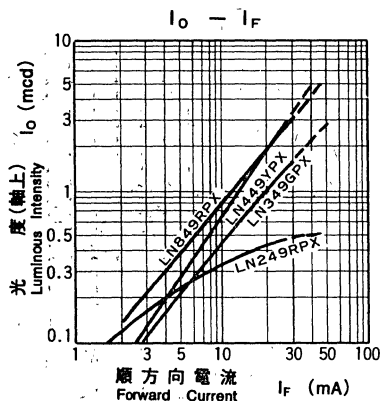
*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN249RPX	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN349GPX	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN449YPX	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4
LN849RPX	Orange	Red Diffused	2.0	0.75	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



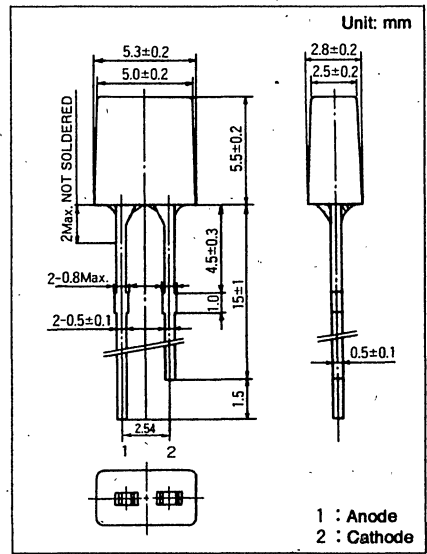
□ 2.5mm×5.0mm Series

Type No.	Lighting Color
LN210RP	Red
LN310GP	Green
LN410YP	Amber
LN810RP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

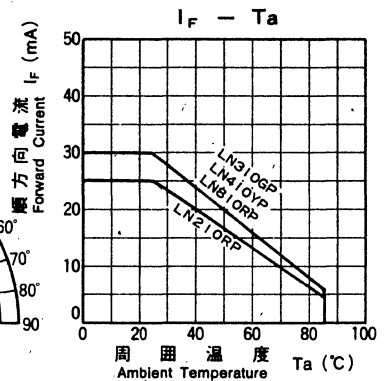
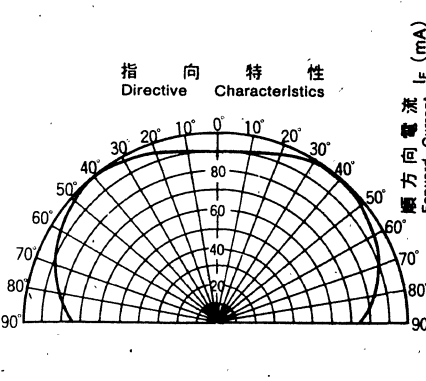
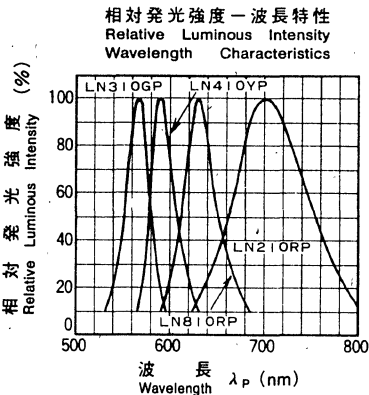
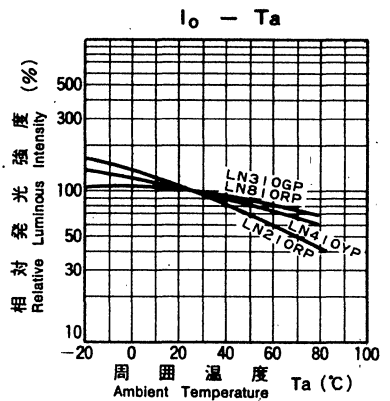
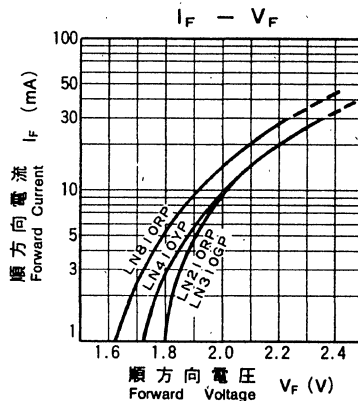
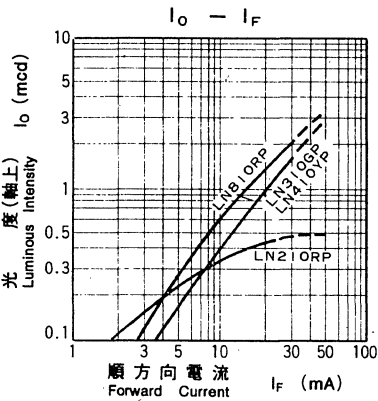
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{op} (°C)	T _{sig} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

*I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%、Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _r	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN210RP	Red	Red Diffused	0.4	0.10	15	2.2	2.8	700	100	20	5	4
LN310GP	Green	Green Diffused	1.0	0.45	20	2.2	2.8	565	30	20	10	4
LN410YP	Amber	Amber Diffused	1.0	0.40	20	2.2	2.8	590	30	20	10	4
LN810RP	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



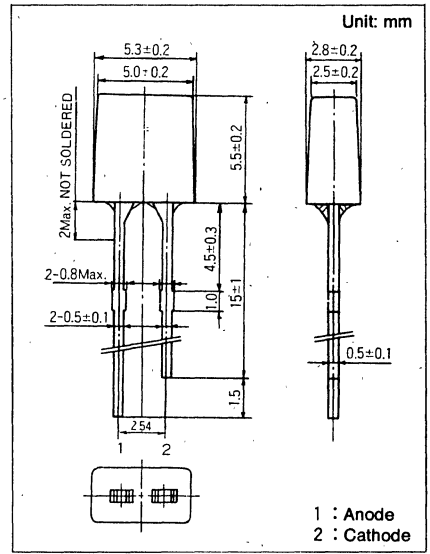
□ 2.5mm×5.0mm Series

Type No. Lighting Color
 LN210WP.....Red
 LN310WP.....Green
 LN410WP.....Amber
 LN810WP.....Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

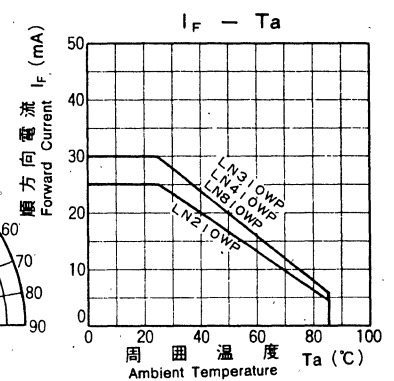
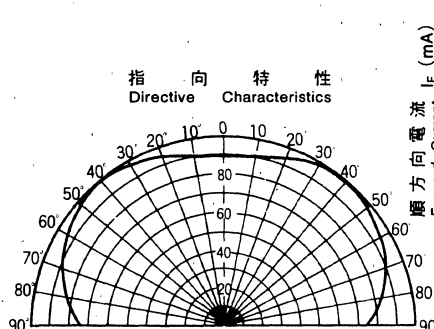
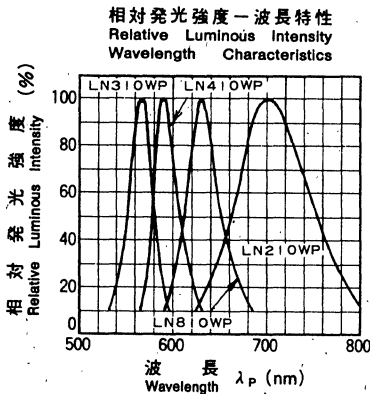
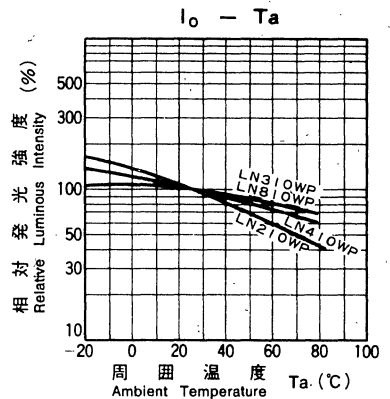
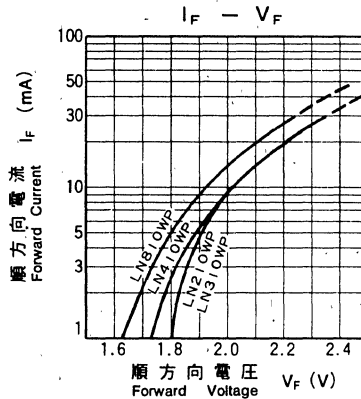
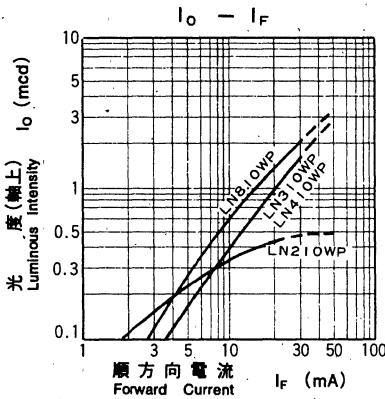
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN210WP	Red	White Diffused	0.4	0.10	15	2.2	2.8	700	100	20	5	4
LN310WP	Green	White Diffused	1.0	0.45	20	2.2	2.8	565	30	20	10	4
LN410WP	Amber	White Diffused	1.0	0.40	20	2.2	2.8	590	30	20	10	4
LN810WP	Orange	White Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



□ 2.5mm×5.0mm Series

Type No.	Lighting Color
LN213RP	Red
LN313GP	Green
LN413YP	Amber
LN813RP	Orange

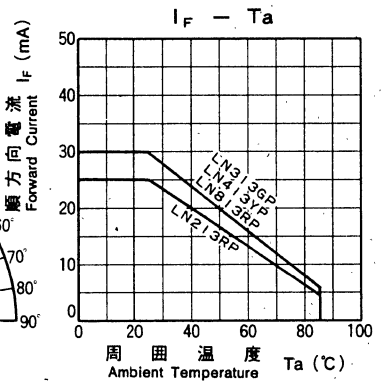
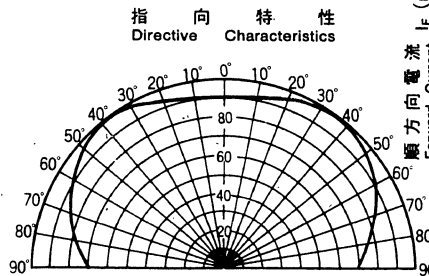
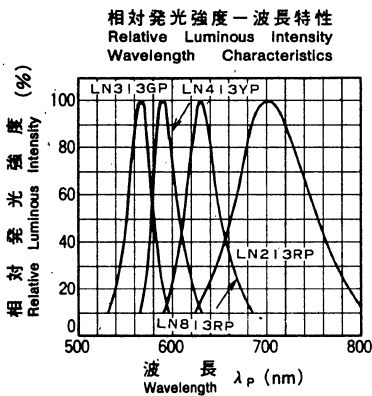
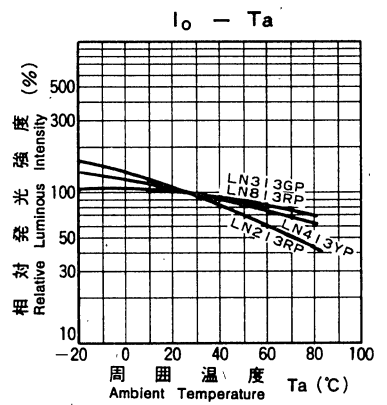
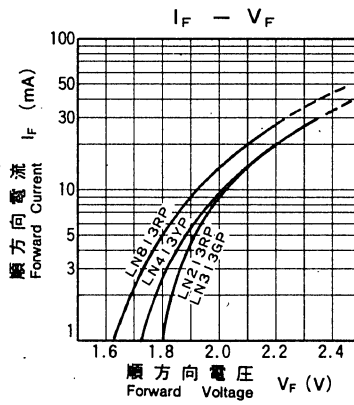
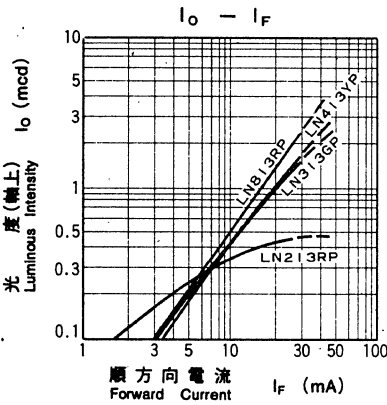
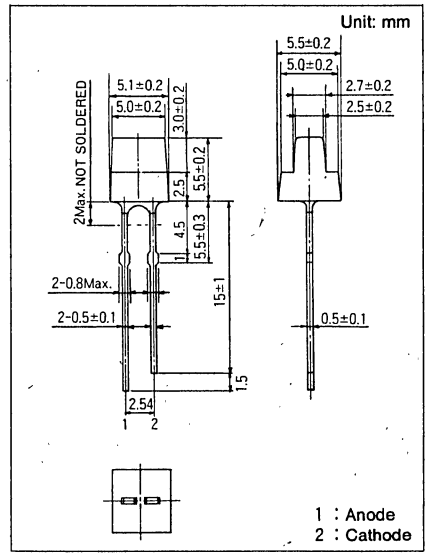
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _A (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

*I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN213RP	Red	Red Diffused	0.4	0.1	15	2.2	2.8	700	100	20	5	4
LN313GP	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4
LN413YP	Amber	Amber Diffused	1.0	0.4	20	2.2	2.8	590	30	20	10	4
LN813RP	Orange	Red Diffused	1.5	0.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



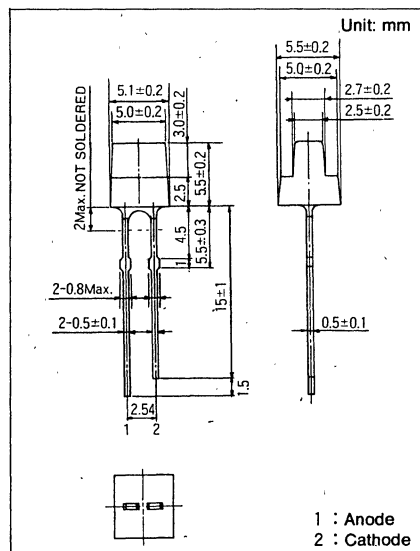
□ 2.5mm×5.0mm Series

Type No. Lighting Color
 LN213RPP Red
 LN313GPP Green
 LN413YPP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

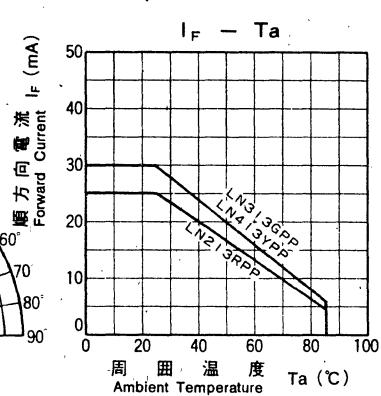
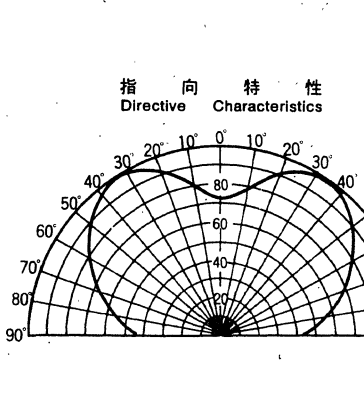
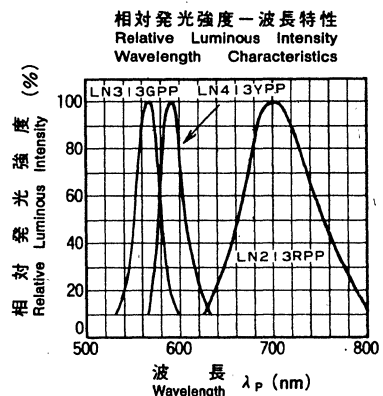
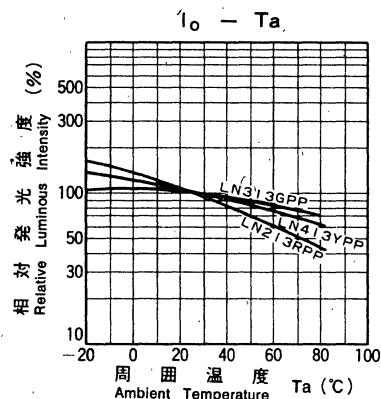
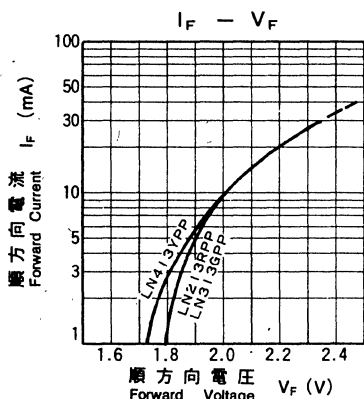
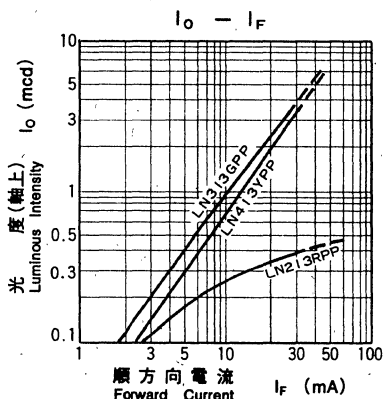
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN213RPP	Red	Red Diffused	0.3	0.1	15	2.2	2.8	700	100	20	5	4
LN313GPP	Green	Green Diffused	2.5	0.9	20	2.2	2.8	565	30	20	10	4
LN413YPP	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

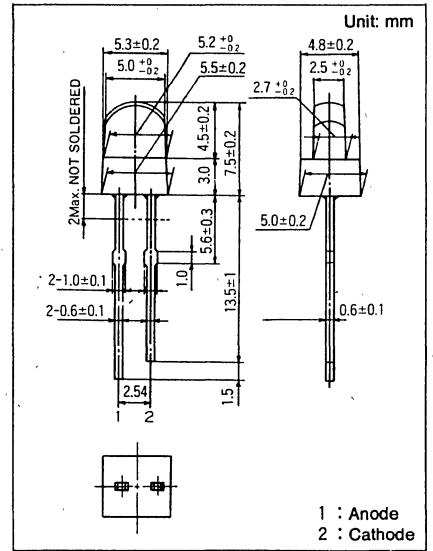
□ 2.5mm×5.0mm Series

Type No.	Lighting Color
LN219RP	Red
LN319GP	Green
LN419YP	Amber
LN819RP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

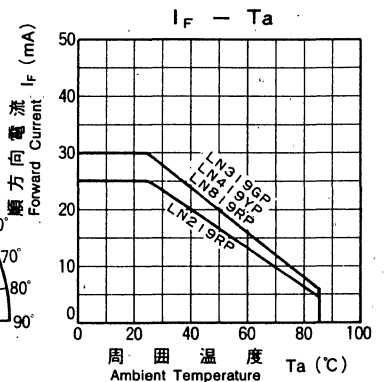
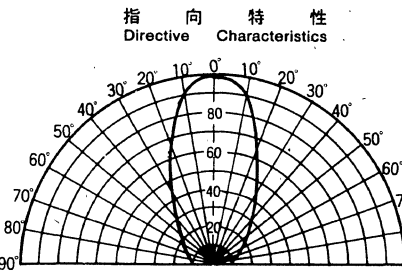
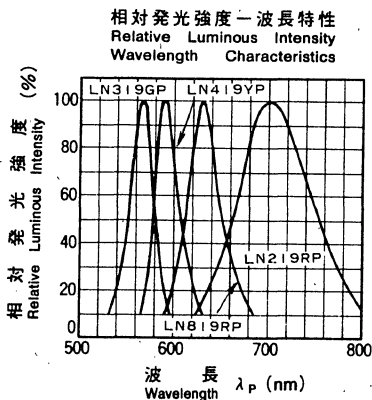
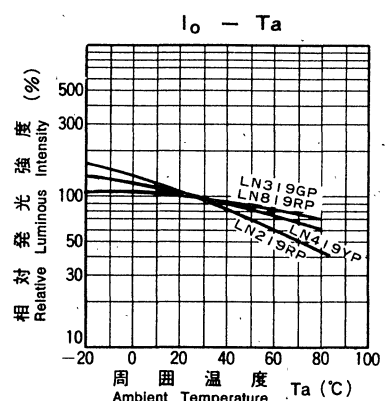
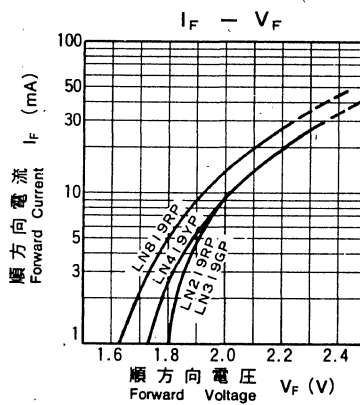
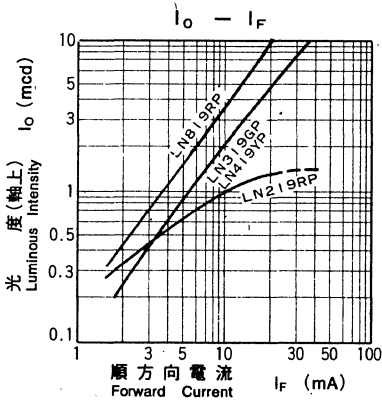
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN219RP	Red	Red Diffused	1.2	0.6	15	2.2	2.8	700	100	20	5	4
LN319GP	Green	Green Diffused	5.0	1.5	20	2.2	2.8	565	30	20	10	4
LN419YP	Amber	Amber Diffused	5.0	2.0	20	2.2	2.8	590	30	20	10	4
LN819RP	Orange	Red Diffused	9.0	3.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



□ 2.0mm×5.0mm Series

Type No.	Lighting Color
LN242RP	Red
LN342GP	Green
LN442YP	Amber
LN842RP	Orange

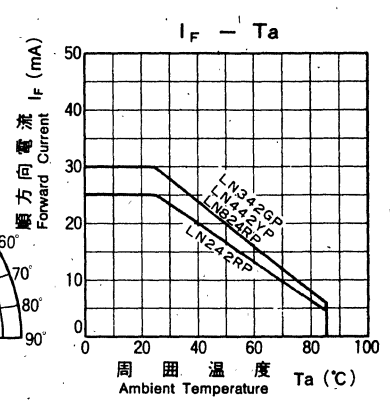
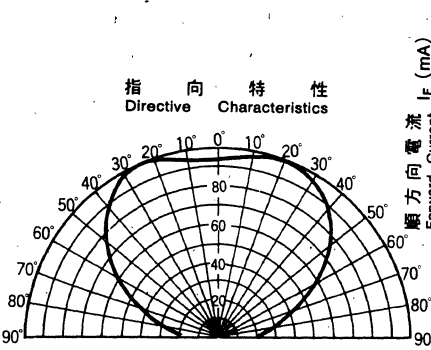
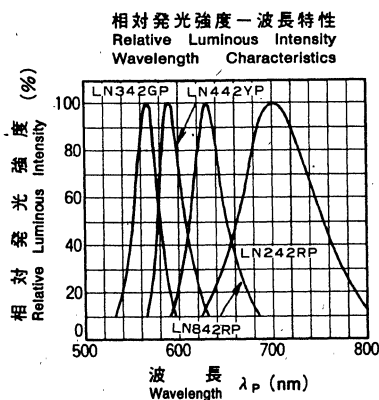
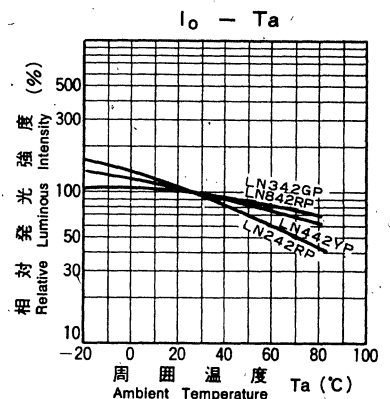
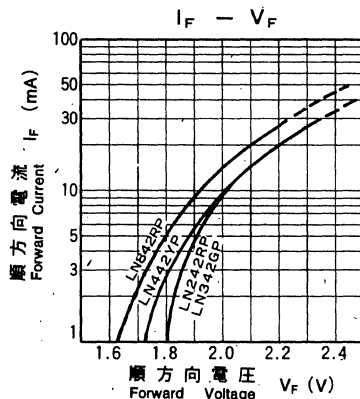
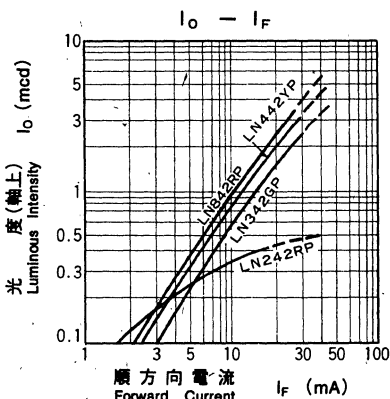
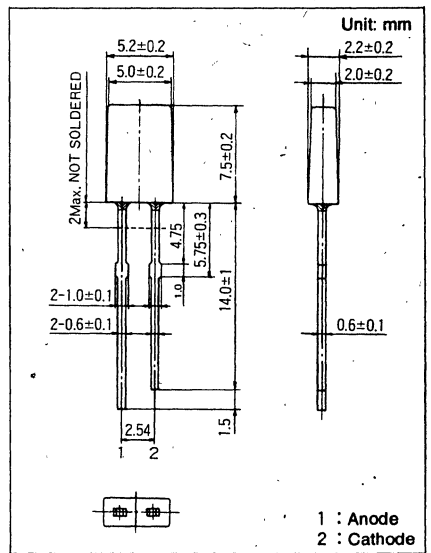
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP} の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.					
LN242RP	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN342GP	Green	Green Diffused	1.5	0.55	20	2.2	2.8	565	30	20	10	4
LN442YP	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4
LN842RP	Orange	Red Diffused	2.5	1.00	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形

Square Type

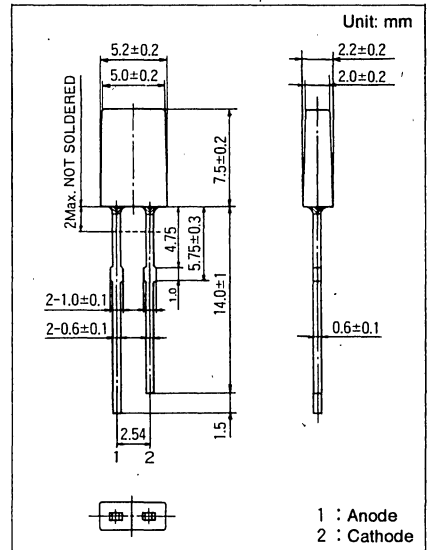
□ 2.0mm×5.0mm Series

Type No. Lighting Color
 LN242RCP Red
 LN342GCP Green
 LN442YCP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

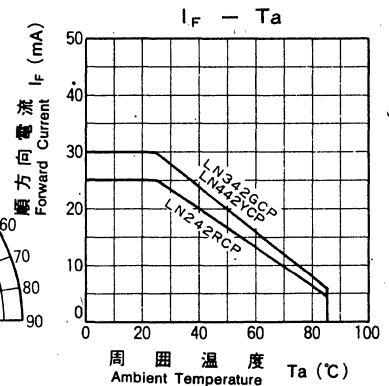
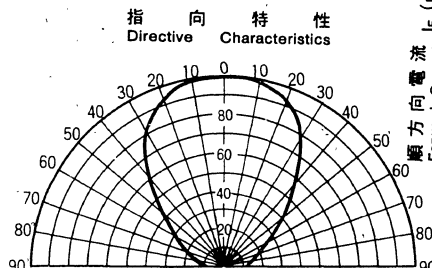
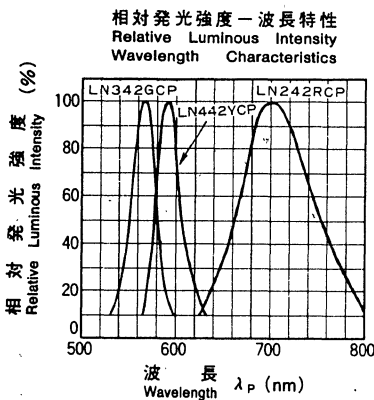
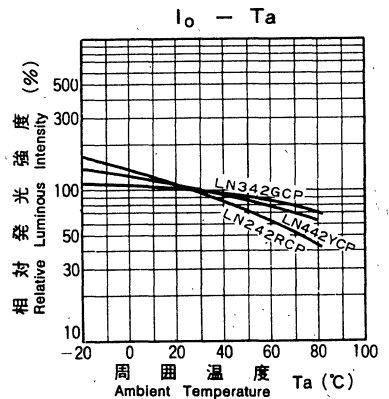
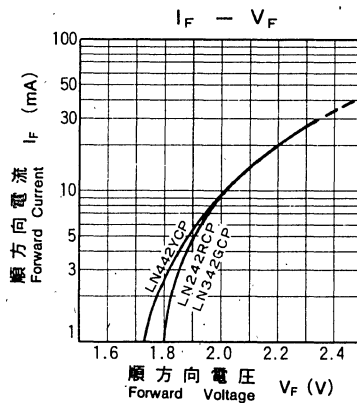
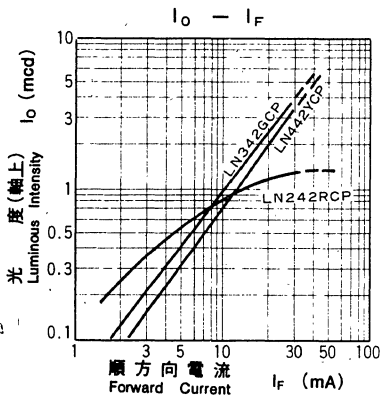
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.	I _F	Max.	V _R
LN242RCP	Red	Red Clear	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN342GCP	Green	Green Clear	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN442YCP	Amber	Amber Clear	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



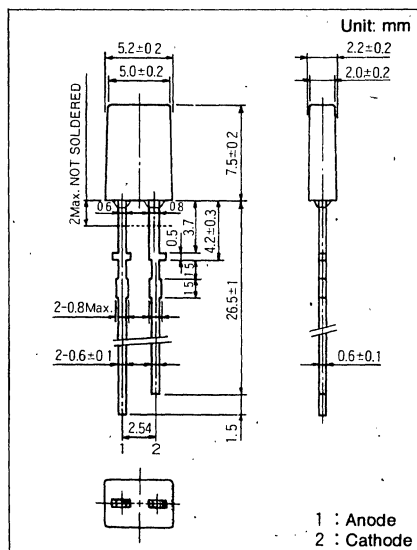
□ 2.0mm×5.0mm Series

Type No.	Lighting Color
LN242RPH	Red
LN342GPH	Green
LN442YPH	Amber
LN842RPH	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

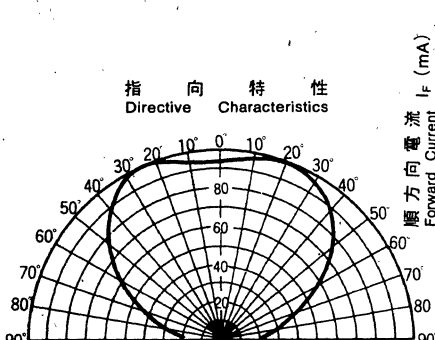
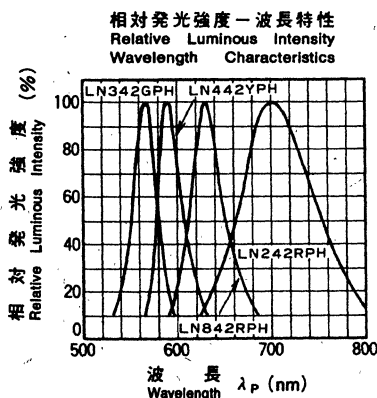
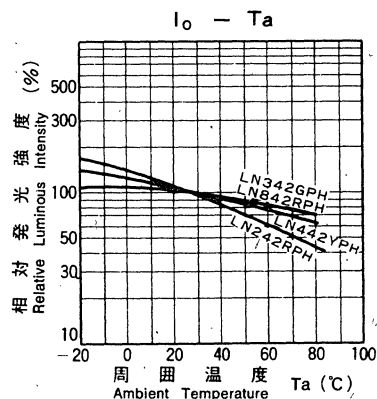
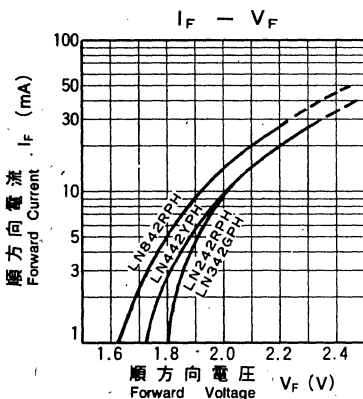
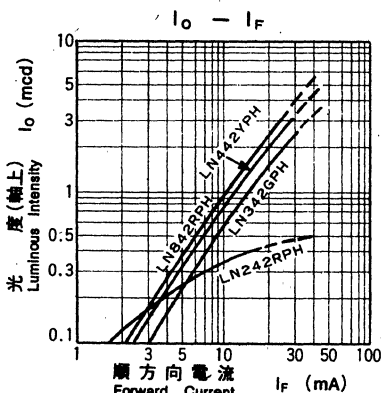
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電氣的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN242RPH	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN342GPH	Green	Green Diffused	1.5	0.50	20	2.2	2.8	565	30	20	10	4
LN442YPH	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4
LN842RPH	Orange	Red Diffused	2.5	1.00	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



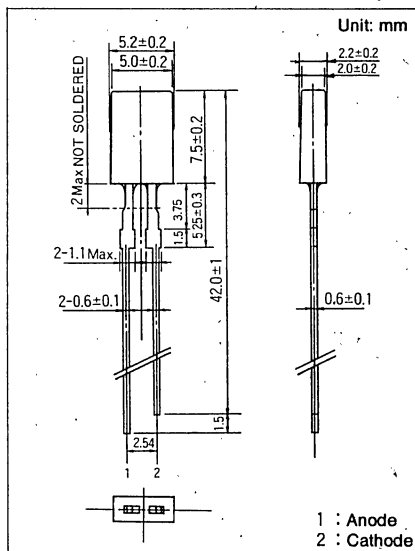
□ 2.0mm×5.0mm Series

Type No. Lighting Color
 LN242RPL.....Red
 LN342GPL.....Green
 LN442YPL.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

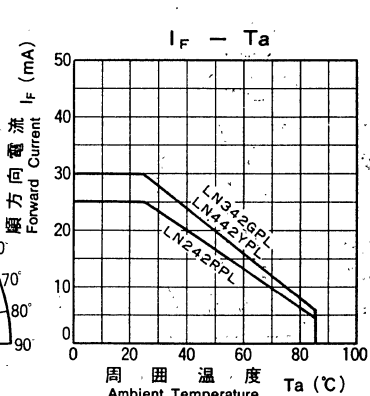
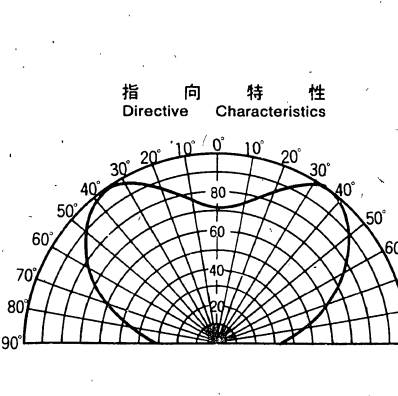
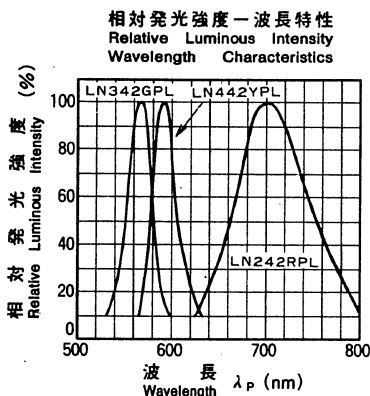
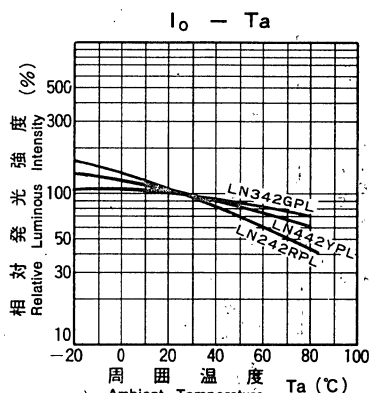
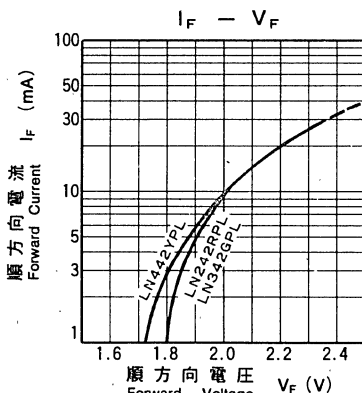
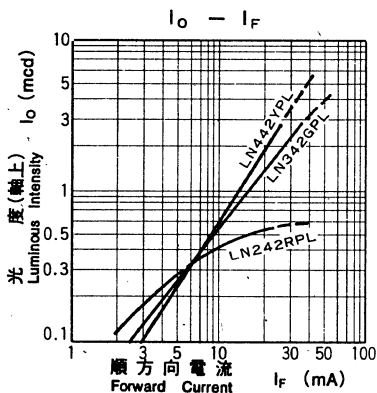
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN242RPL	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN342GPL	Green	Green Diffused	1.5	0.6	20	2.2	2.8	565	30	20	10	4
LN442YPL	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



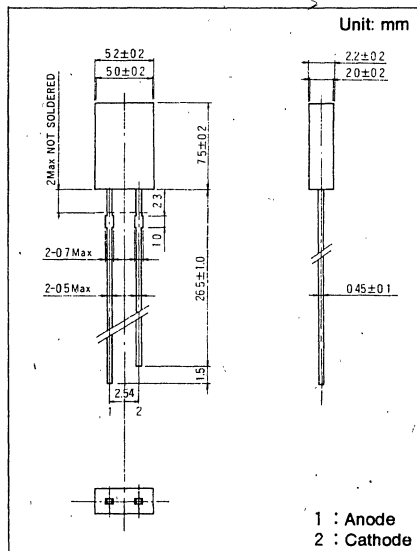
2.0mm×5.0mm Series

Type No. Lighting Color
 LN242RPX Red
 LN342GPX Green
 LN442YPX Amber
 LN842RPX Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

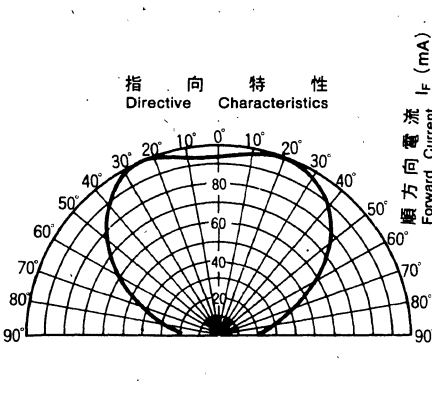
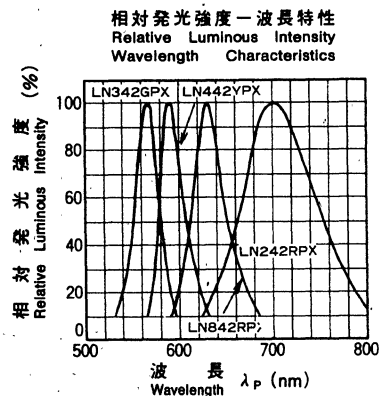
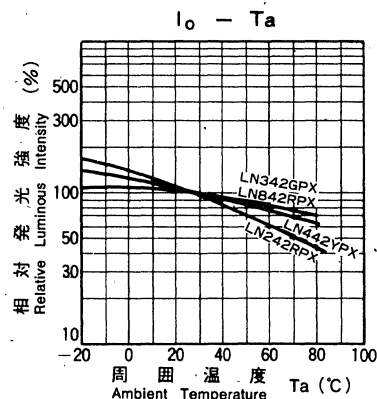
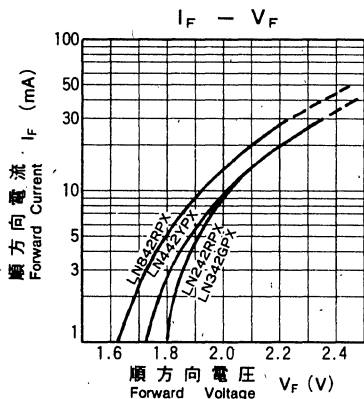
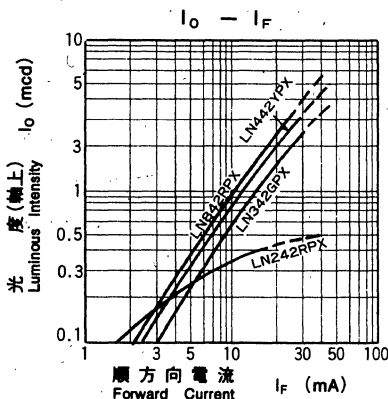
*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
△ LN242RPX	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
△ LN342GPX	Green	Green Diffused	1.5	0.50	20	2.2	2.8	565	30	20	10	4
△ LN442YPX	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4
△ LN842RPX	Orange	Red Diffused	2.5	1.00	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



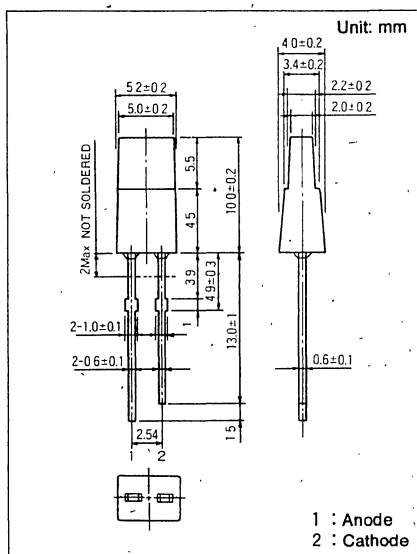
□ 2.0mm×5.0mm Series

Type No.	Lighting Color
LN248RP	Red
LN348GP	Green
LN448YP	Amber
LN848WP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

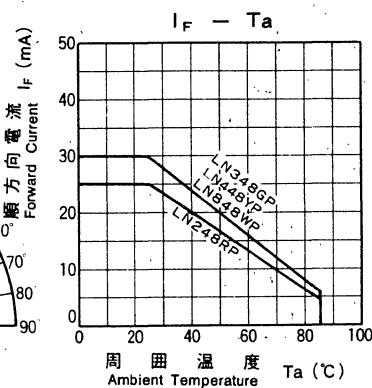
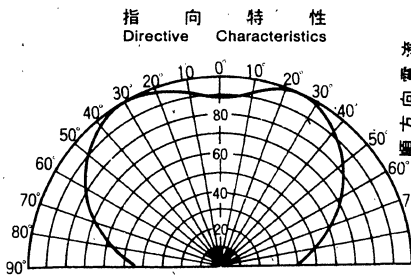
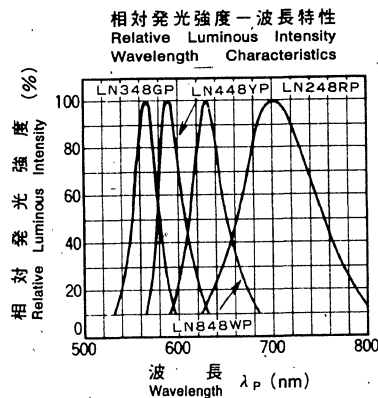
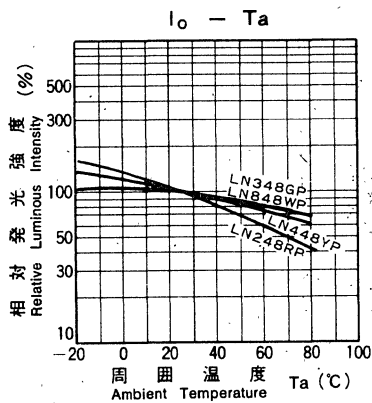
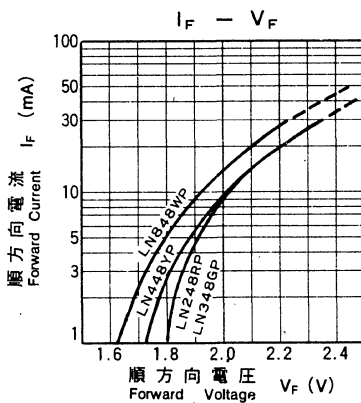
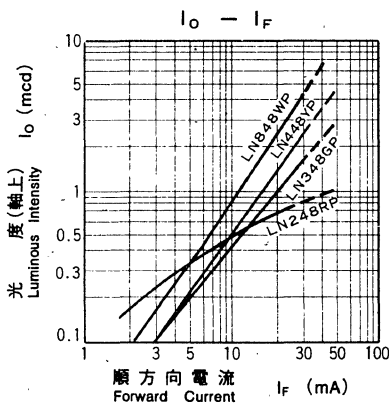
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、 λ_p duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ_p	$\Delta \lambda$	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN248RP	Red	Red Diffused	0.6	0.25	15	2.2	2.8	700	100	20	5	4
LN348GP	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN448YP	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN848WP	Orange	White Diffused	2.5	0.90	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V



角形

Square Type

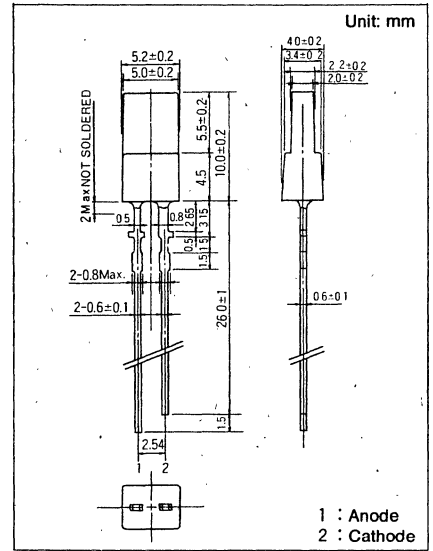
□ 2.0mm × 5.0mm Series

- Type No. Lighting Color
 LN248RPH Red
 LN348GPH Green
 LN448YPH Amber
 LN848WPH Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tatg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

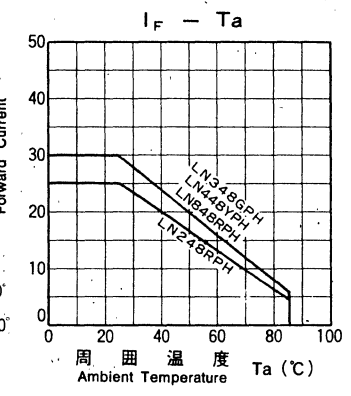
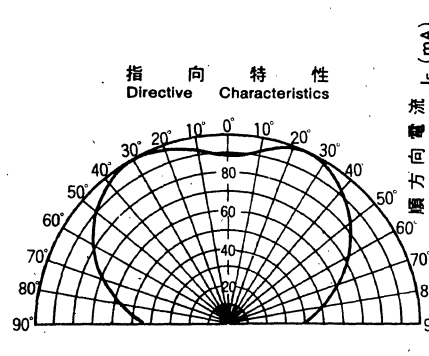
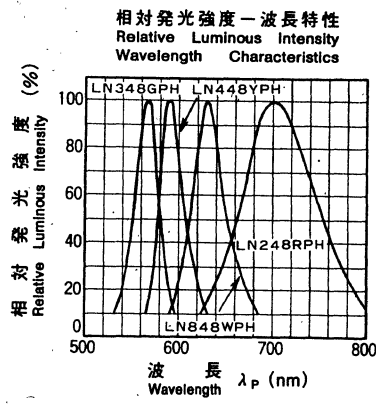
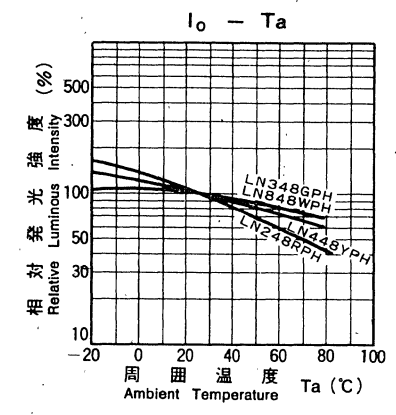
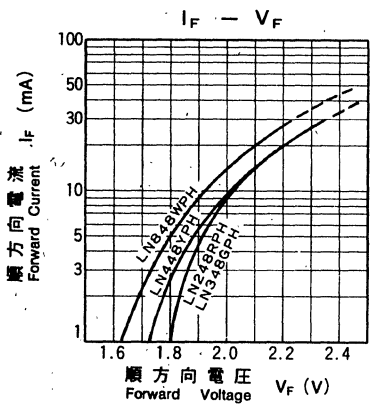
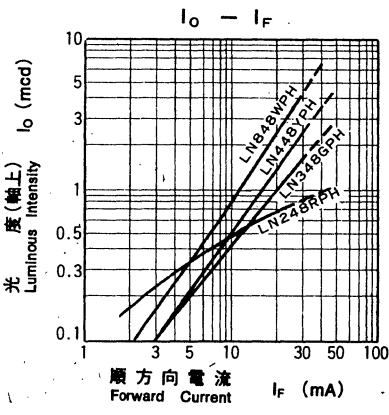
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



1 : Anode
2 : Cathode

電気的・光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN248RPH	Red	Red Diffused	0.6	0.25	15	2.2	2.8	700	100	20	5	4
LN348GPH	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN448YPH	Amber	Amber Diffused	1.5	0.60	20	2.2	2.8	590	30	20	10	4
LN848WPH	Orange	White Diffused	2.5	0.90	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



2.0mm×4.0mm Series

Type No. Lighting Color

LN251RPP Red

LN351GPP Green

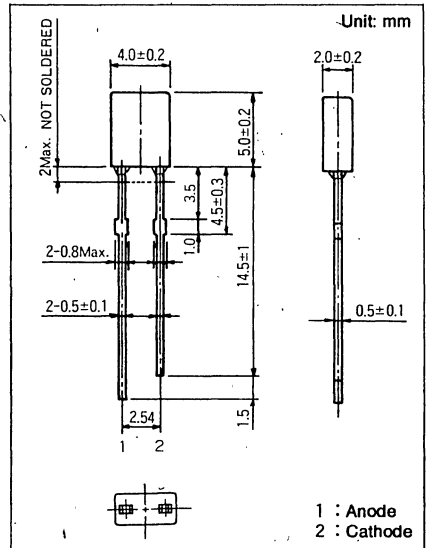
LN451YPP Amber

LN851RPP Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

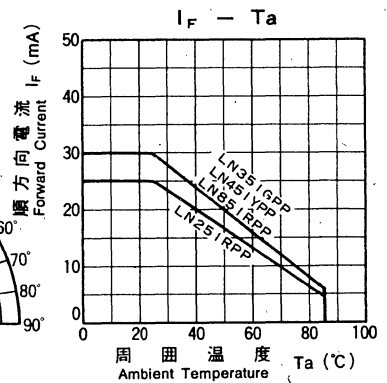
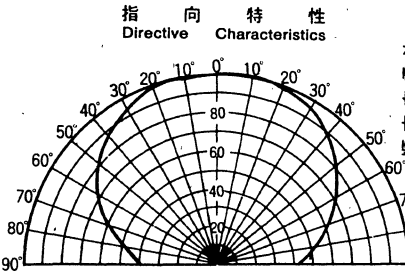
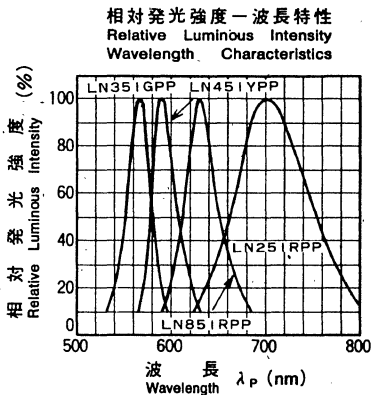
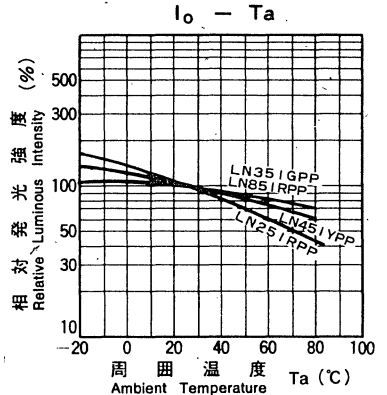
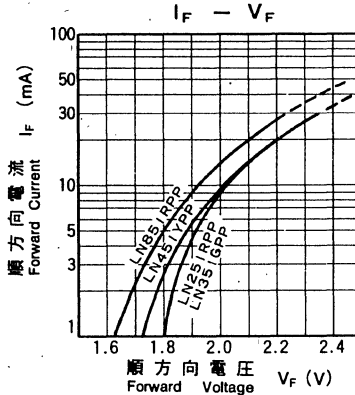
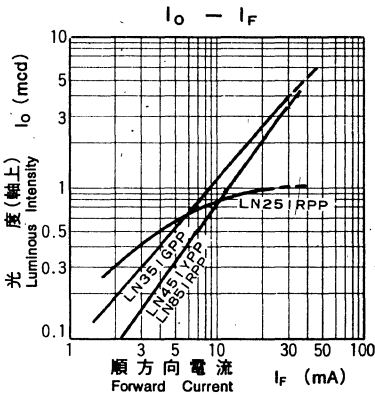
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN251RPP	Red	Red Diffused	0.9	0.35	15	2.2	2.8	700	100	20	5	4
LN351GPP	Green	Green Diffused	2.5	0.90	20	2.2	2.8	565	30	20	10	4
LN451YPP	Amber	Amber Diffused	2.0	0.75	20	2.2	2.8	590	30	20	10	4
LN851RPP	Orange	Red Diffused	2.0	0.75	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



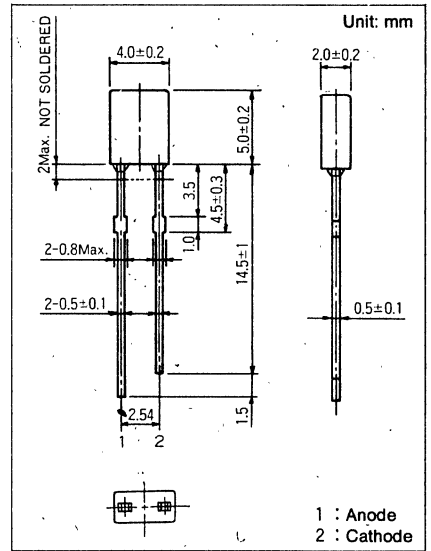
□ 2.0mm×4.0mm Series

Type No.	Lighting Color
LN251RCPP	Red
LN351GCPP	Green
LN451YCPP	Amber
LN851RCPP	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

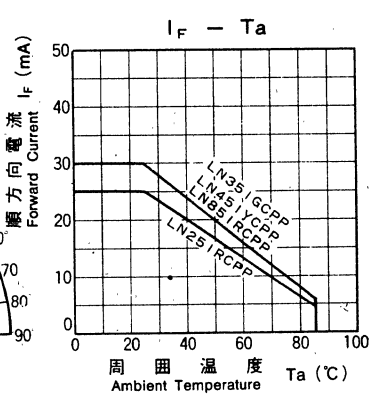
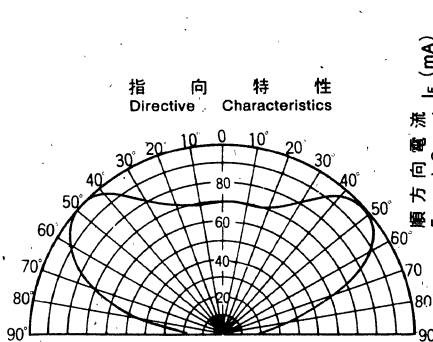
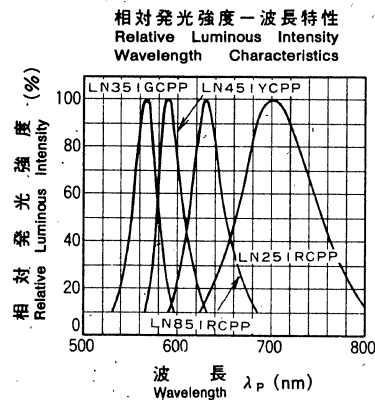
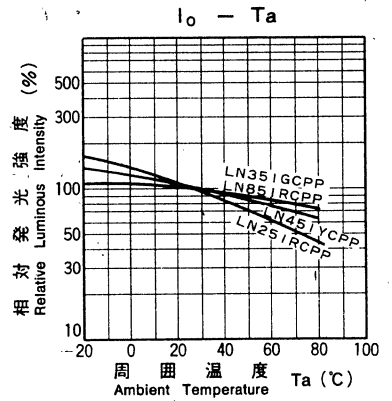
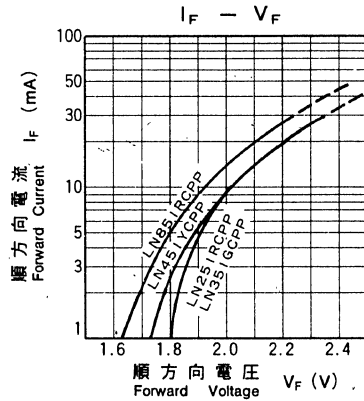
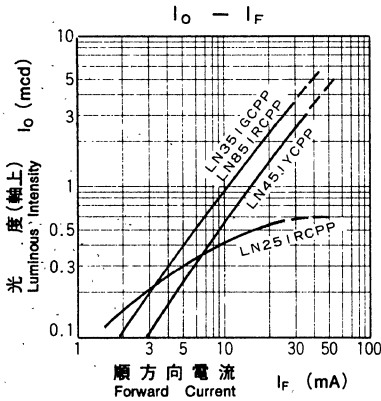
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN251RCPP	Red	Red Clear	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN351GCPP	Green	Green Clear	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN451YCPP	Amber	Amber Clear	1.5	0.6	20	2.2	2.8	590	30	20	10	4
LN851RCPP	Orange	Red Clear	2.5	1.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形

Square Type

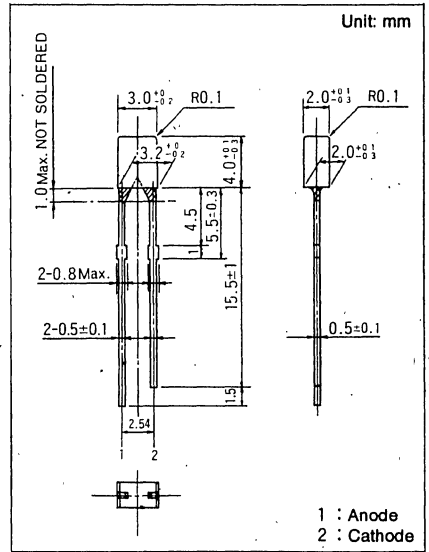
□ 2.0mm×3.0mm Series

Type No. Lighting Color
 LN260RCPP Red
 LN360GCPP Green
 LN460YCPP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

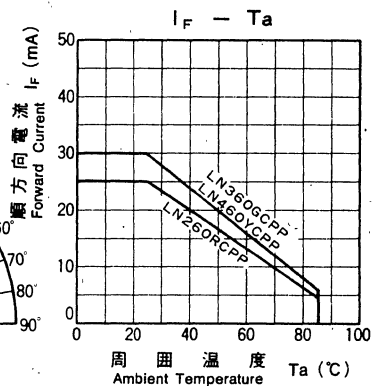
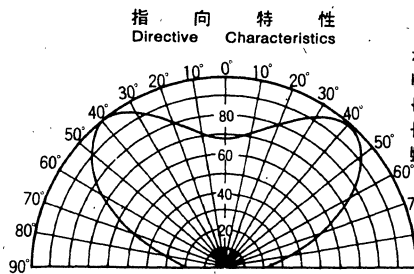
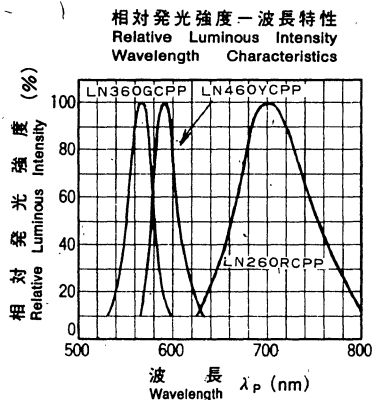
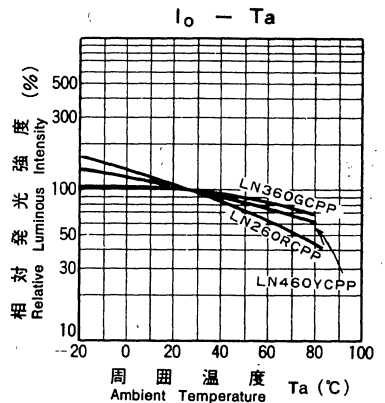
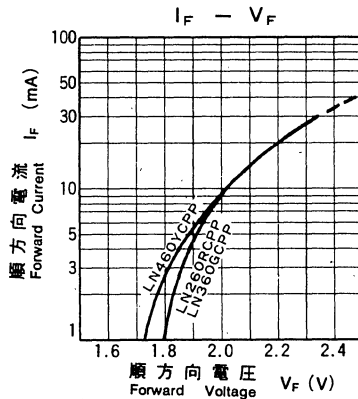
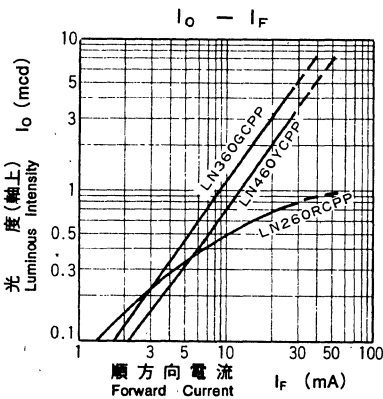
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.		Typ.	Max.				Max.	V _R
LN260RCPP	Red	Red Clear	0.6	0.2	15	2.2	2.8	700	100	20	5	4
LN360GCPP	Green	Green Clear	3.0	1.0	20	2.2	2.8	565	30	20	10	4
LN460YCPP	Amber	Amber Clear	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形

Square Type

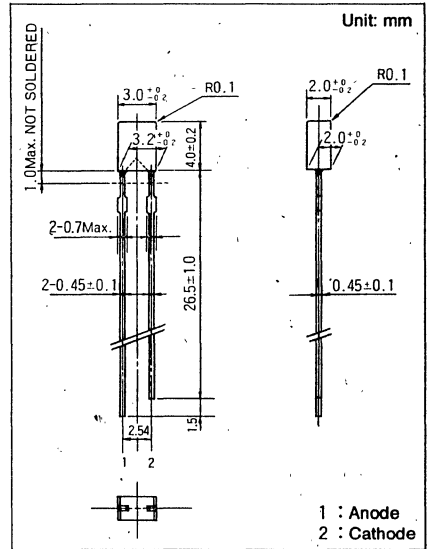
□ 2.0mm×3.0mm Series

Type No. Lighting Color
 LN260RCPXRed
 LN360GCPXGreen
 LN460YCPXAmber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

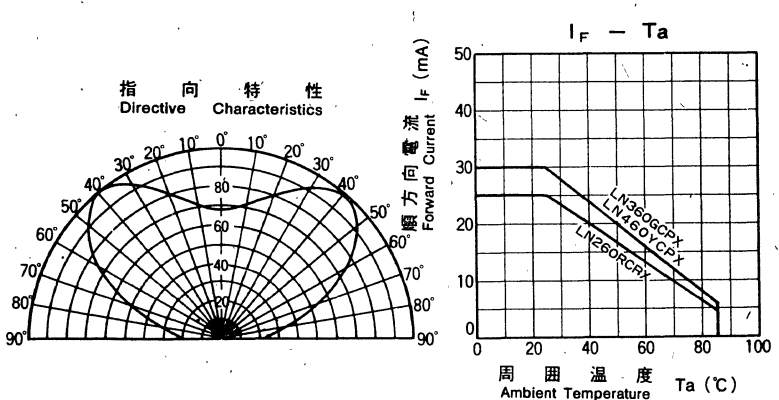
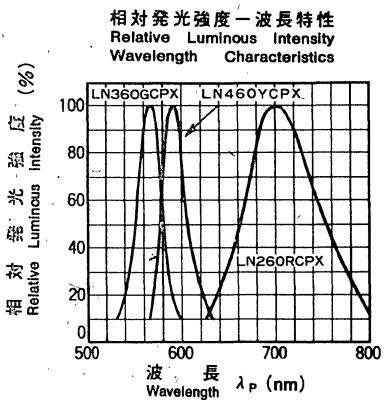
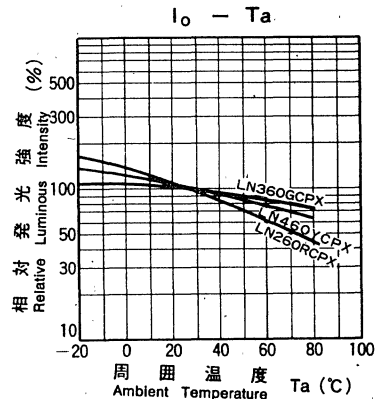
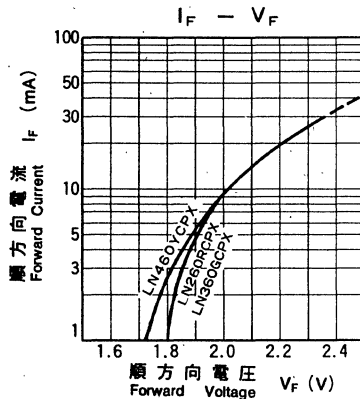
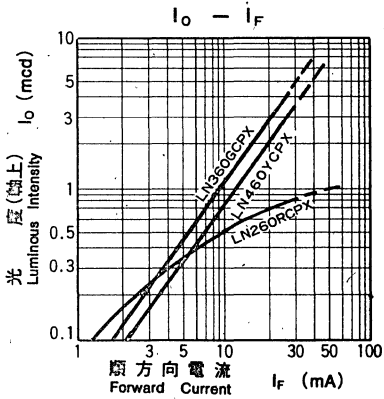
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec.



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN260RCPX	Red	Red Clear	0.6	0.20	15	2.2	2.8	700	100	20	5	4
LN360GCPX	Green	Green Clear	3.0	1.00	20	2.2	2.8	565	30	20	10	4
LN460YCPX	Amber	Amber Clear	2.0	0.75	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角 形

Square Type

□ 1.8mm×5.3mm Series

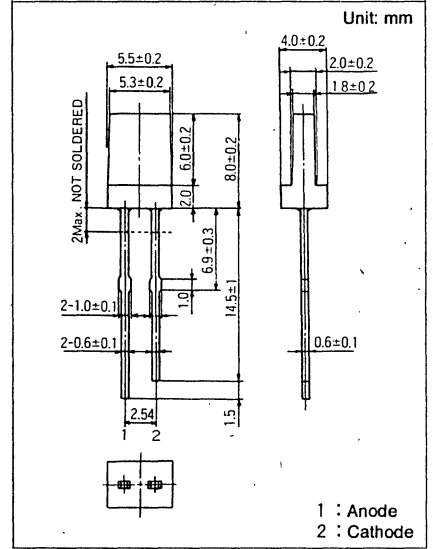
Type No. Lighting Color

- LN217RP Red
- LN317GP Green
- LN417YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

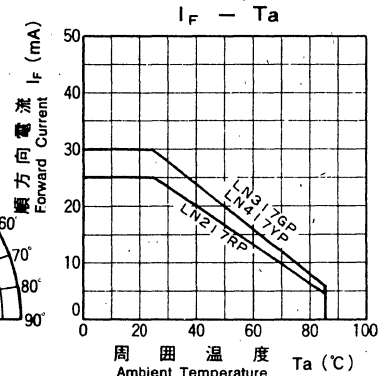
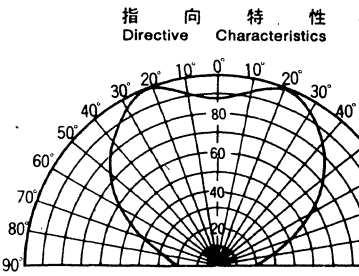
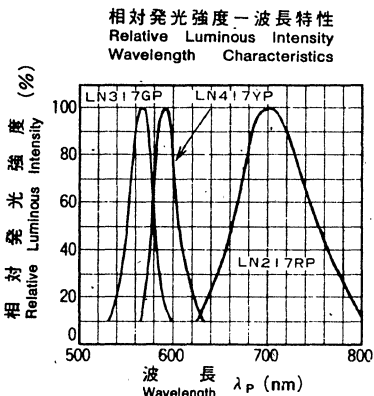
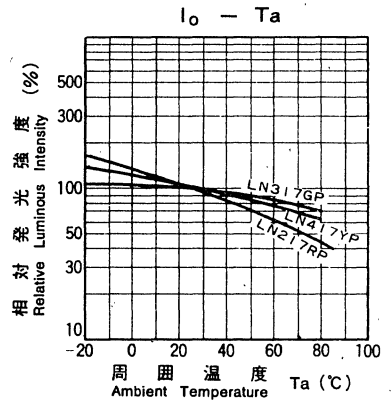
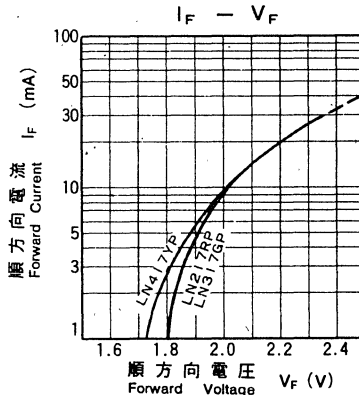
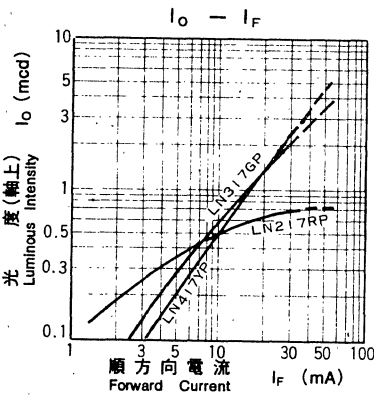
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN217RP	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN317GP	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN417YP	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



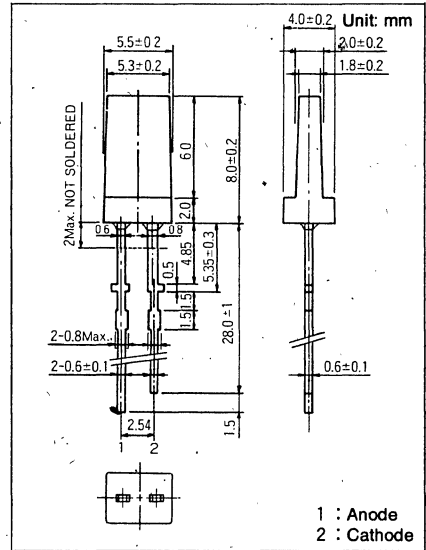
□ 1.8mm×5.3mm Series

Type No. Lighting Color
 LN217RPH Red
 LN317GPH Green
 LN417YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

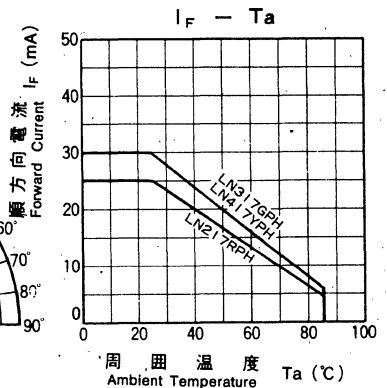
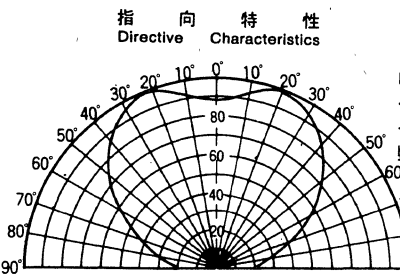
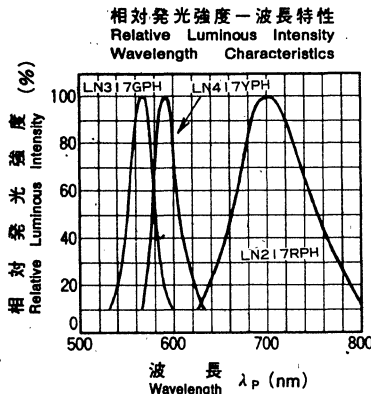
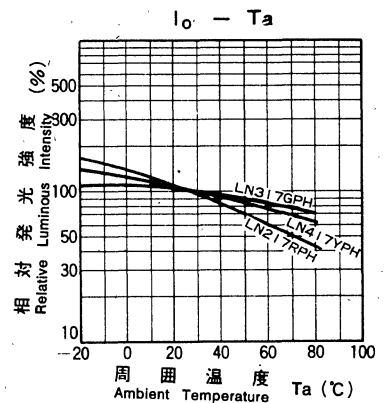
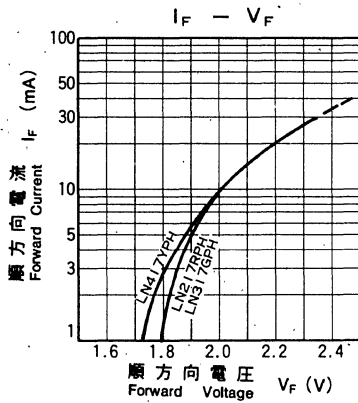
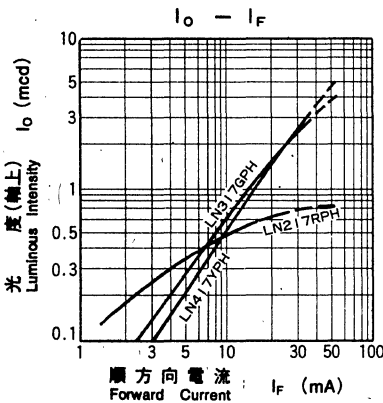
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN217RPH	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN317GPH	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN417YPH	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形

Square Type

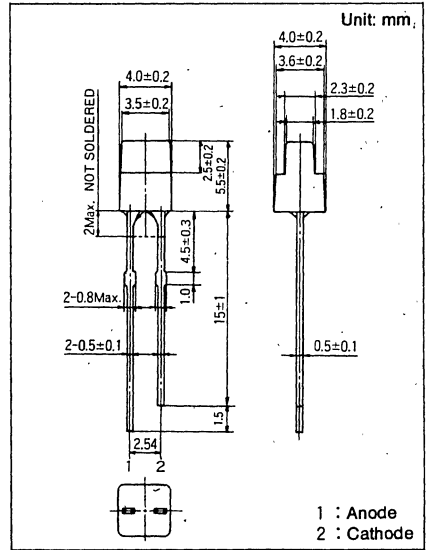
□ 1.8mm×3.5mm Series

Type No.	Lighting Color
LN211RP	Red
LN311GP	Green
LN411YP	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

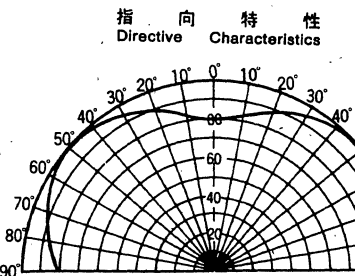
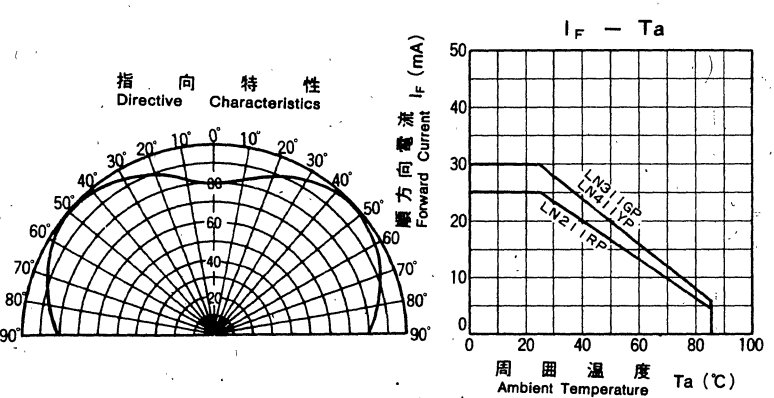
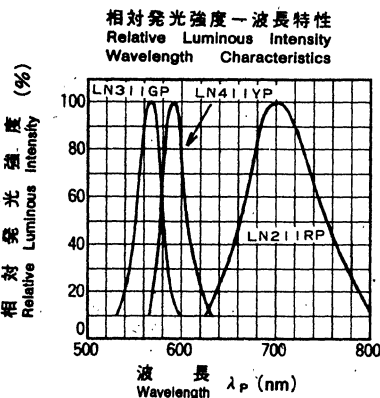
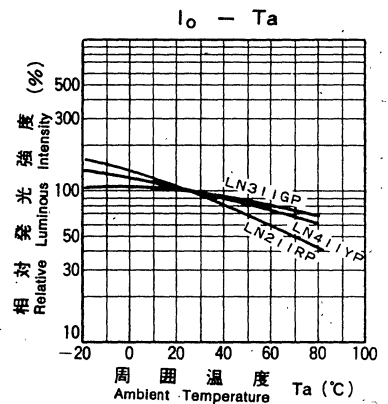
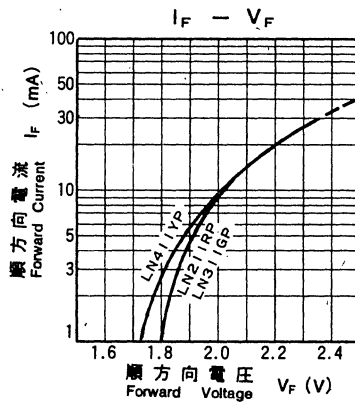
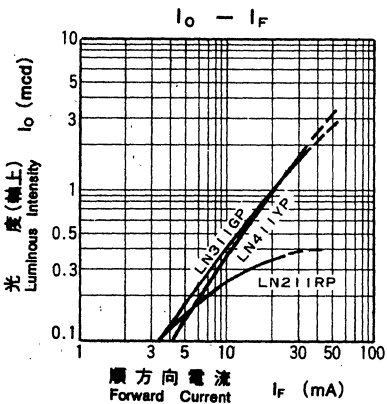
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN211RP	Red	Red Diffused	0.3	0.15	15	2.2	2.8	700	100	20	5	4
LN311GP	Green	Green Diffused	1.0	0.45	20	2.2	2.8	565	30	20	10	4
LN411YP	Amber	Amber Diffused	1.0	0.40	20	2.2	2.8	590	30	20	10	4
Unit			mcd	mcd	mA	V	V	nm	nm	mA	μA	V



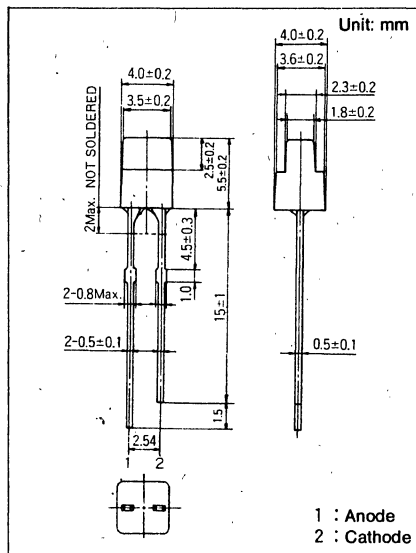
□ 1.8mm×3.5mm Series

Type No. Lighting Color
 LN211WP.....Red
 LN311WP.....Green
 LN411WP.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

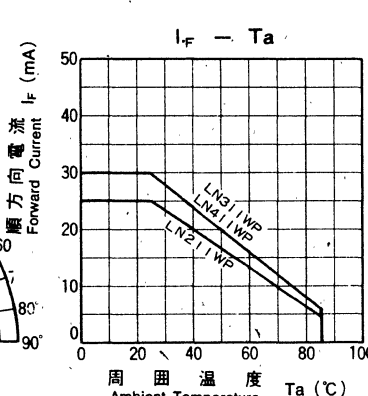
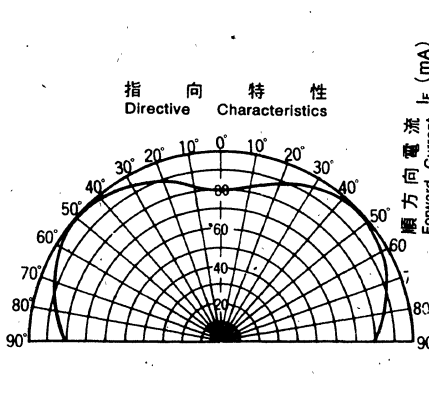
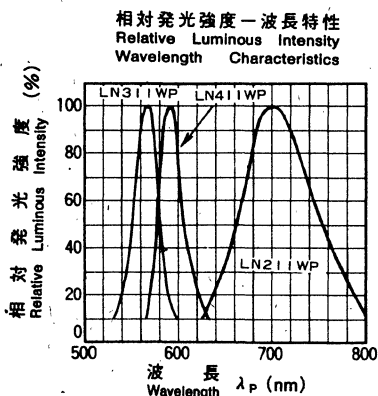
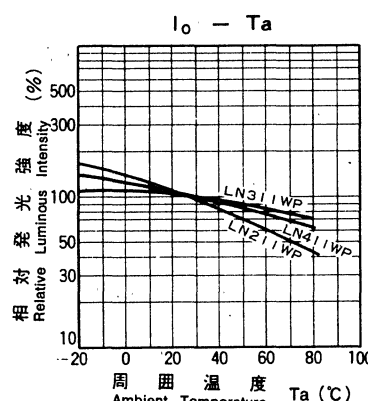
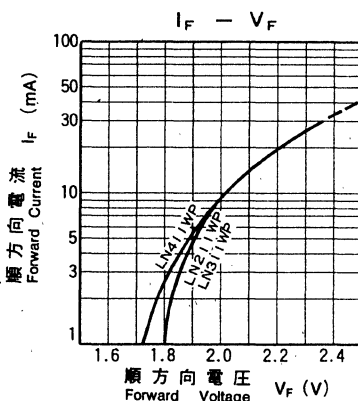
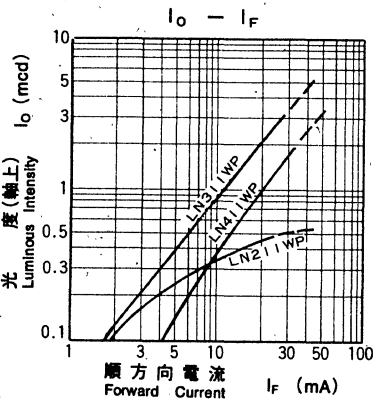
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN211WP	Red	White Diffused	0.4	0.10	15	2.2	2.8	700	100	20	5	4
LN311WP	Green	White Diffused	2.0	0.85	20	2.2	2.8	565	30	20	10	4
LN411WP	Amber	White Diffused	1.0	0.40	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



□ 1.8mm×1.8mm Series

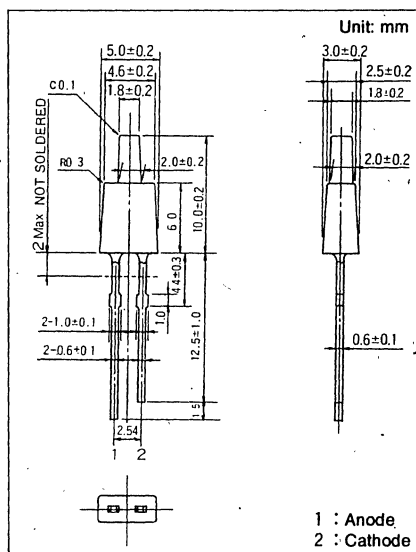
Type No. Lighting Color

- LN265RP Red
- LN365GP Green
- LN465YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

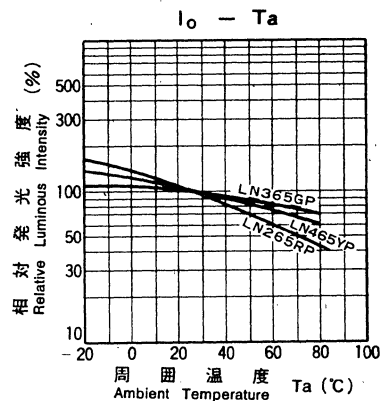
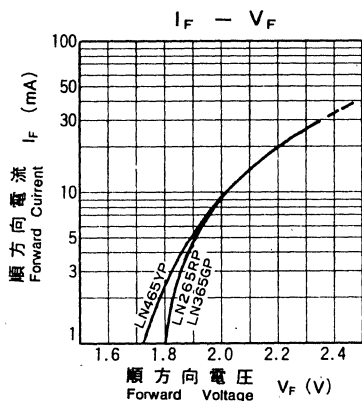
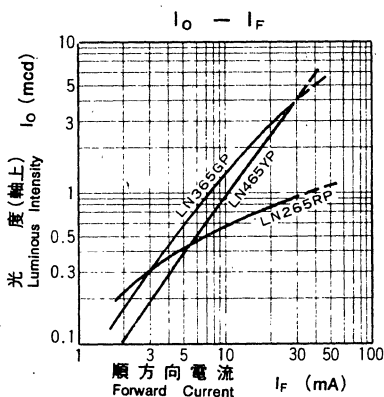
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



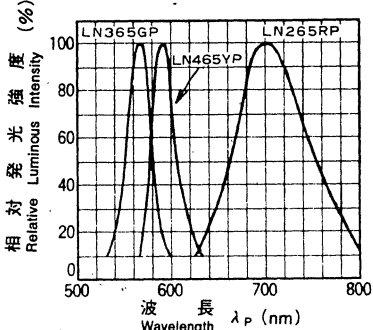
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN265RP	Red	Red Diffused	0.7	0.25	15	2.2	2.8	700	100	20	5	4
LN365GP	Green	Green Diffused	3.0	1.00	20	2.2	2.8	565	30	20	10	4
LN465YP	Amber	Amber Diffused	2.5	0.90	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

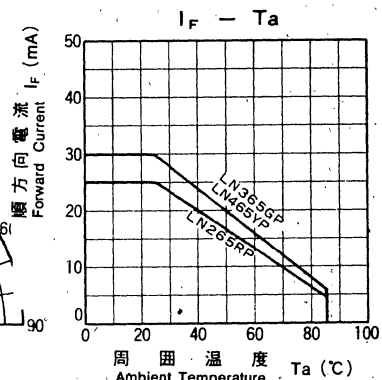
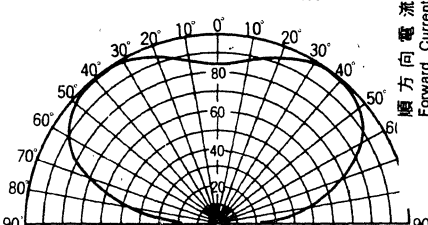
△印は暫定規格を示す。△ Tentative Specification



相対発光強度—波長特性
Relative Luminous Intensity
Wavelength Characteristics



指向特性
Directive Characteristics



角形

Square Type

□ 1.8mm×1.8mm Series

Type No. Lighting Color

LN265RPH Red

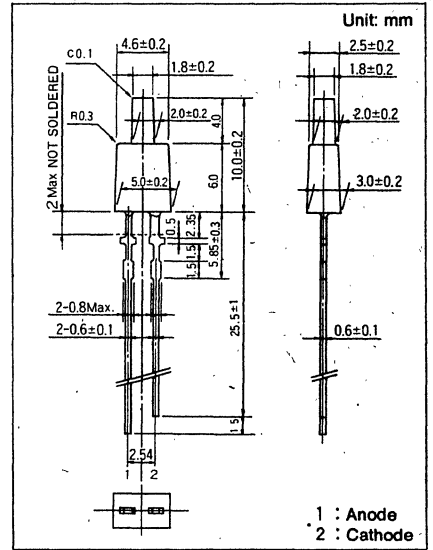
LN365GPH Green

LN465YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

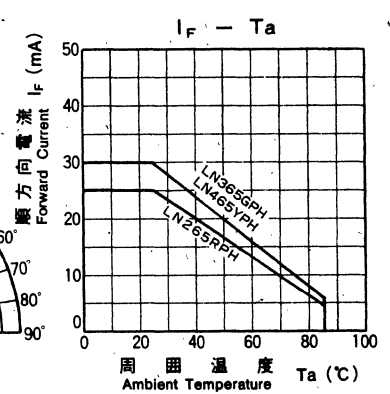
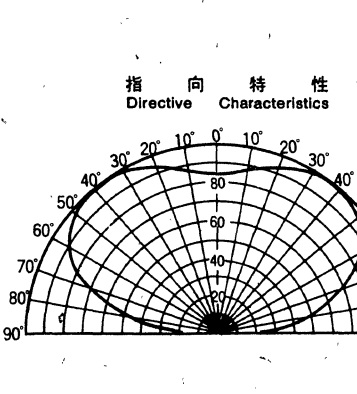
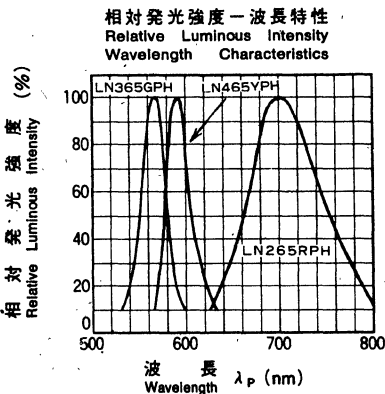
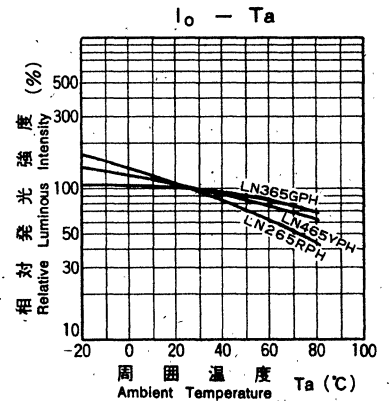
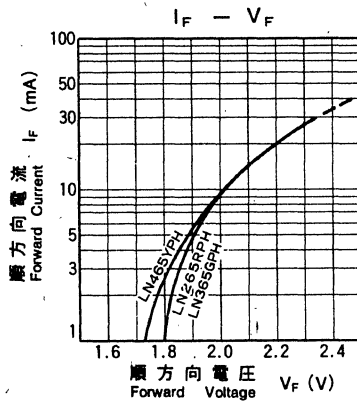
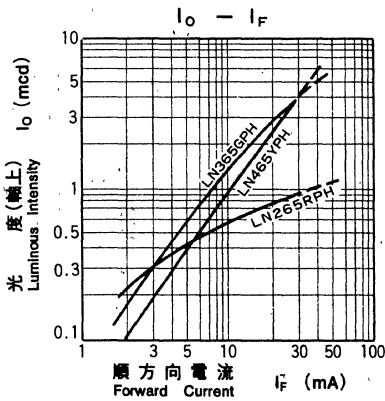
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN265RPH	Red	Red Diffused	0.7	0.25	15	2.2	2.8	700	100	20	5	4
LN365GPH	Green	Green Diffused	3.0	1.00	20	2.2	2.8	565	30	20	10	4
LN465YPH	Amber	Amber Diffused	2.5	0.90	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形

Square Type

□ 1.75mm×7.0mm Series

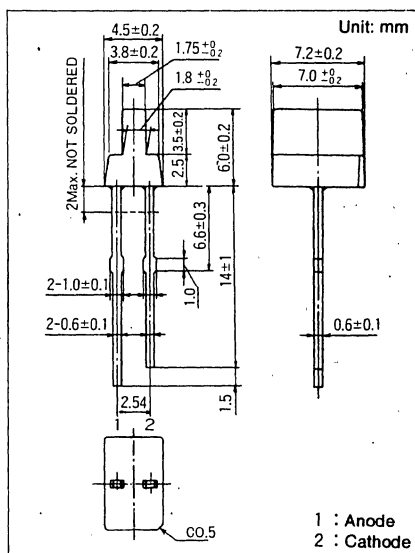
Type No. Lighting Color

- LN220RP Red
- LN320GP Green
- LN420YP Amber
- LN820RP Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

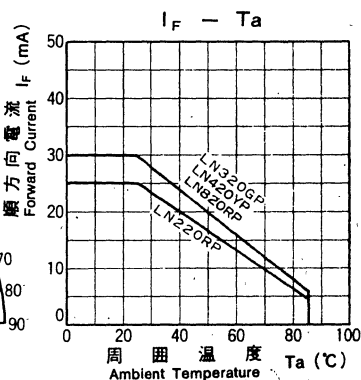
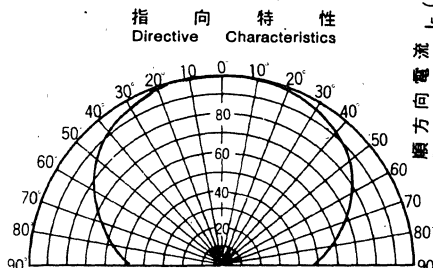
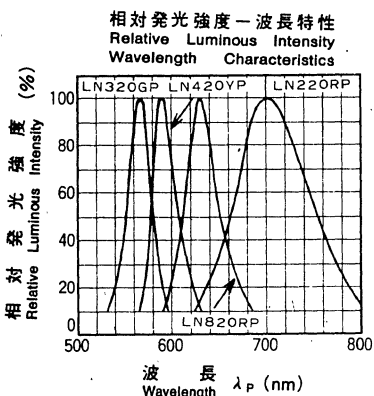
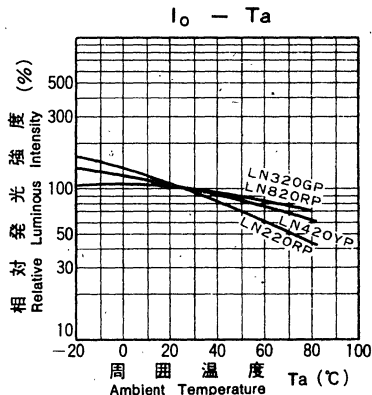
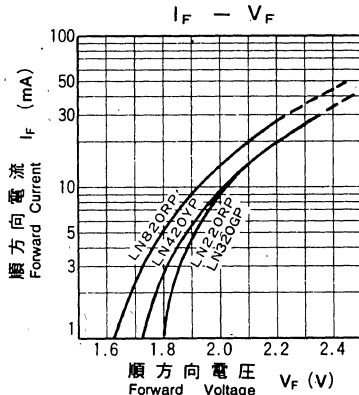
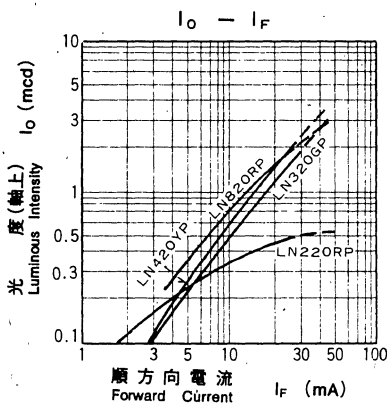
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _A
LN220RP	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN320GP	Green	Green Diffused	1.2	0.50	20	2.2	2.8	565	30	20	10	4
LN420YP	Amber	Amber Diffused	1.5	0.50	20	2.2	2.8	590	30	20	10	4
LN820RP	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形

Square Type

□ 1.75mm×7.0mm Series

Type No.	Lighting Color
LN220RPH	Red
LN320GPH	Green
LN420YPH	Amber
LN820RPH	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

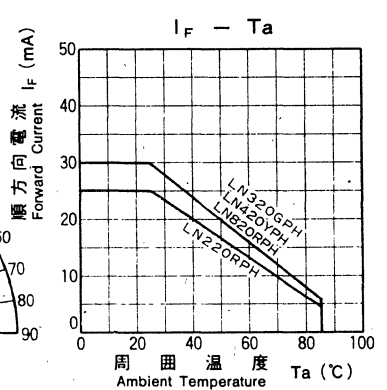
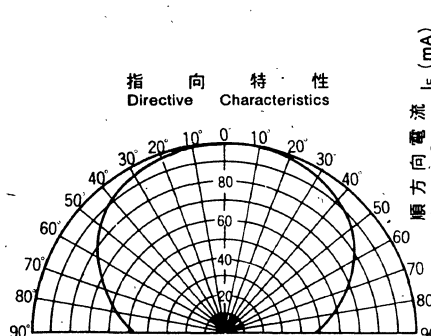
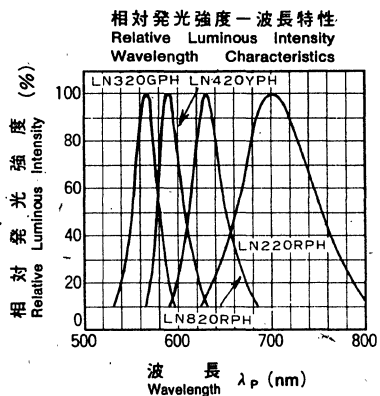
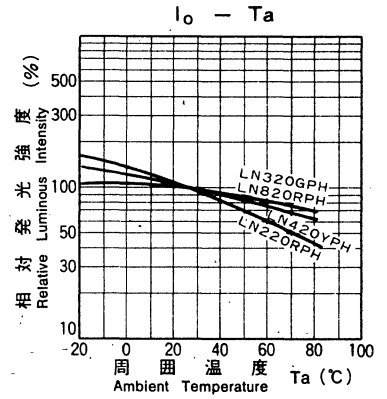
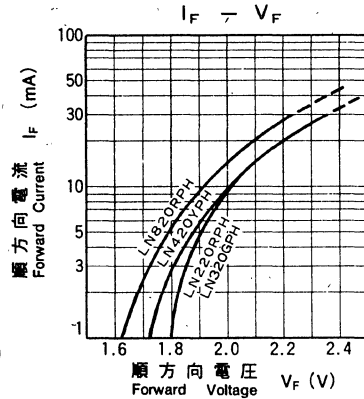
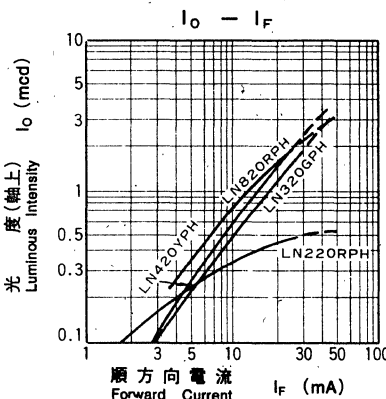
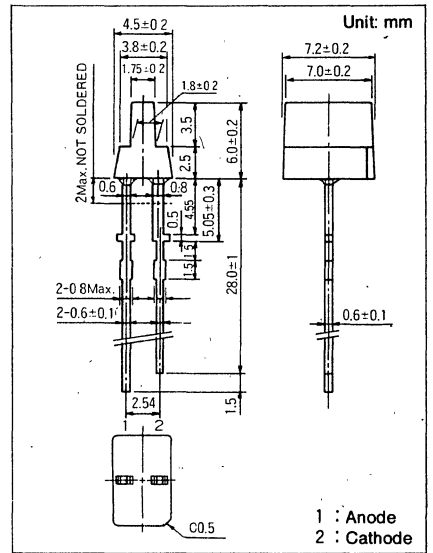
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN220RPH	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN320GPH	Green	Green Diffused	1.2	0.50	20	2.2	2.8	565	30	20	10	4
LN420YPH	Amber	Amber Diffused	1.5	0.50	20	2.2	2.8	590	30	20	10	4
LN820RPH	Orange	Red Diffused	1.5	0.60	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

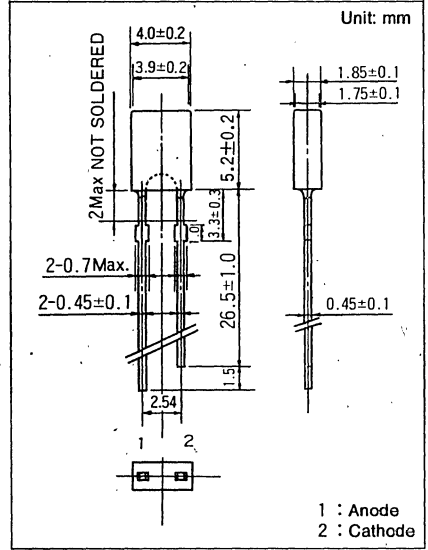
□ 1.75mm×3.9mm Series

Type No.	Lighting Color
LN275RPX	Red
LN375GPX	Green
LN475YPX	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

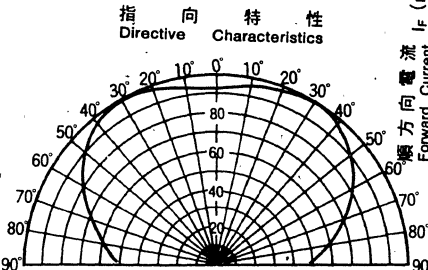
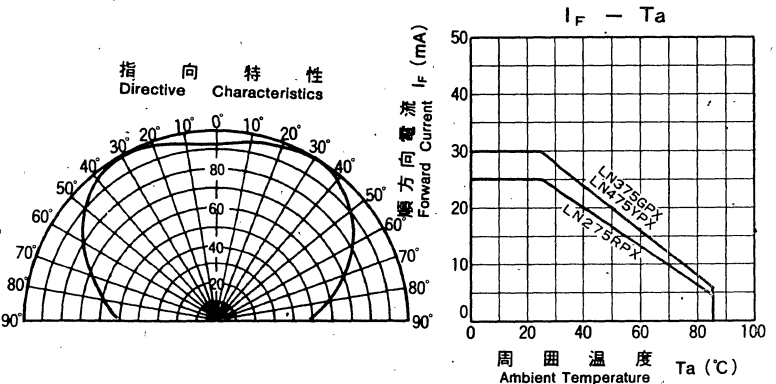
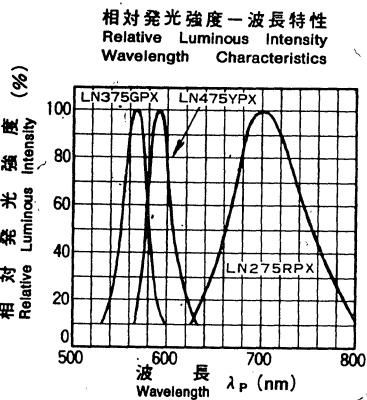
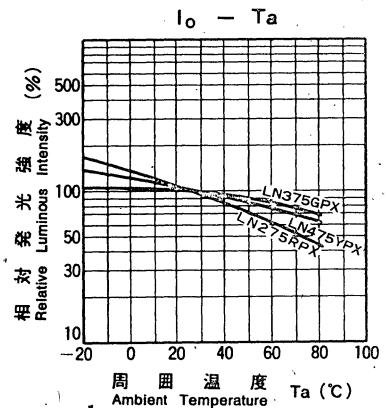
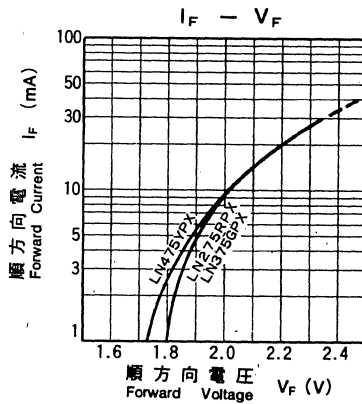
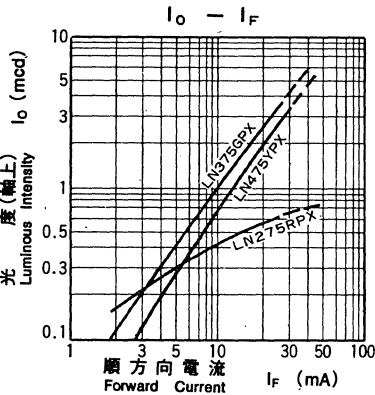
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _q	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN275RPX	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN375GPX	Green	Green Diffused	2.5	0.9	20	2.2	2.8	565	30	20	10	4
LN475YPX	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



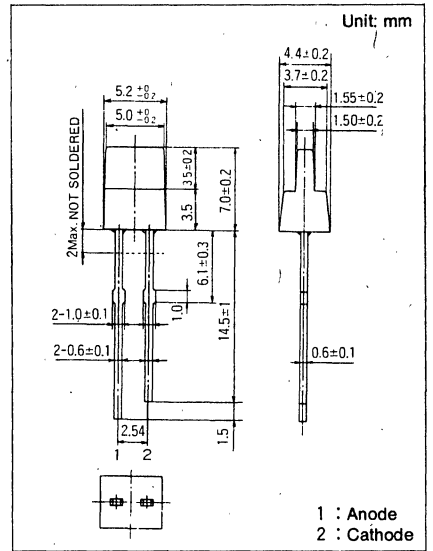
□ 1.5mm×5.0mm Series

Type No. Lighting Color
 LN229RP Red
 LN329GP Green
 LN429YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

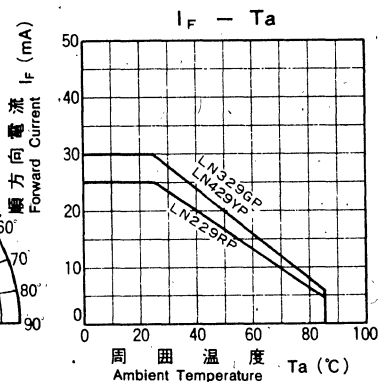
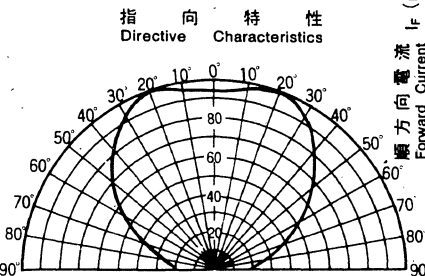
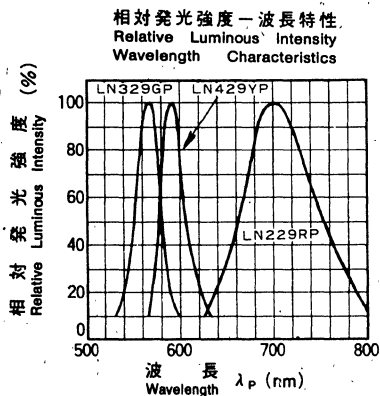
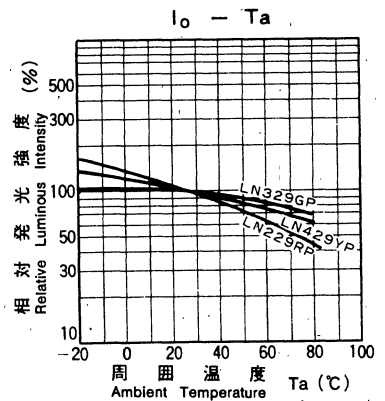
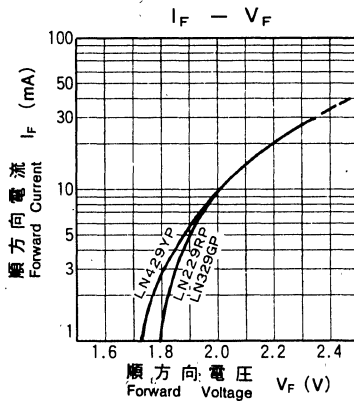
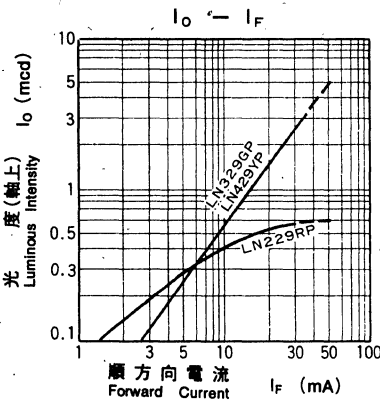
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN229RP	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN329GP	Green	Green Diffused	1.5	0.5	20	2.2	2.8	565	30	20	10	4
LN429YP	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形

Square Type

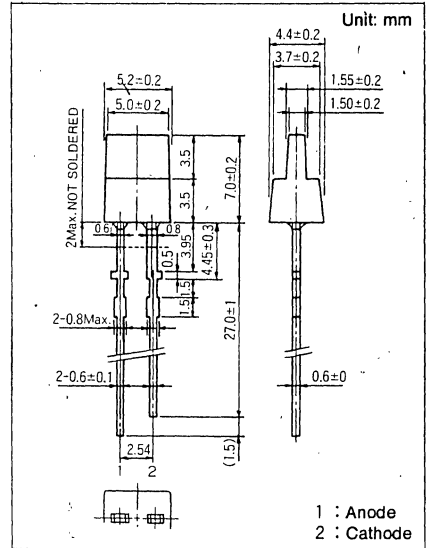
□ 1.5mm×5.0mm Series

Type No. Lighting Color
 LN229RPH Red
 LN329GPH Green
 LN429YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

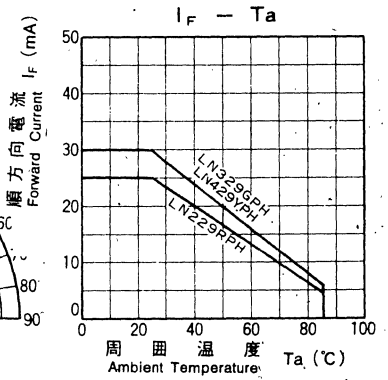
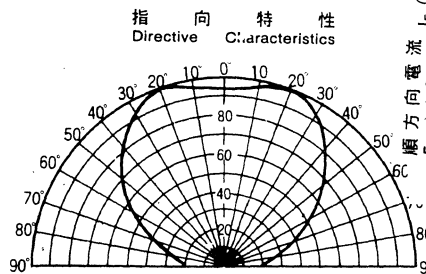
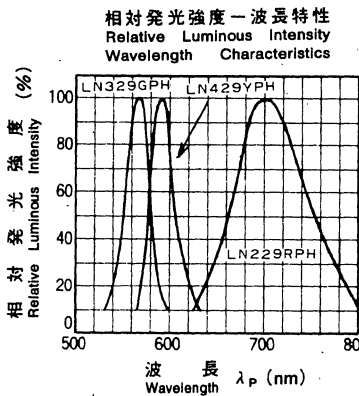
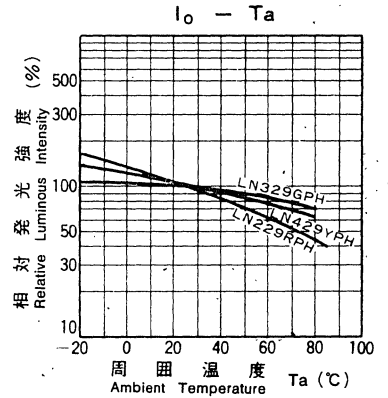
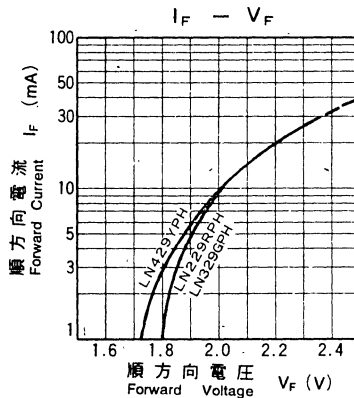
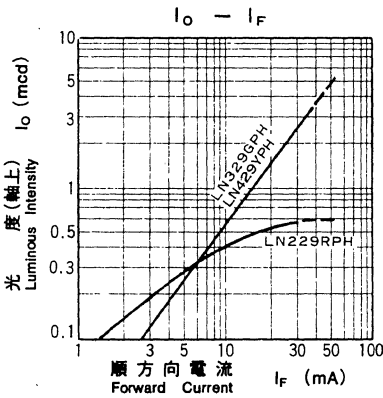
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN229RPH	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN329GPH	Green	Green Diffused	1.5	0.5	20	2.2	2.8	565	30	20	10	4
LN429YPH	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V _I



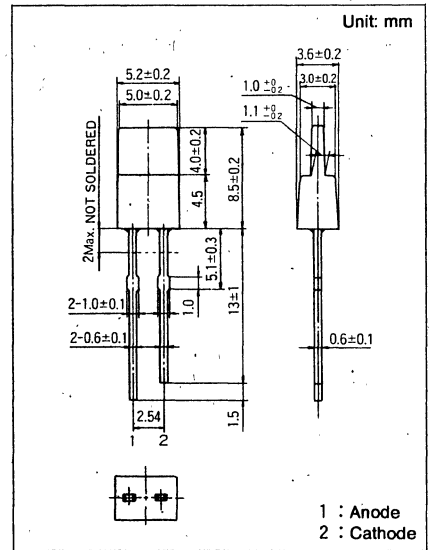
□ 1.0mm×5.0mm Series

Type No. Lighting Color
 LN224RP Red
 LN324GP Green
 LN424YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

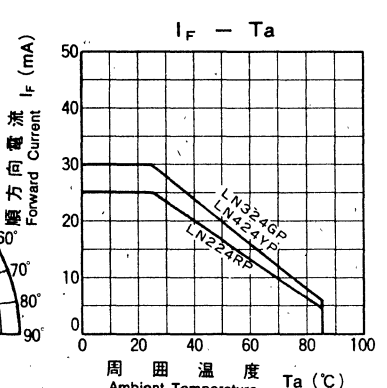
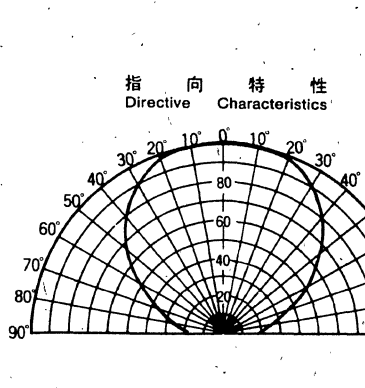
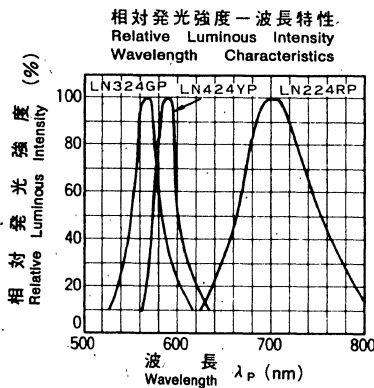
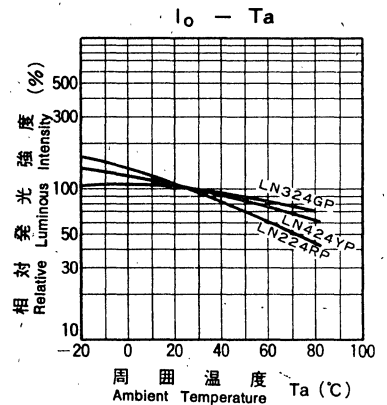
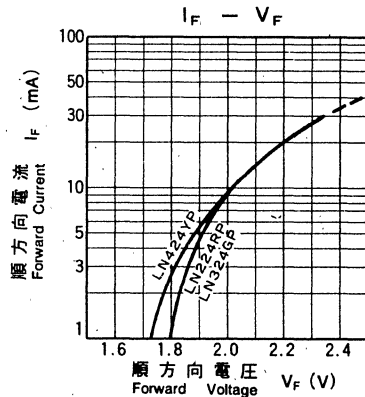
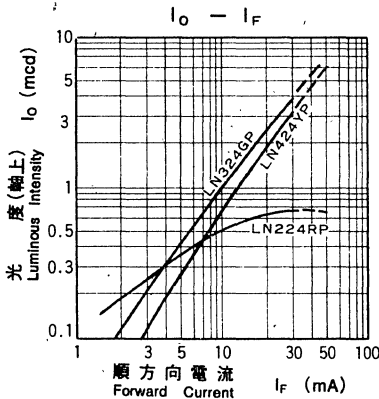
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN224RP	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN324GP	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN424YP	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit			mcd	mcd	mA	V	V	nm	nm	mA	μA	V



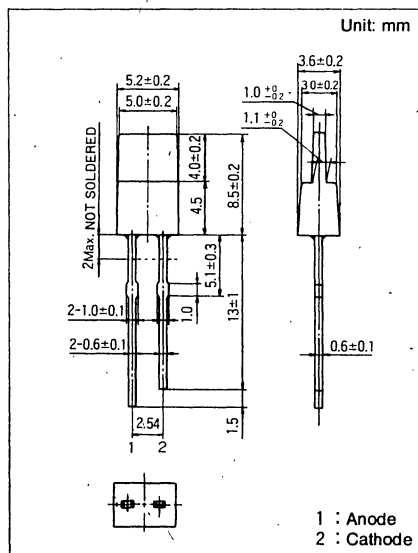
□ 1.0mm×5.0mm Series

Type No. Lighting Color
 LN224WP.....Red
 LN324WP.....Green
 LN424WP.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

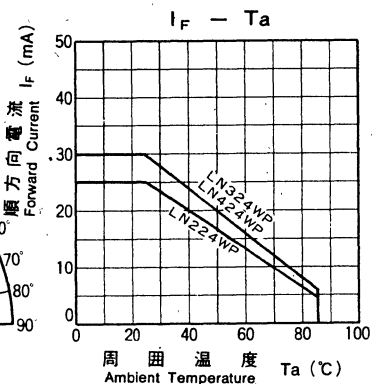
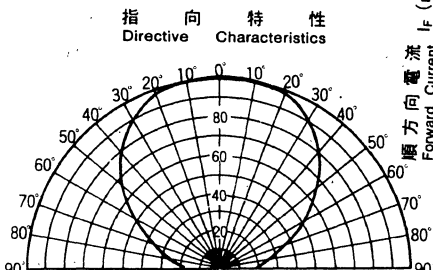
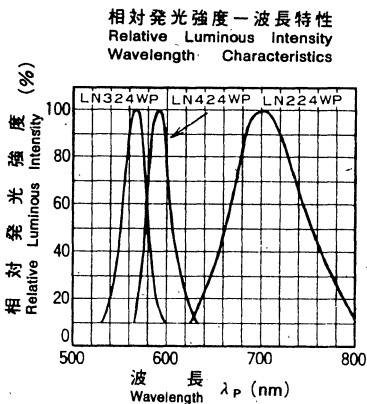
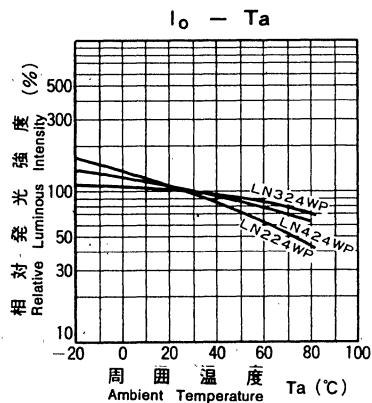
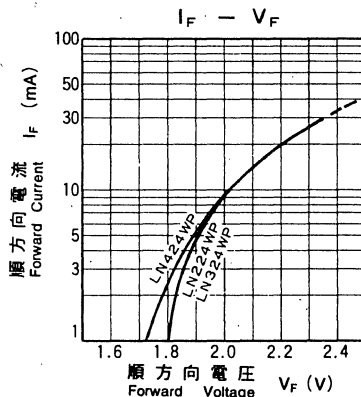
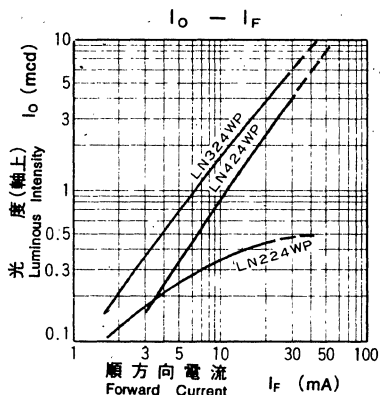
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	I _F		Max.	V _R
LN224WP	Red	White Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN324WP	Green	White Diffused	4.0	1.70	20	2.2	2.8	565	30	20	10	4
LN424WP	Amber	White Diffused	2.5	1.00	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



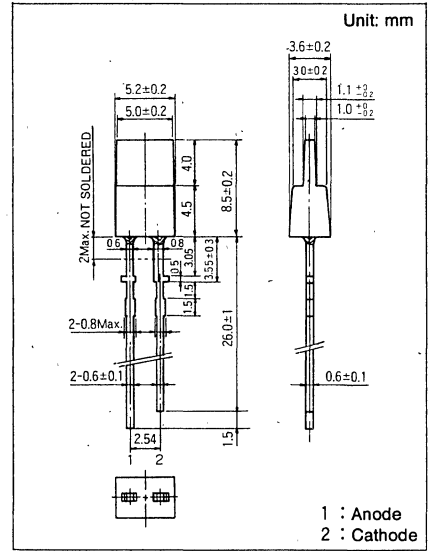
1.0mm×5.0mm Series

Type No. Lighting Color
 LN224RPH Red
 LN324GPH Green
 LN424YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

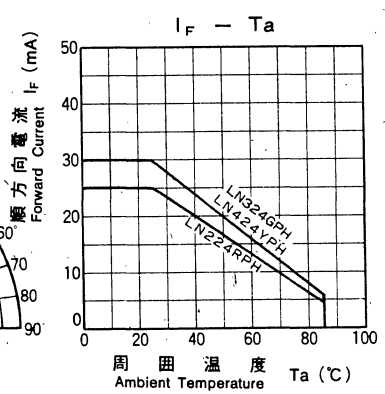
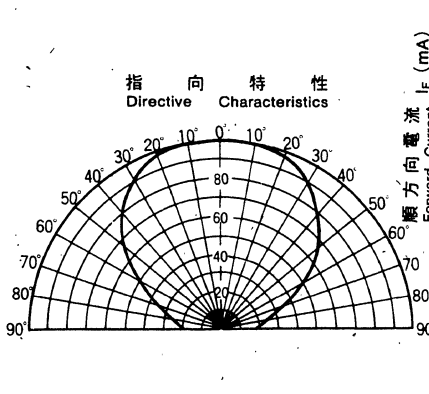
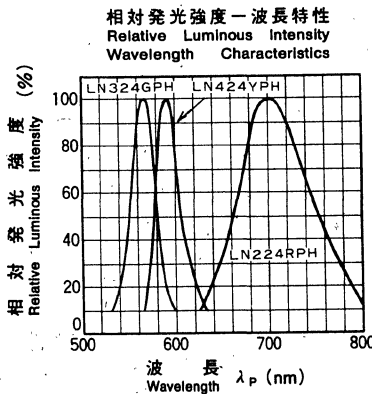
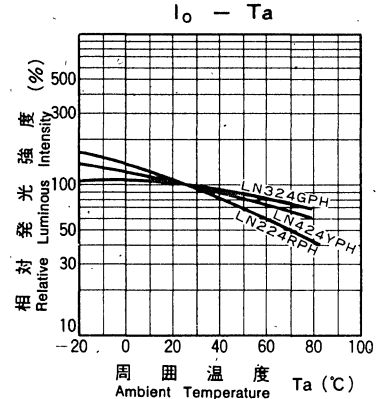
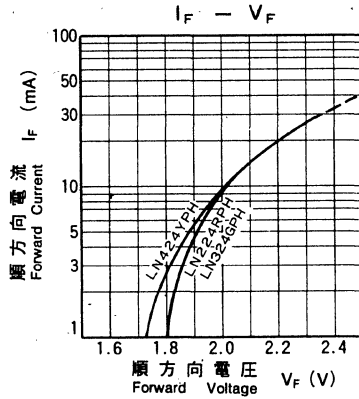
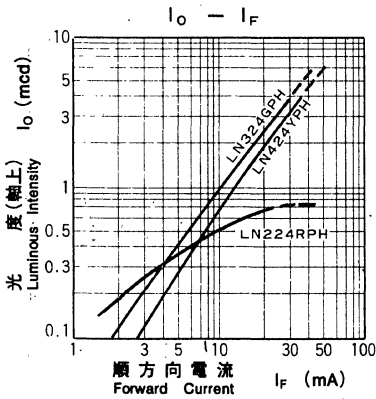
Lighting Color	P _O (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN224RPH	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN324GPH	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN424YPH	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



□ 1.0mm×5.0mm Series

Type No. Lighting Color

LN224WPH Red

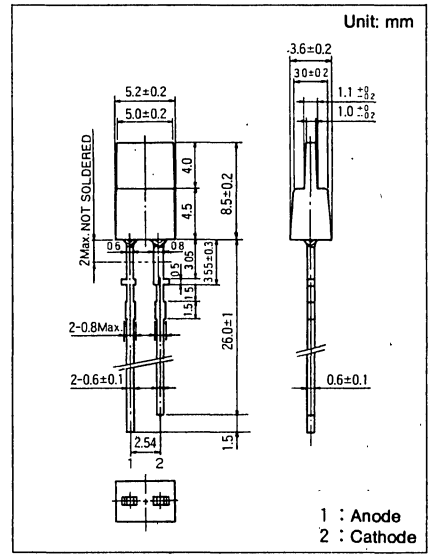
LN324WPH Green

LN424WPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

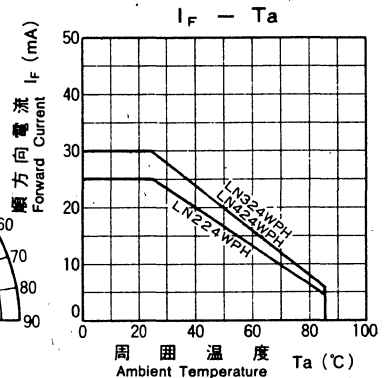
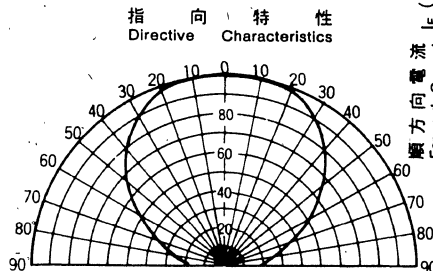
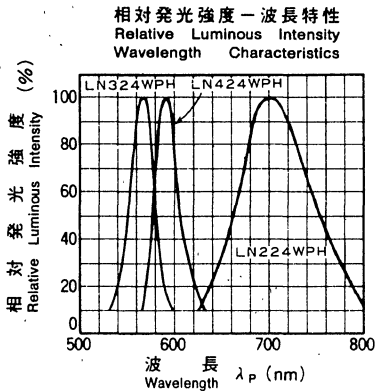
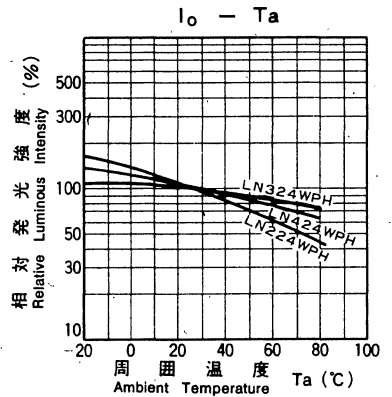
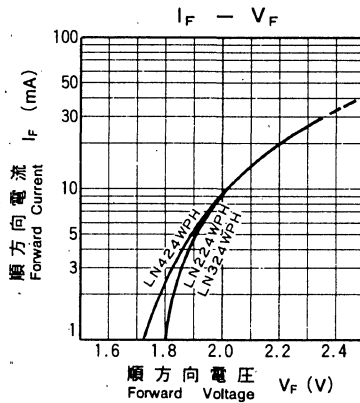
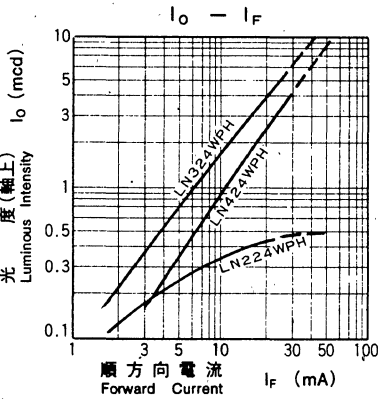
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P		I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN224WPH	Red	White Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN324WPH	Green	White Diffused	4.0	1.70	20	2.2	2.8	565	30	20	10	4
LN424WPH	Amber	White Diffused	2.5	1.00	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



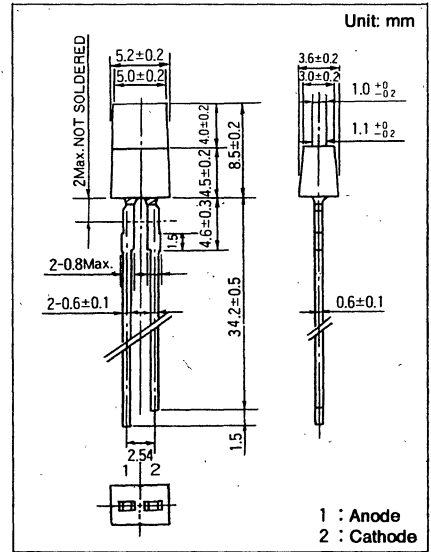
□ 1.0mm×5.0mm Series

Type No. Lighting Color
 LN224RPL.....Red
 LN324GPL.....Green
 LN424YPL.....Amber

絶対最大定格 - Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

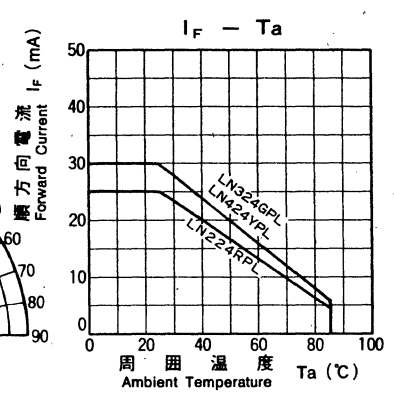
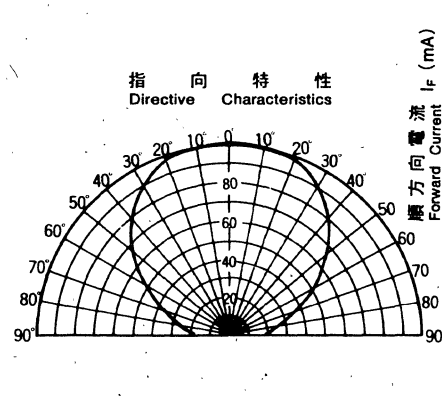
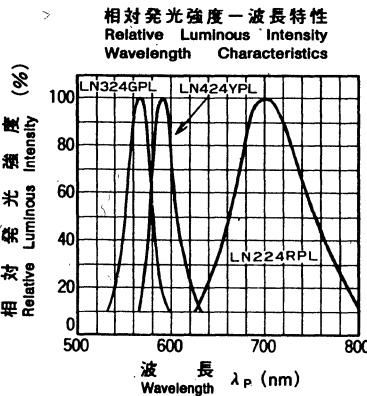
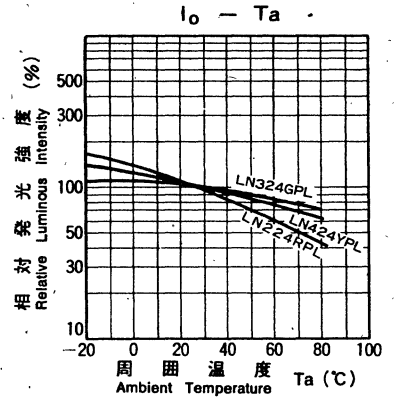
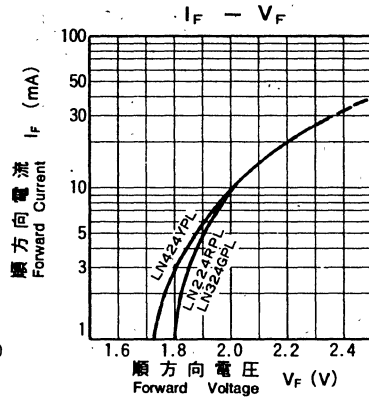
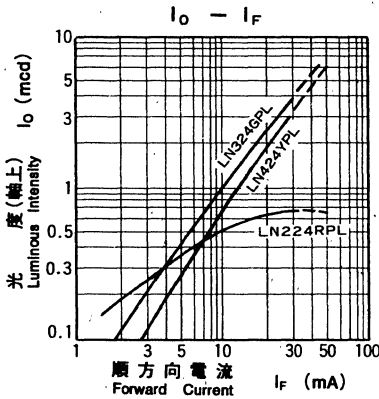
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _r	I _n	
			Typ.	Min.	I _F	Typ.	Max.				I _r	Max.
LN224RPL	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN324GPL	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN424YPL	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



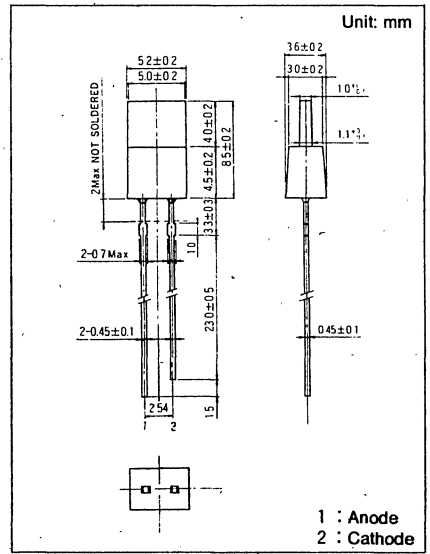
□ 1.0mm×5.0mm Series

Type No. Lighting Color
 LN224RPX Red
 LN324GPX Green
 LN424YPX Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

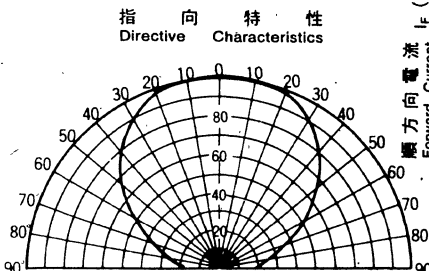
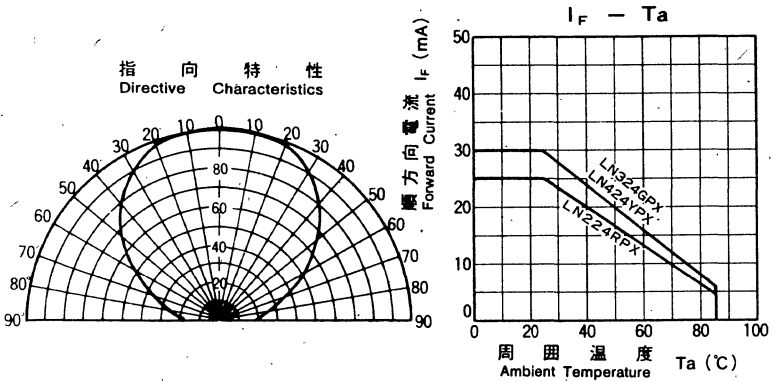
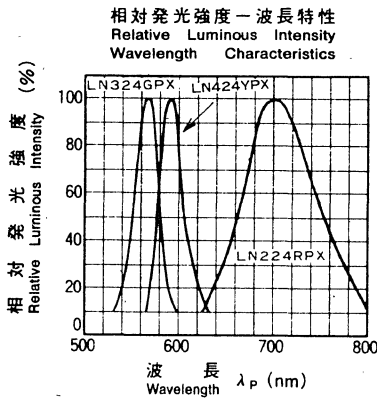
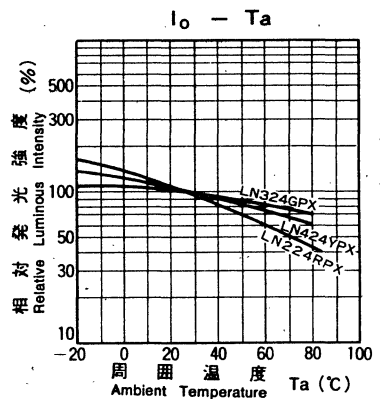
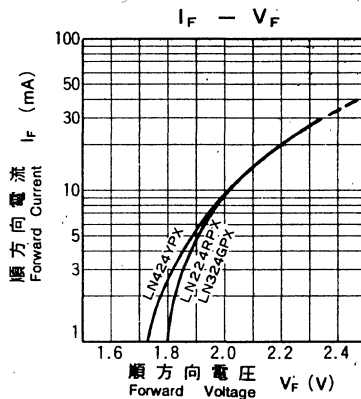
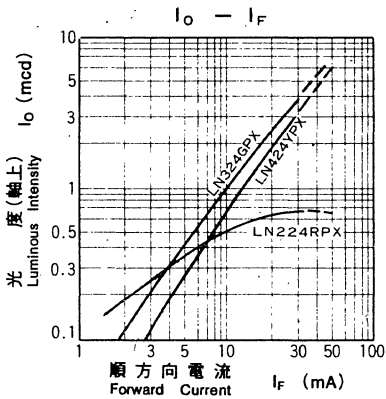
*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN224RPX	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN324GPX	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN424YPX	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



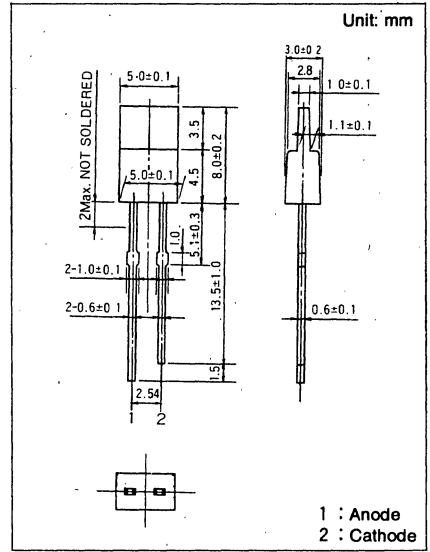
□ 1.0mm×5.0mm Series

Type No. Lighting Color
 LN268RP Red
 LN368GP Green
 LN468YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

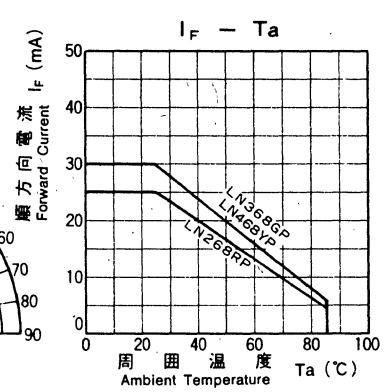
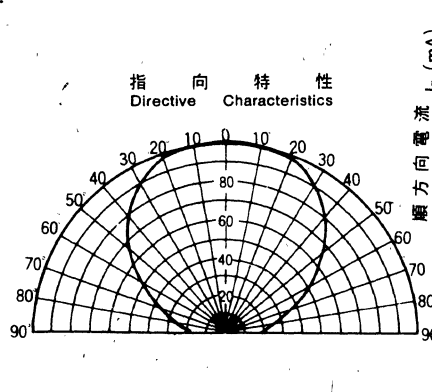
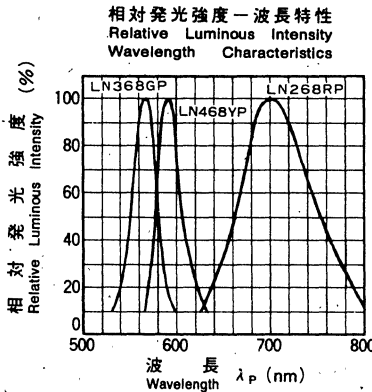
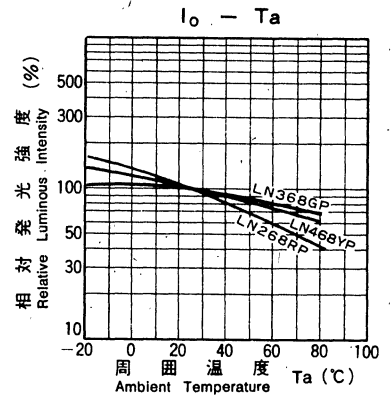
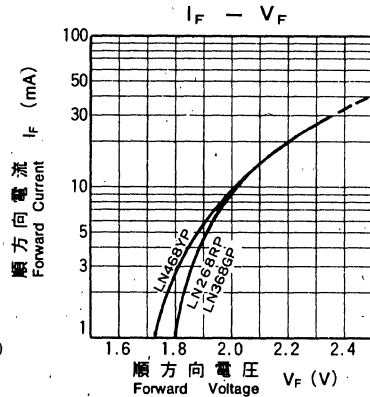
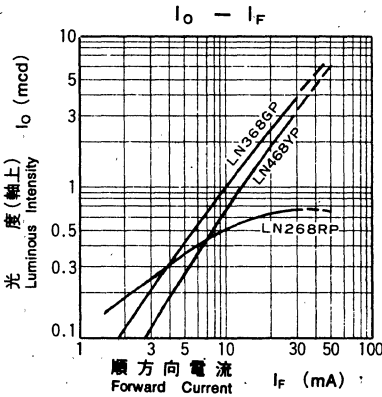
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN268RP	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN368GP	Green	Green Diffused	2.5	0.9	20	2.2	2.8	565	30	20	10	4
LN468YP	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



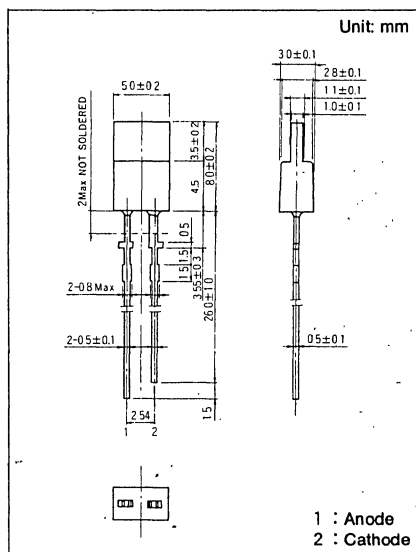
□ 1.0mm×5.0mm Series

Type No. Lighting Color
 LN268RPH Red
 LN368GPH Green
 LN468YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

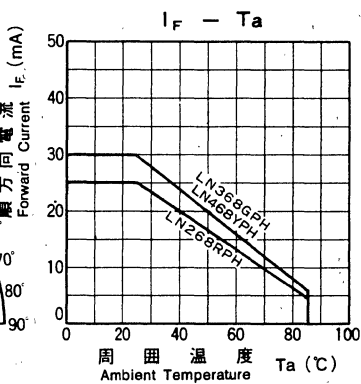
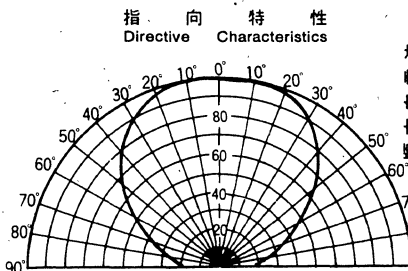
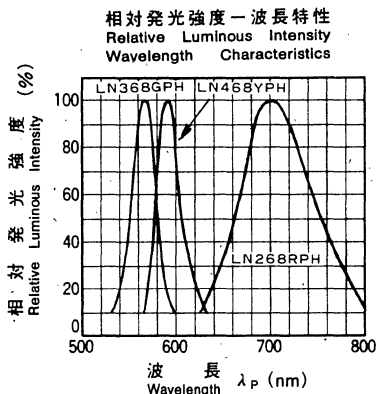
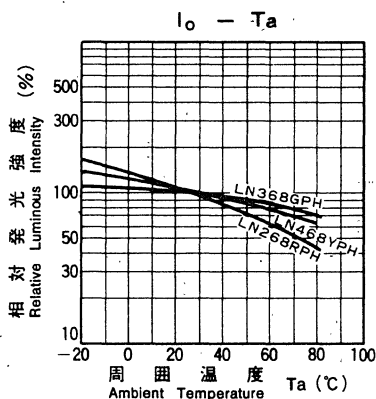
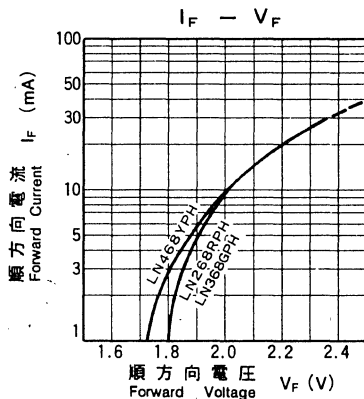
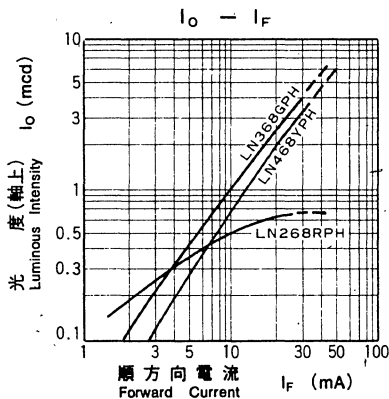
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
△ LN268RPH	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
△ LN368GPH	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
△ LN468YPH	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



1.0mm×4.0mm Series

Type No. Lighting Color
 LN233RP Red
 LN333GP Green
 LN433YP Amber
 LN833WP Orange

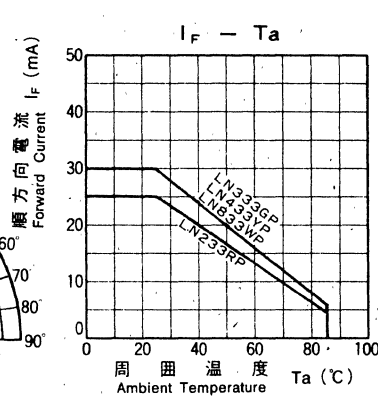
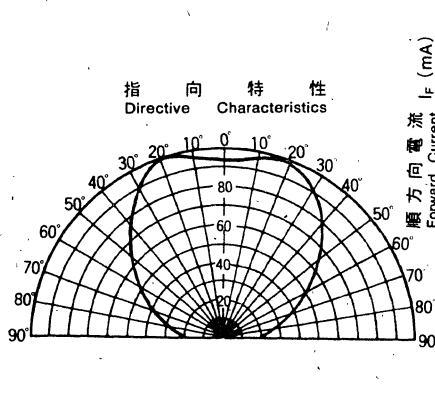
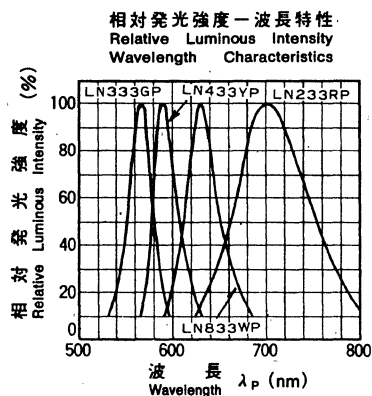
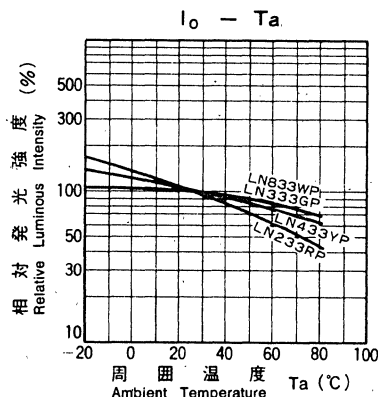
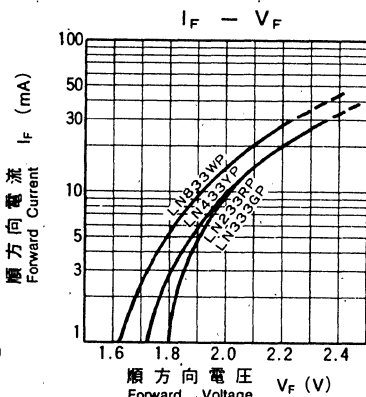
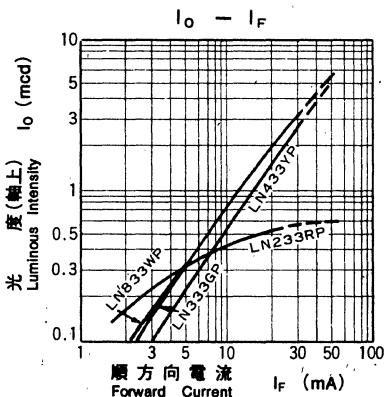
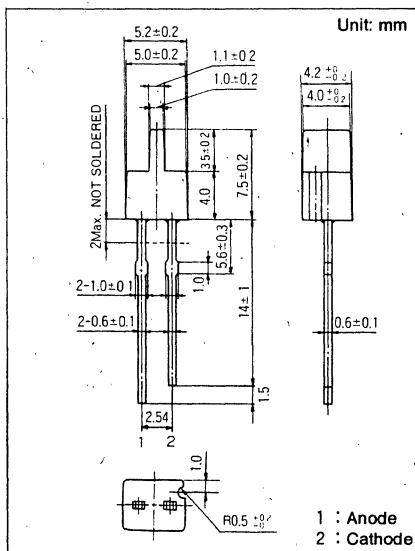
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN233RP	Red	Red Diffused	0.5	0.10	15	2.2	2.8	700	100	20	5	4
LN333GP	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN433YP	Amber	Amber Diffused	1.5	0.50	20	2.2	2.8	590	30	20	10	4
LN833WP	Orange	White Diffused	2.0	0.75	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



□ 1.0mm×4.0mm Series

Type No.	Lighting Color
LN233RPH	Red
LN333GPH	Green
LN433YPH	Amber
LN833WPH	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

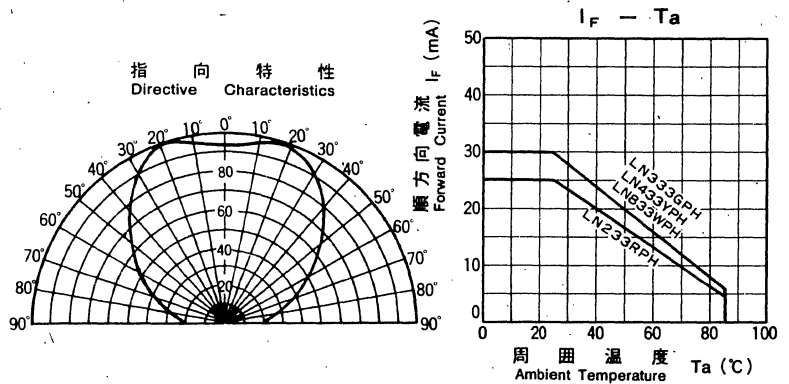
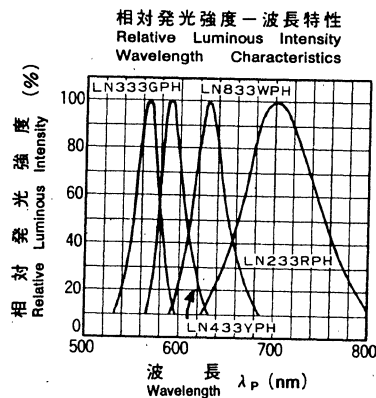
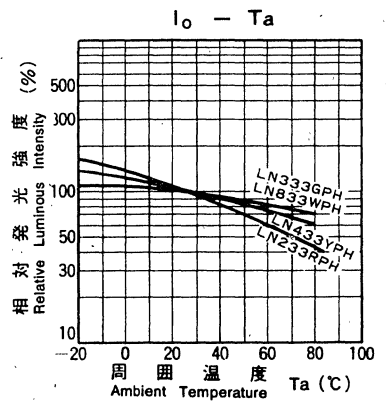
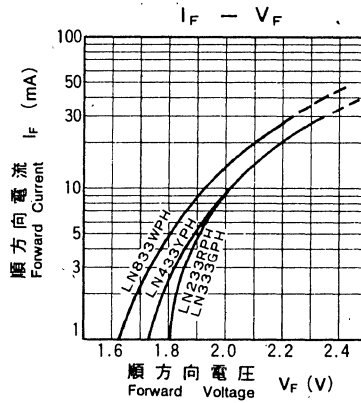
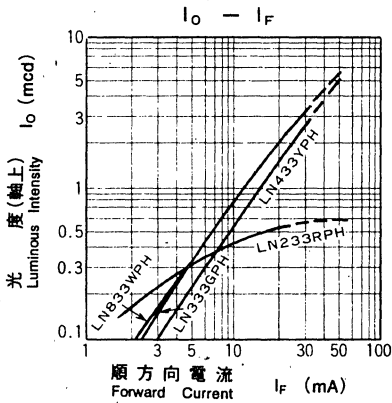
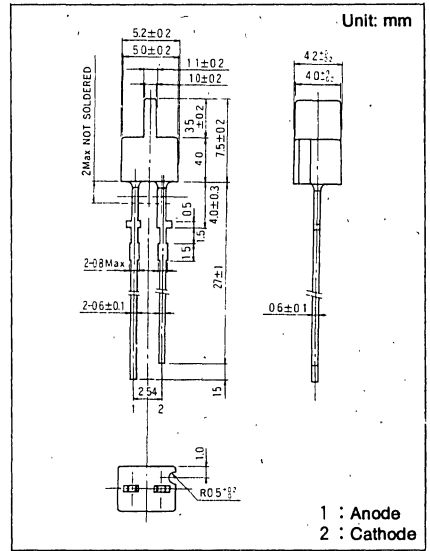
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN233RPH	Red	Red Diffused	0.5	0.10	15	2.2	2.8	700	100	20	5	4
LN333GPH	Green	Green Diffused	2.0	0.75	20	2.2	2.8	565	30	20	10	4
LN433YPH	Amber	Amber Diffused	1.5	0.50	20	2.2	2.8	590	30	20	10	4
LN833WPH	Orange	White Diffused	2.0	0.75	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



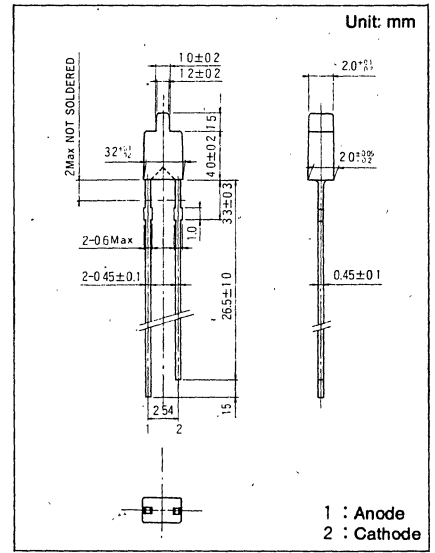
□ 1.0mm×2.0mm Series

Type No.	Lighting Color
LN281RPX	Red
LN381GPX	Green
LN481YPX	Amber
LN881RPX	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

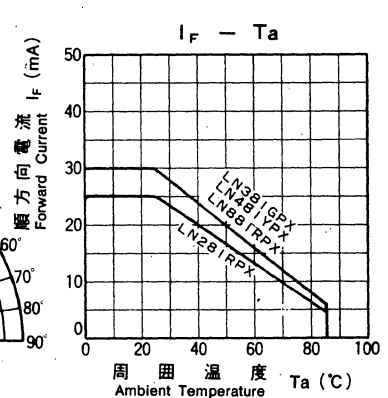
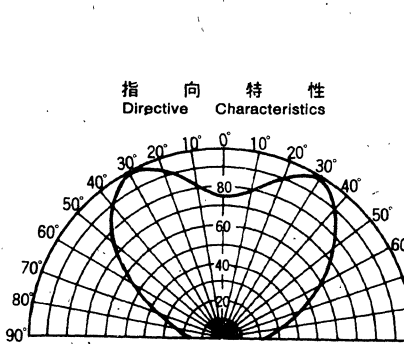
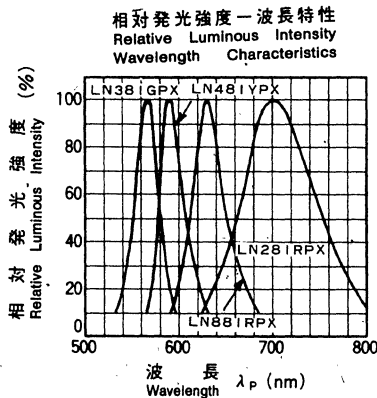
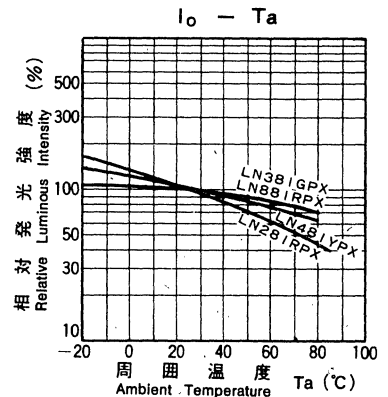
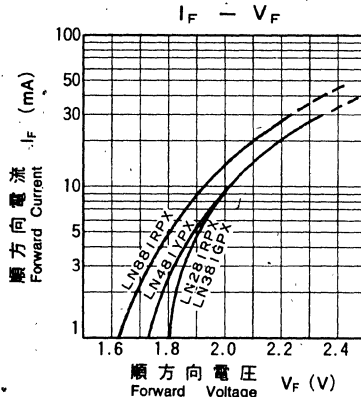
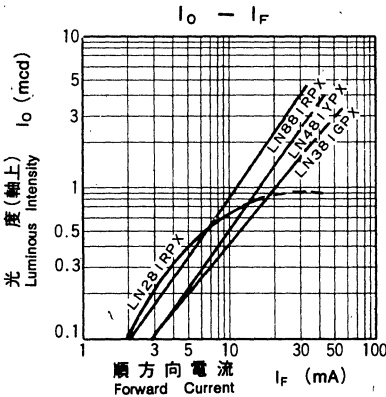
*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的・光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
△ LN281RPX	Red	Red Diffused	0.8	0.3	15	2.2	2.8	700	100	20	5	4
△ LN381GPX	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4
△ LN481YPX	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
△ LN881RPX	Orange	Red Diffused	2.5	0.9	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



可視発光ダイオード／VISIBLE LED'S

三 角 形

Triangle Type



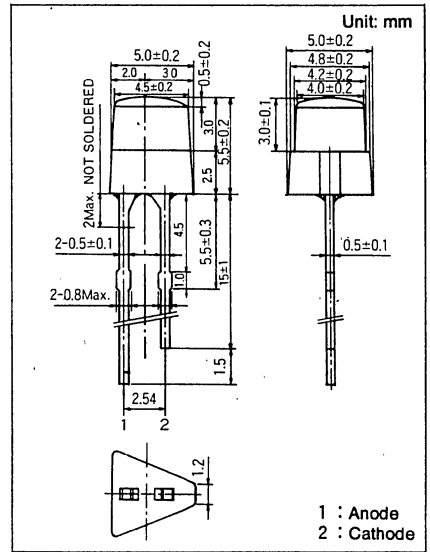
△ 4.0mm×4.5mm Series

Type No. Lighting Color
 LN212RPRed
 LN312GPGreen
 LN412YPAmber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

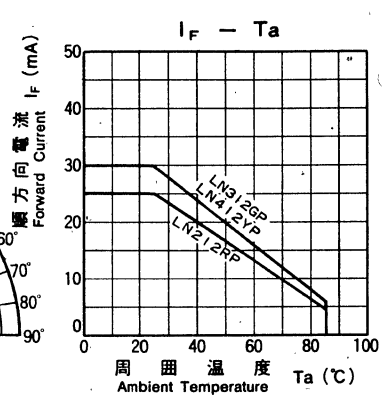
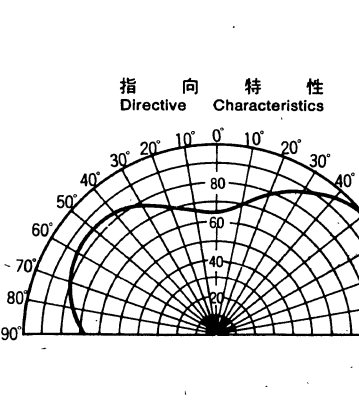
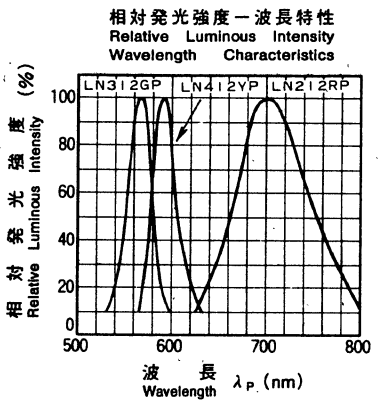
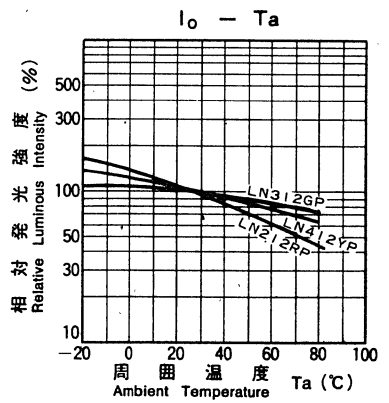
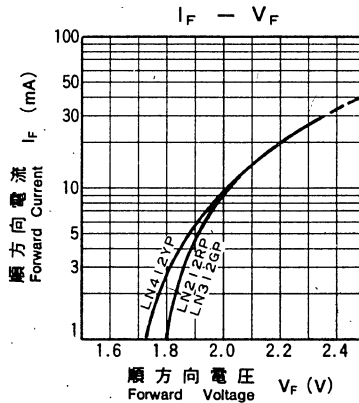
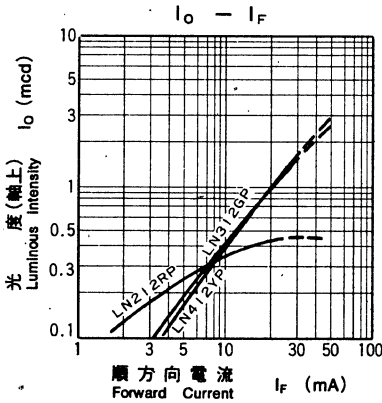
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN212RP	Red	Red Diffused	0.4	0.1	15	2.2	2.8	700	100	20	5	4
LN312GP	Green	Green Diffused	1.0	0.3	20	2.2	2.8	565	30	20	10	4
LN412YP	Amber	Amber Diffused	1.0	0.4	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



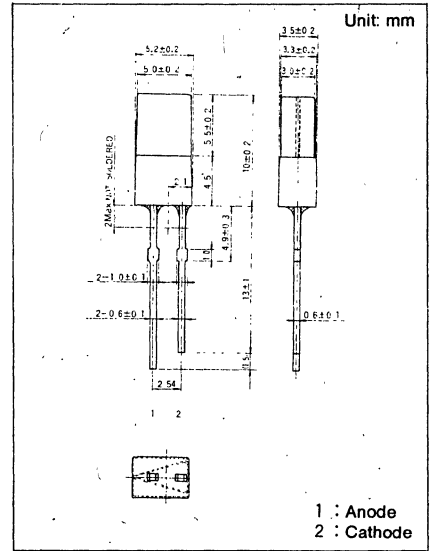
△ 3.0mm×5.0mm Series

Type No. Lighting Color
 LN226RP Red
 LN326GP Green
 LN426YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

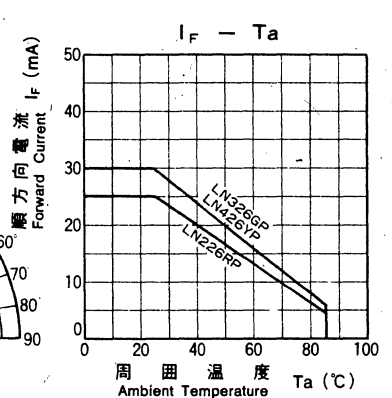
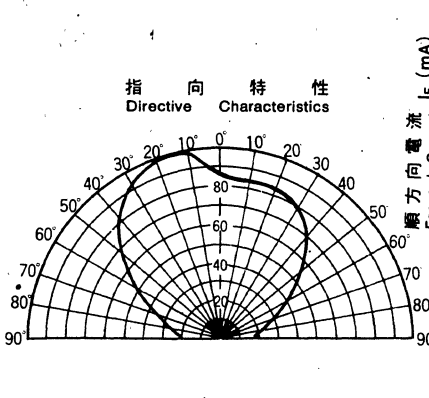
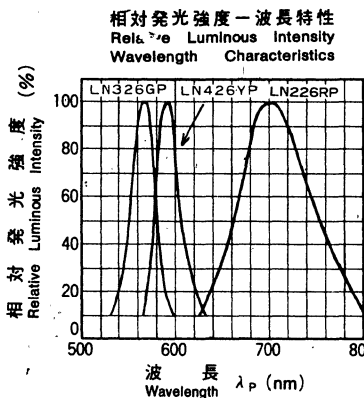
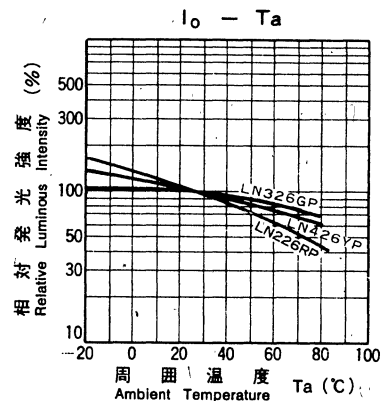
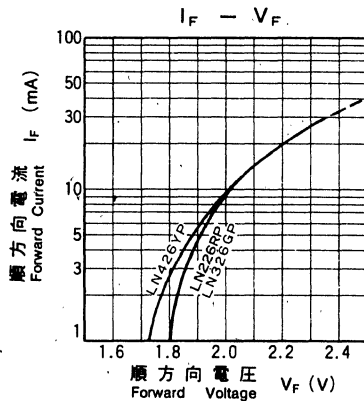
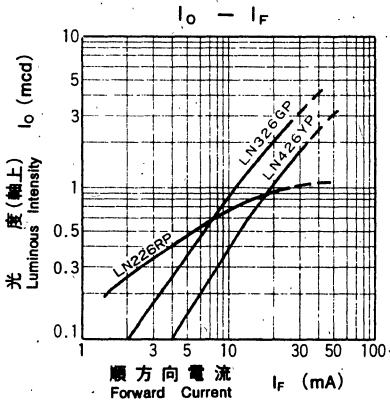
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr(°C)	Tstg(°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN226RP	Red	Red Diffused	0.8	0.4	15	2.2	2.8	700	100	20	5	4
LN326GP	Green	Green Diffused	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN426YP	Amber	Amber Diffused	1.0	0.3	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



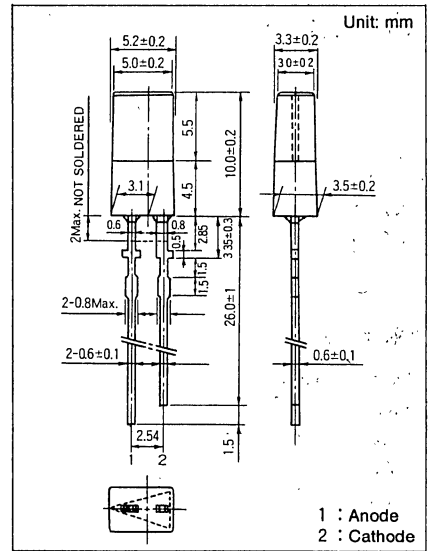
△ 3.0mm×5.0mm Series

Type No. Lighting Color
 LN226RPH Red
 LN326GPH Green
 LN426YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

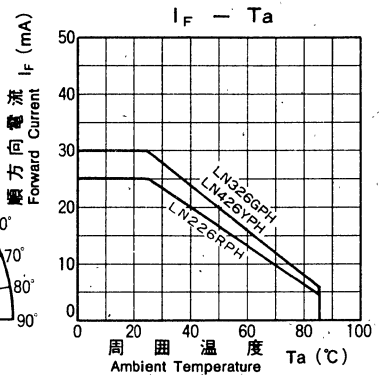
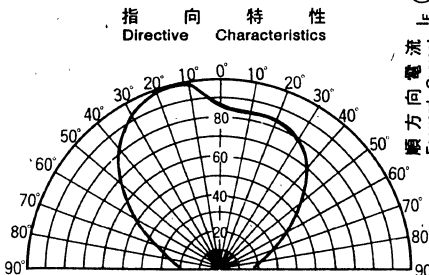
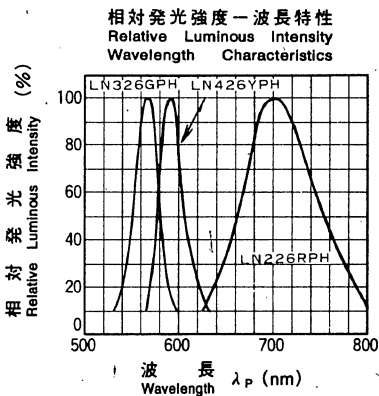
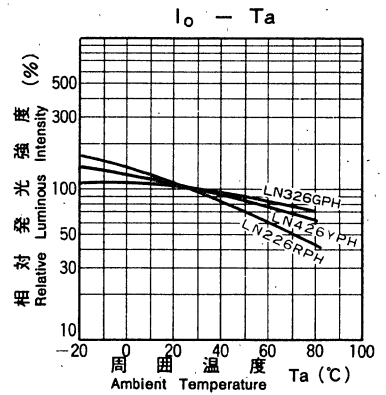
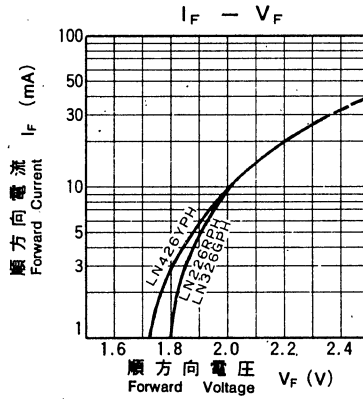
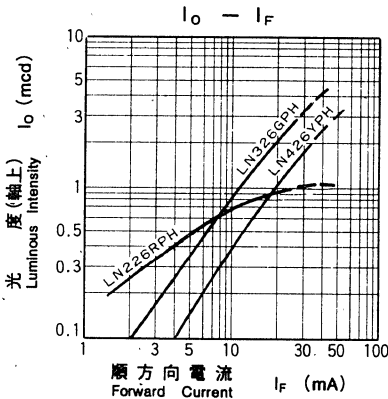
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN226RPH	Red	Red Diffused	0.8	0.4	15	2.2	2.8	700	100	20	5	4
LN326GPH	Green	Green Diffused	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN426YPH	Amber	Amber Diffused	1.0	0.3	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



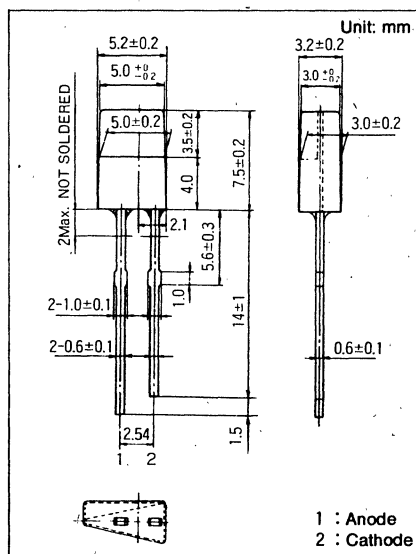
△ 3.0mm×5.0mm Series

Type No. Lighting Color
 LN228RP Red
 LN328GP Green
 LN428YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

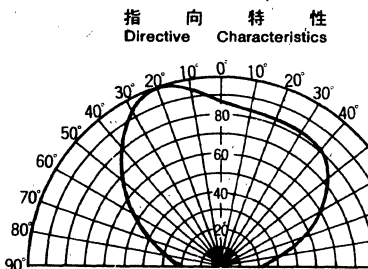
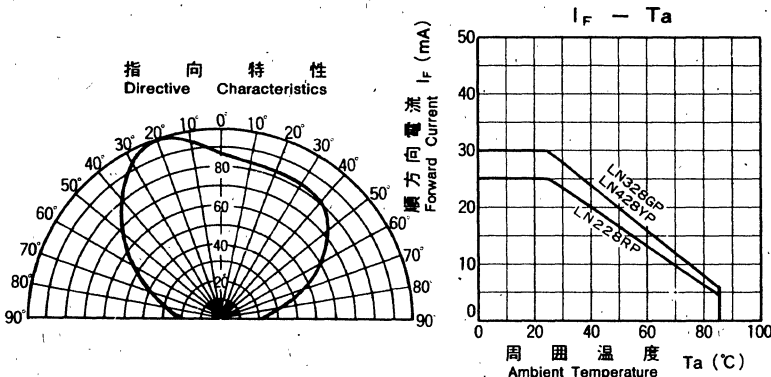
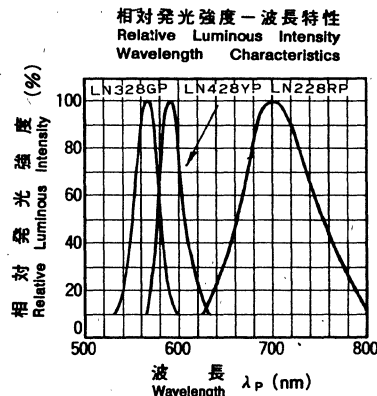
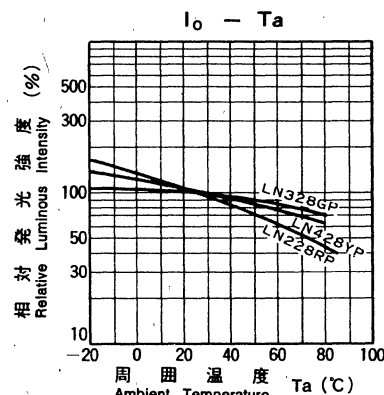
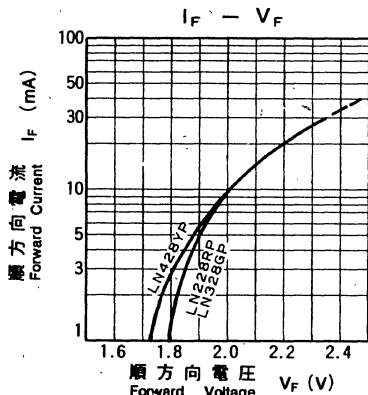
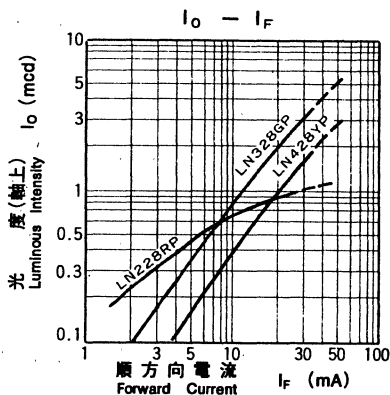
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN228RP	Red	Red Diffused	0.8	0.3	15	2.2	2.8	700	100	20	5	4
LN328GP	Green	Green Diffused	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN428YP	Amber	Amber Diffused	1.0	0.3	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



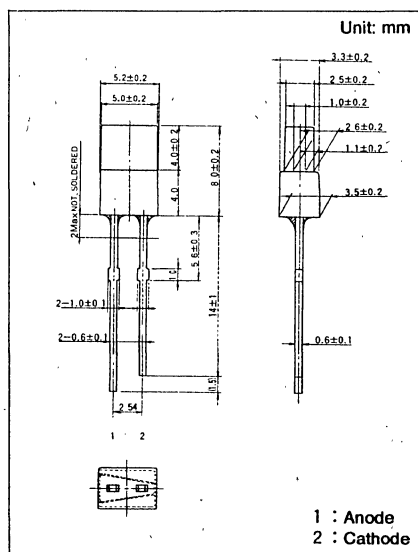
△ 2.5mm×5.0mm Series

Type No.	Lighting Color
LN227RP	Red
LN327GP	Green
LN427YP	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

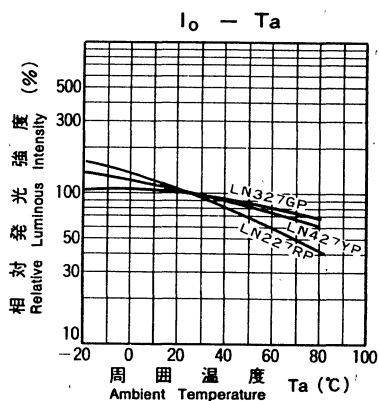
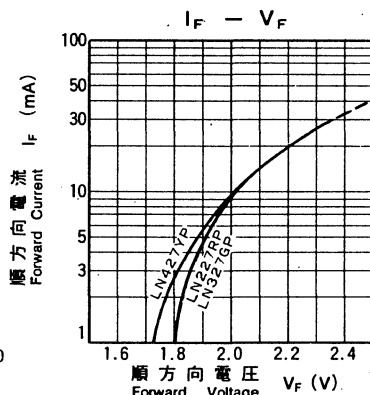
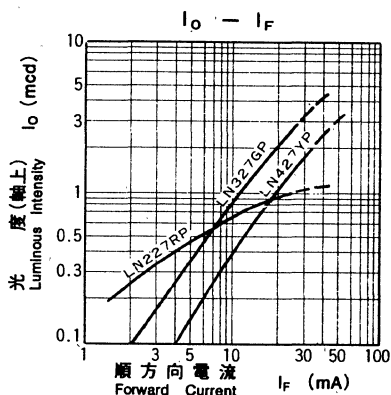
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

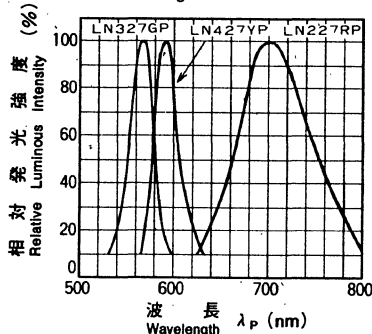


電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

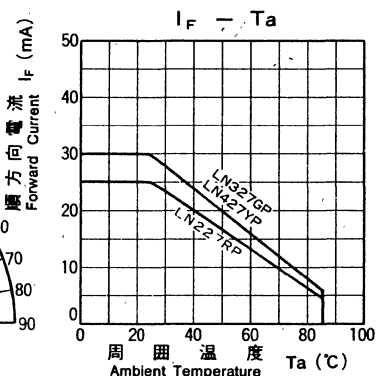
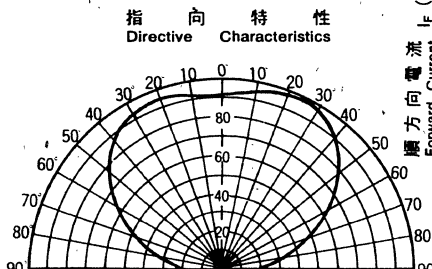
Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _F	Δλ	I _F	I _n	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _n
LN227RP	Red	Red Diffused	0.8	0.4	15	2.2	2.8	700	100	20	5	4
LN327GP	Green	Green Diffused	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN427YP	Amber	Amber Diffused	1.0	0.3	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



相对発光強度-波長特性
Relative Luminous Intensity
Wavelength Characteristics



指向特性
Directive Characteristics



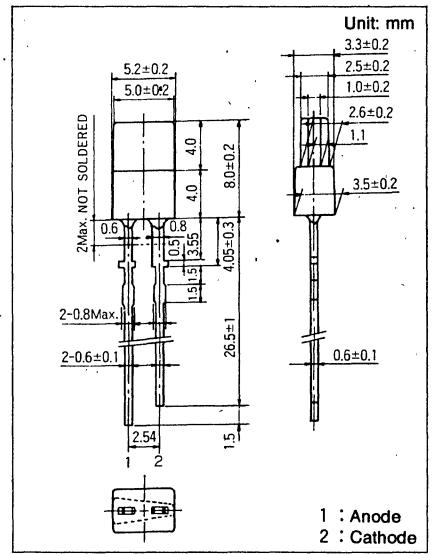
△ 2.5mm×5.0mm Series

Type No. Lighting Color
 LN227RPH.....Red
 LN327GPH.....Green
 LN427YPH.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

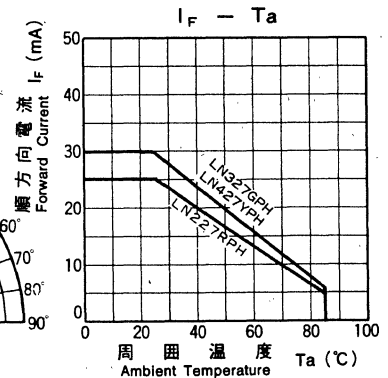
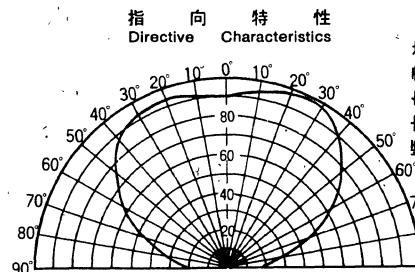
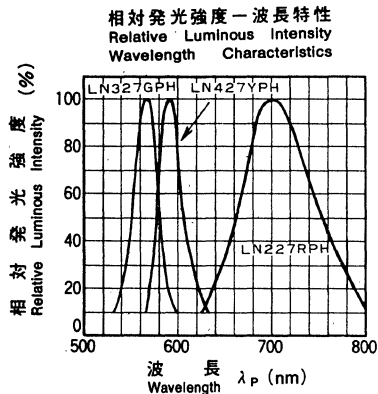
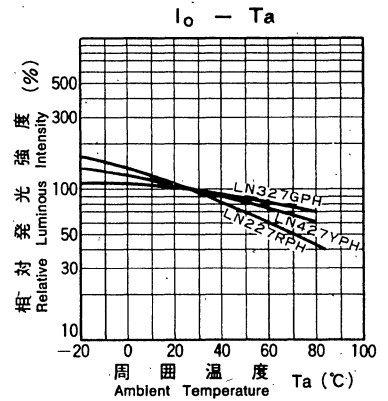
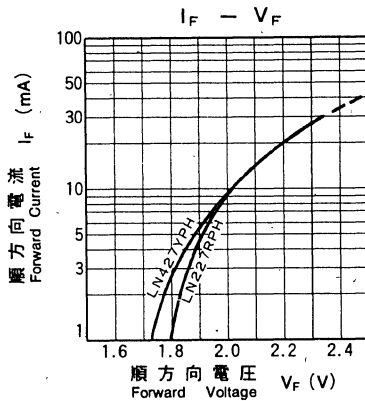
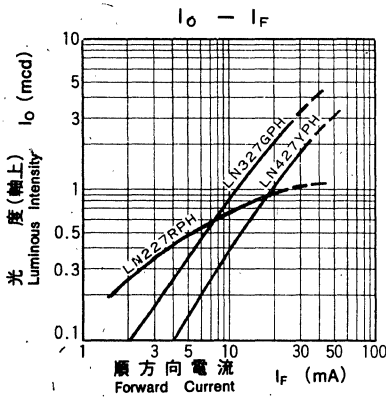
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN227RPH	Red	Red Diffused	0.8	0.4	15	2.2	2.8	700	100	20	5	4
LN327GPH	Green	Green Diffused	2.0	0.7	20	2.2	2.8	565	30	20	10	4
LN427YPH	Amber	Amber Diffused	1.0	0.3	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



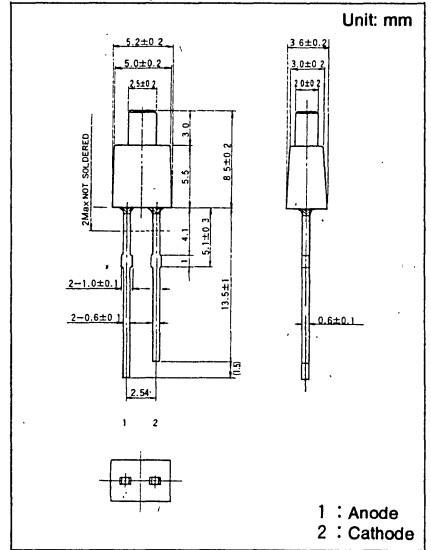
△ 2.0mm×2.5mm Series

Type No. Lighting Color
 LN235RP Red
 LN335GP Green
 LN435YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

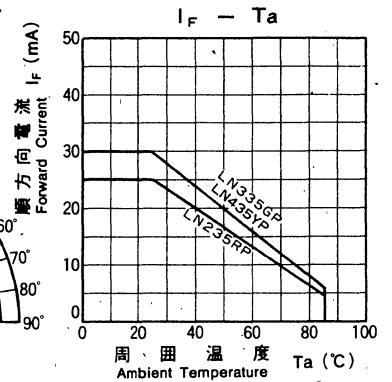
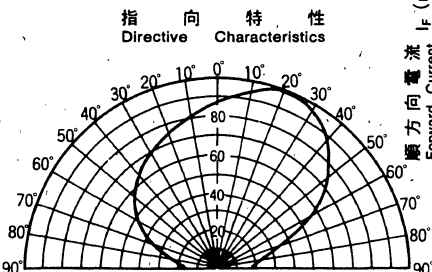
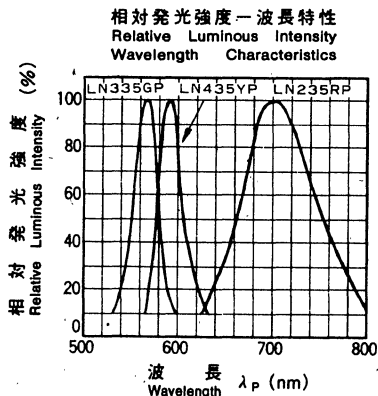
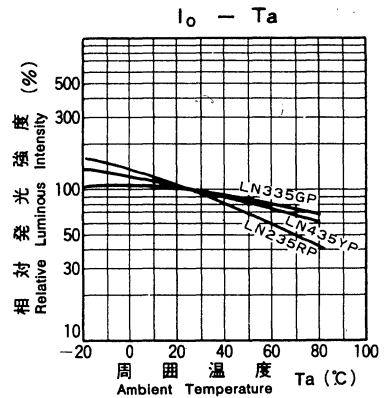
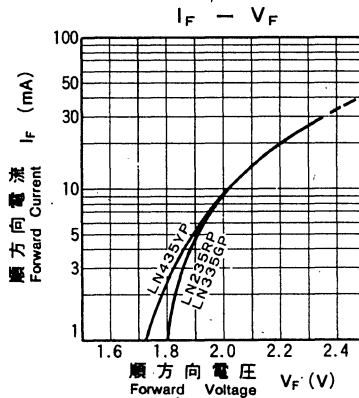
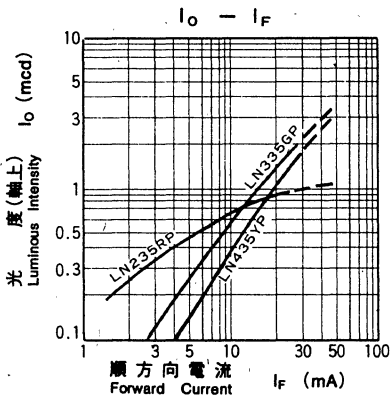
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN235RP	Red	Red Diffused	0.8	0.4	15	2.2	2.8	700	100	20	5	4
LN335GP	Green	Green Diffused	1.5	0.6	20	2.2	2.8	565	30	20	10	4
LN435YP	Amber	Amber Diffused	1.0	0.3	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



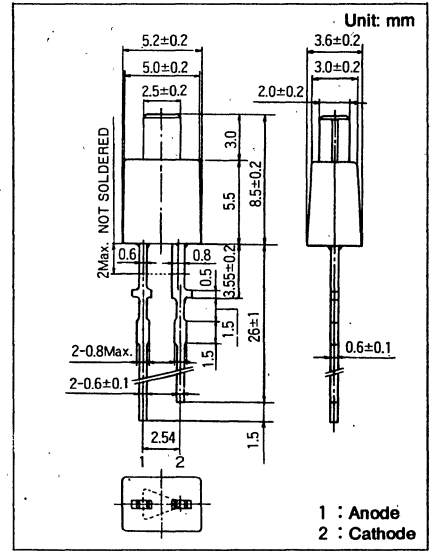
△ 2.0mm×2.5mm Series

Type No. Lighting Color
 LN235RPHRed
 LN335GPHGreen
 LN435YPHAmber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

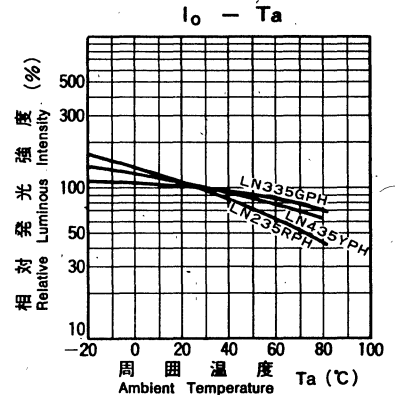
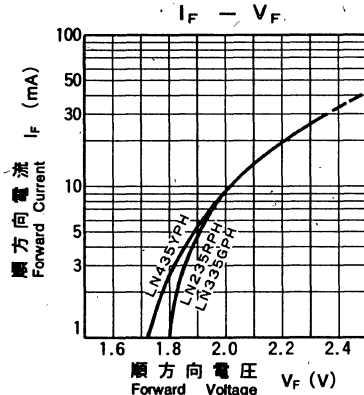
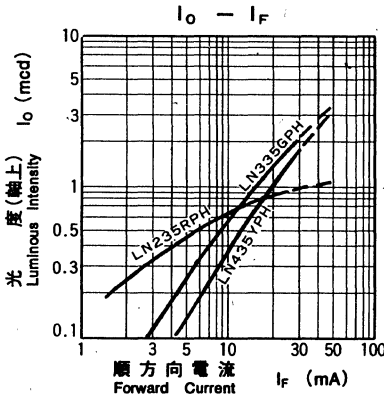
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FM} (mA)*	V _K (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FM}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FM} is duty 10%, Pulse width 1 msec

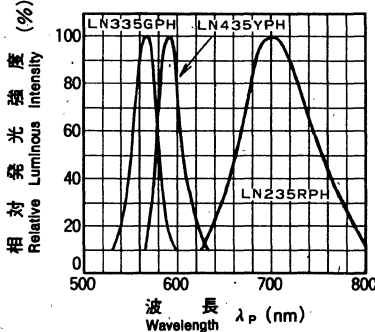


電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

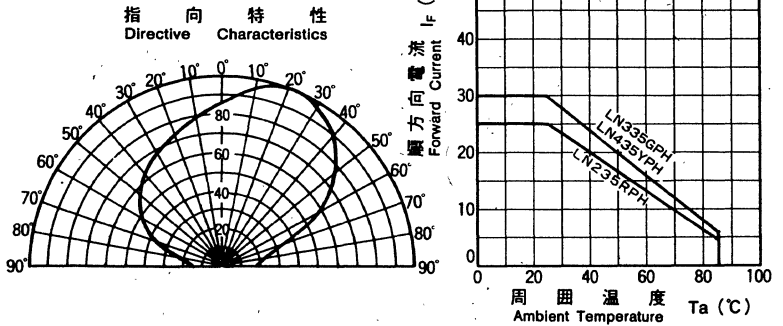
Type No.	Lighting Color	Lens Color	I _p			V _F		λ _p	Δλ	I _F	I _a	
			Typ.	Min.	I _p	Typ.	Max.				Max.	V _a
LN235RPH	Red	Red Diffused	0.8	0.4	15	2.2	2.8	700	100	20	5	4
LN335GPH	Green	Green Diffused	1.5	0.6	20	2.2	2.8	565	30	20	10	4
LN435YPH	Amber	Amber Diffused	1.0	0.3	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



相对発光強度-波長特性
 Relative Luminous Intensity
 Wavelength Characteristics



指向特性
 Directive Characteristics



可視発光ダイオード／VISIBLE LED'S

小 形

Small Type



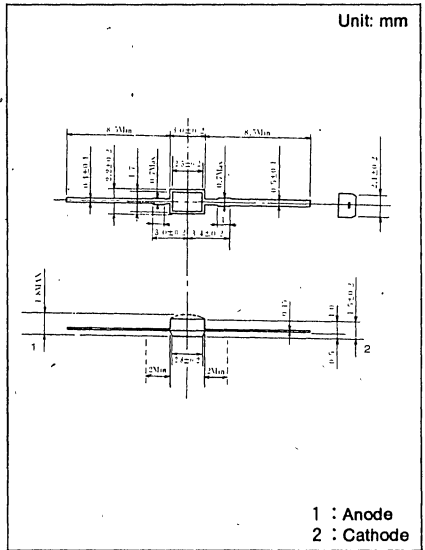
Minibright LED Series

Type No.	Lighting Color
LN01201C(Q)	Red
LN01301C(Q)	Green
LN01401C(Q)	Amber
LN01801C(Q)	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

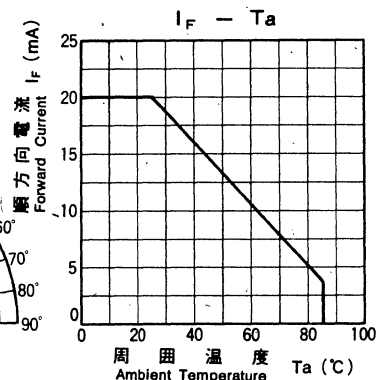
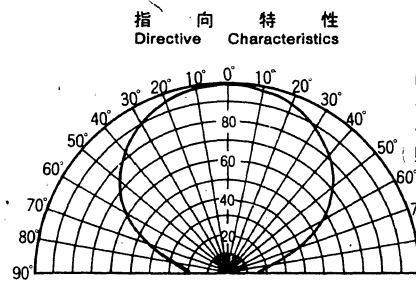
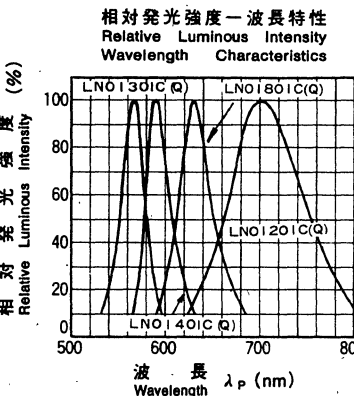
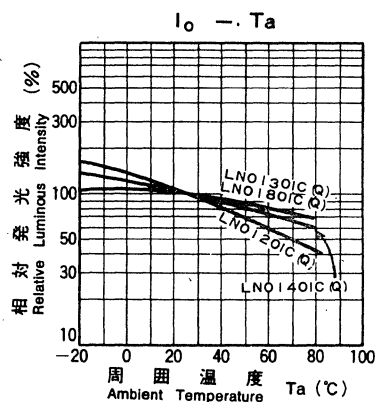
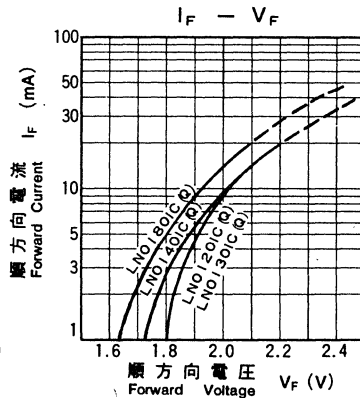
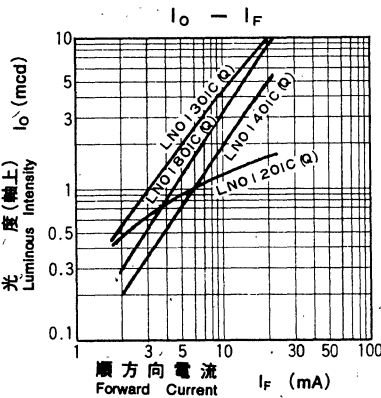
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	4	-25~+85	-30~+100
Green	60	20	100	4	-25~+85	-30~+100
Amber	60	20	100	4	-25~+85	-30~+100
Orange	60	20	100	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN01201C(Q)	Red	Clear	1.5	0.65	15	2.2	2.8	700	100	20	10	4
LN01301C(Q)	Green	Clear	10.0	3.50	20	2.2	2.8	565	30	20	10	4
LN01401C(Q)	Amber	Clear	5.0	1.90	20	2.2	2.8	590	30	20	10	4
LN01801C(Q)	Orange	Clear	8.0	3.00	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



Minibright LED series

Type No. Lighting Color
 LN01201C(Q)-(L).....Red
 LN01301C(Q)-(L).....Green
 LN01401C(Q)-(L).....Amber
 LN01801C(Q)-(L).....Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

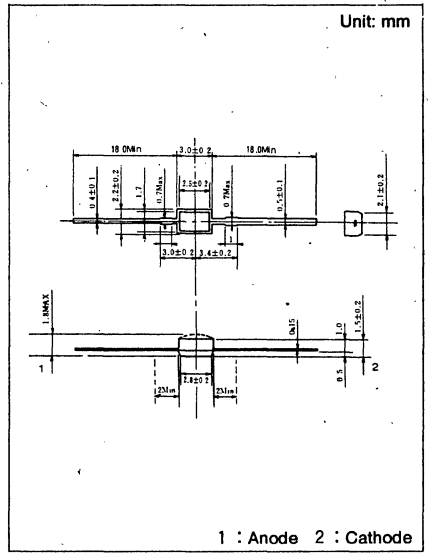
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	4	-25~+85	-30~+100
Green	60	20	100	4	-25~+85	-30~+100
Amber	60	20	100	4	-25~+85	-30~+100
Orange	60	20	100	3	-25~+85	-30~+100

* I_{FP} の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

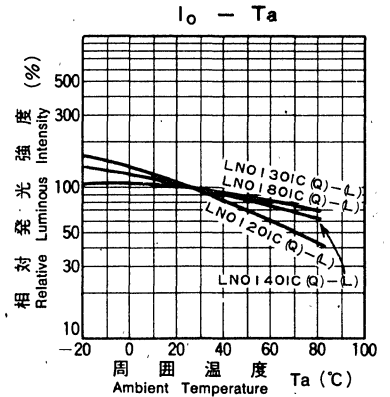
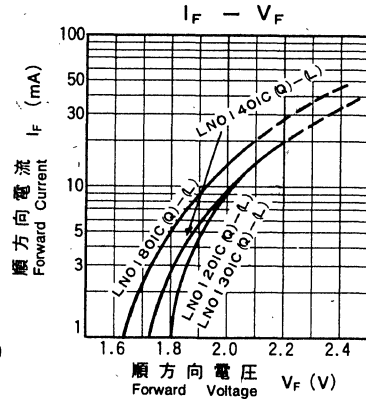
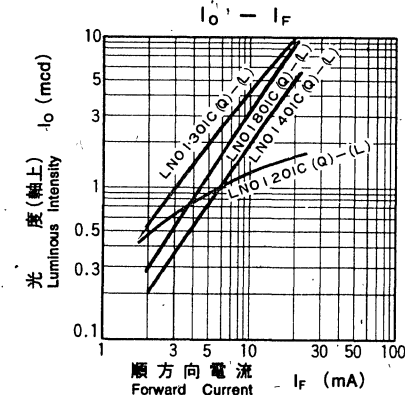
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN01201C(Q)-(L)	Red	Clear	1.5	0.65	15	2.2	2.8	700	100	20	10	4
LN01301C(Q)-(L)	Green	Clear	10.0	3.50	20	2.2	2.8	565	30	20	10	4
LN01401C(Q)-(L)	Amber	Clear	5.0	1.90	20	2.2	2.8	590	30	20	10	4
LN01801C(Q)-(L)	Orange	Clear	8.0	3.00	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

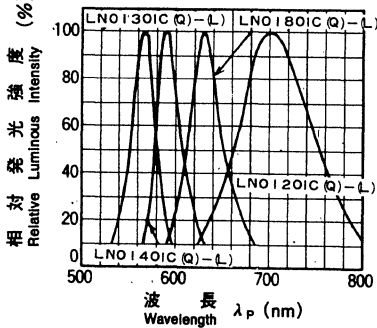
△印は暫定規格を示す。△ Tentative Specification



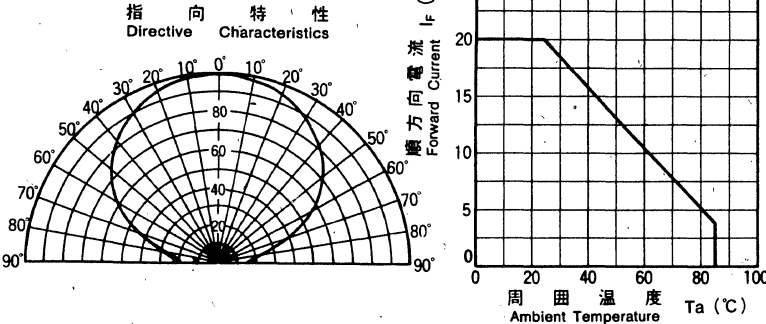
1 : Anode 2 : Cathode



相对発光強度-波長特性
 Relative Luminous Intensity
 Wavelength Characteristics



指向特性
 Directive Characteristics



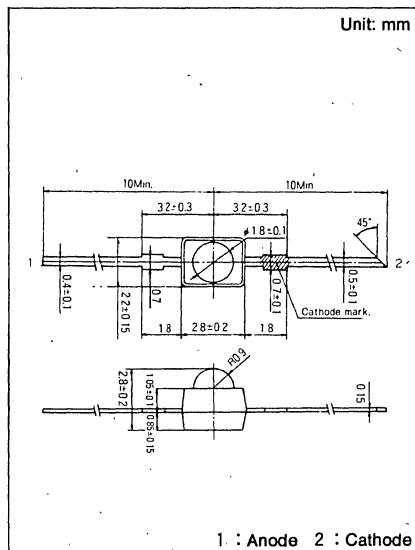
ダブルエンド Double End

Type No. Lighting Color
 LN247RP Red
 LN347GP Green
 LN447YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

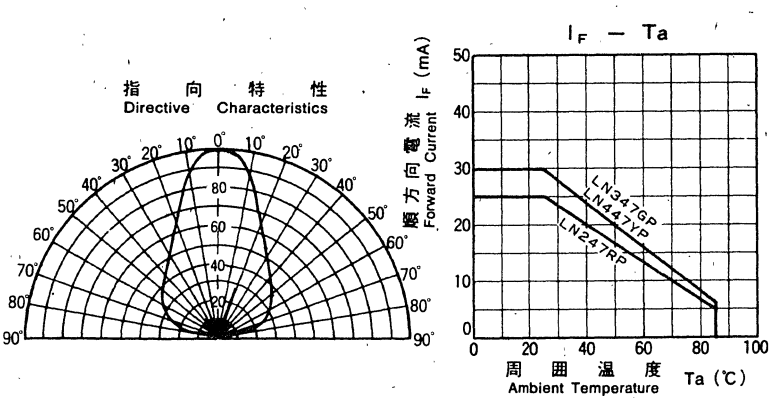
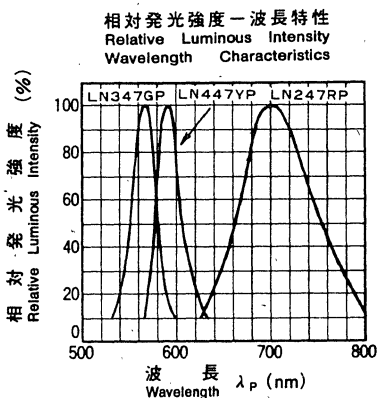
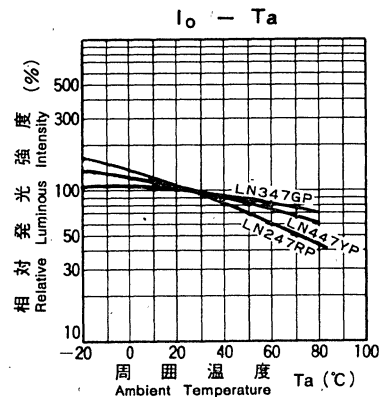
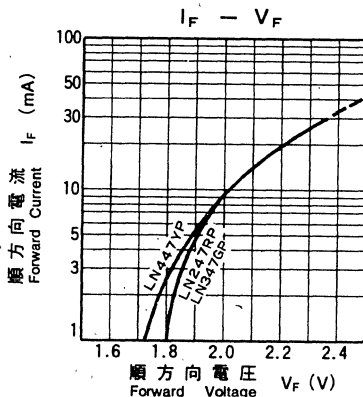
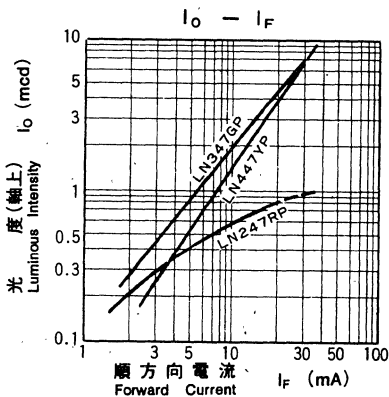
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	100	4	-25~+85	-30~+100
Green	90	30	100	4	-25~+85	-30~+100
Amber	90	30	100	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _r		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN247RP	Red	Red Diffused	0.7	0.25	15	2.2	2.8	700	100	20	10	4
LN347GP	Green	Green Diffused	4.5	1.50	20	2.2	2.8	565	30	20	10	4
LN447YP	Amber	Amber Diffused	4.0	1.00	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



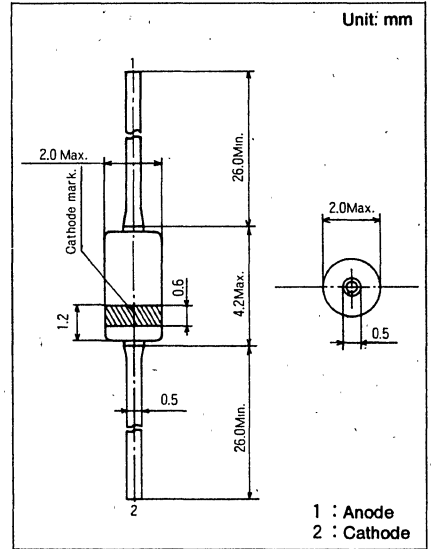
ガラス封止 Glass Sealed

Type No.	Lighting Color
LN2G	Red
LN3G	Green
LN4G	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	24	10	60	4	-25~+85	-30~+100
Green	24	10	60	4	-25~+85	-30~+100
Amber	24	10	60	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

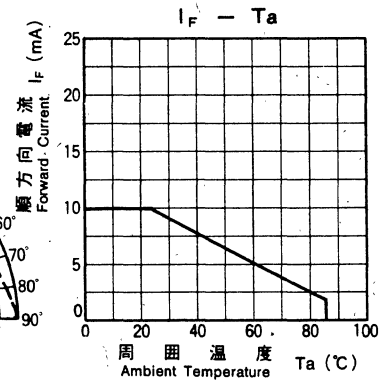
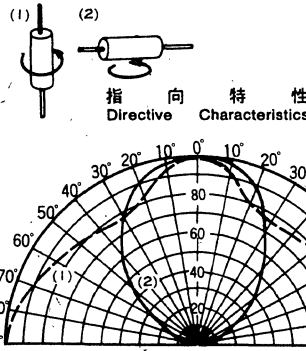
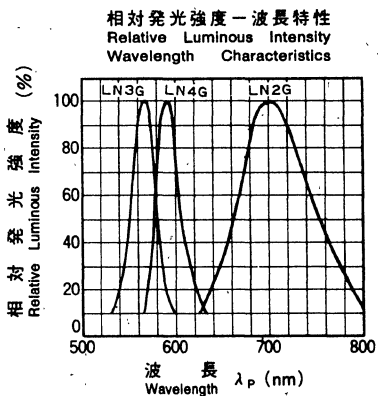
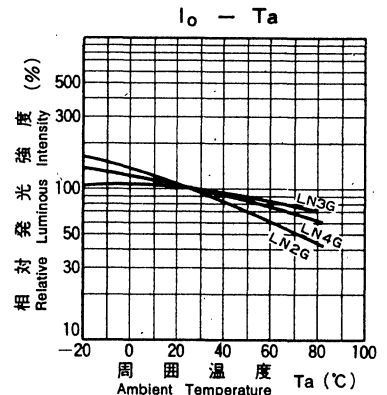
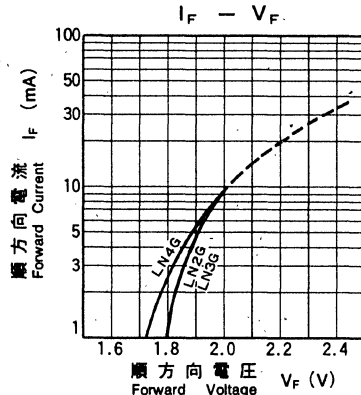
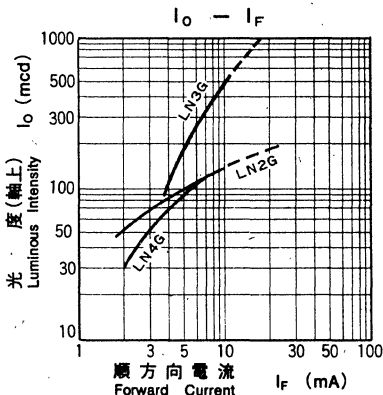


1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN2G	Red	Clear	100	30	5	2.0	2.4	700	100	10	10	4
LN3G	Green	Clear	200	30	5	2.0	2.4	565	30	10	10	4
LN4G	Amber	Clear	90	30	5	2.0	2.4	590	30	10	10	4
Unit	—	—	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



Chip LED Series

Type No.	Lighting Color
LN1251C	Red
LN1351C	Green
LN1451C	Amber
LN1851C	Orange

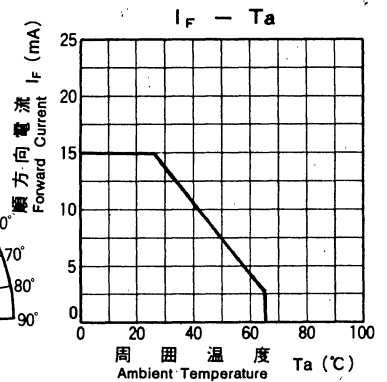
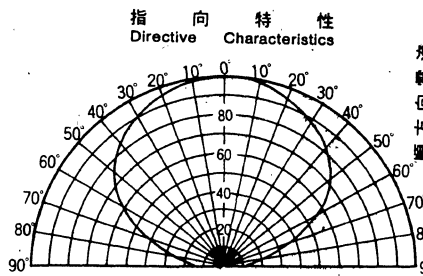
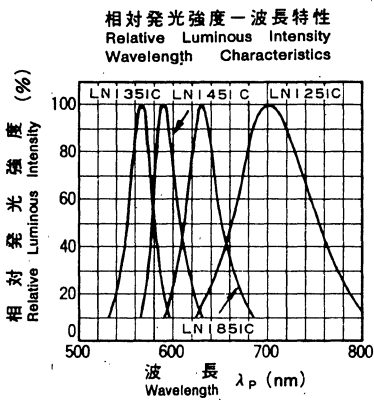
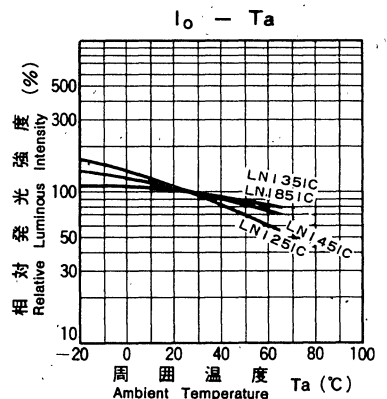
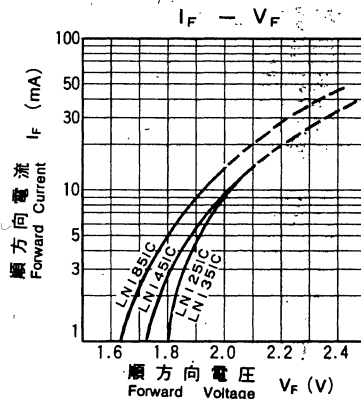
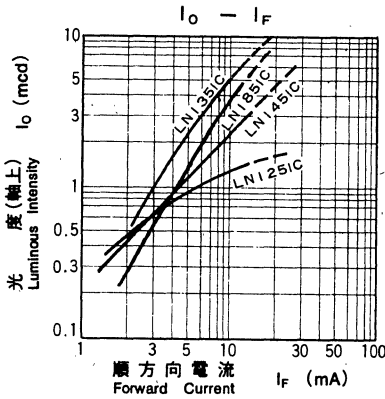
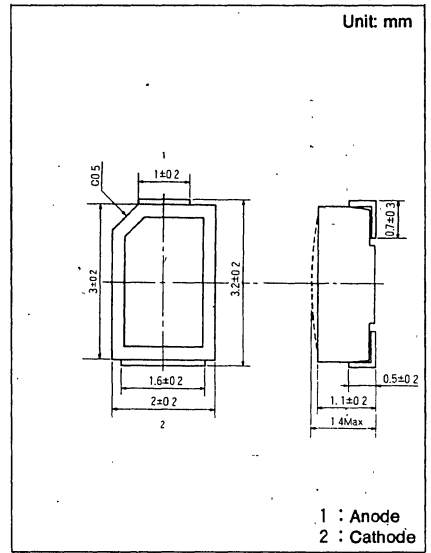
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	45	15	60	4	-25~+65	-30~+75
Green	45	15	60	4	-25~+65	-30~+75
Amber	45	15	60	4	-25~+65	-30~+75
Orange	45	15	60	3	-25~+65	-30~+75

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN1251C	Red	Clear	1.2	0.45	10	2.10	2.8	700	100	15	10	4
LN1351C	Green	Clear	5.0	1.90	10	2.10	2.8	565	30	15	10	4
LN1451C	Amber	Clear	2.2	0.80	10	2.10	2.8	590	30	15	10	4
LN1851C	Orange	Clear	3.5	1.30	10	2.05	2.8	630	40	15	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



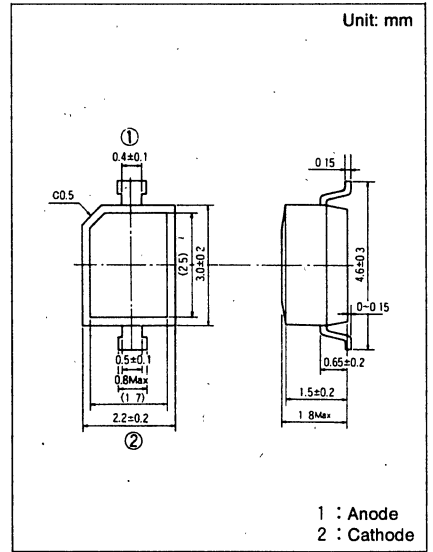
Chip LED Series

Type No.	Lighting Color
LN1261C	Red
LN1361C	Green
LN1461C	Amber
LN1861C	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

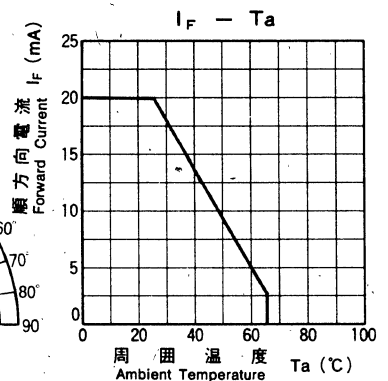
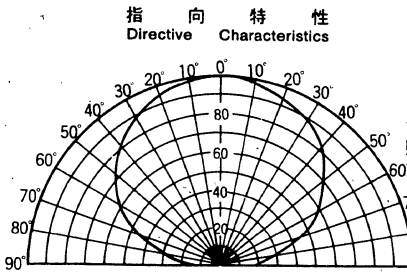
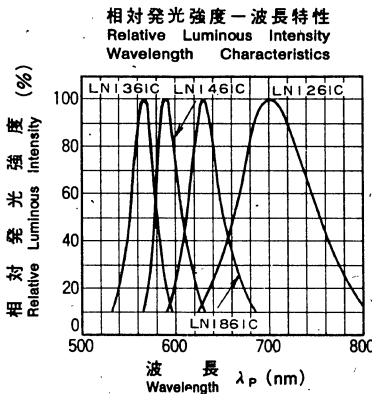
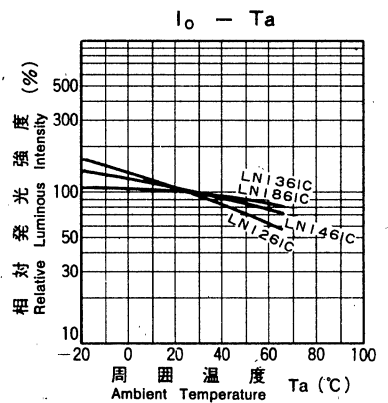
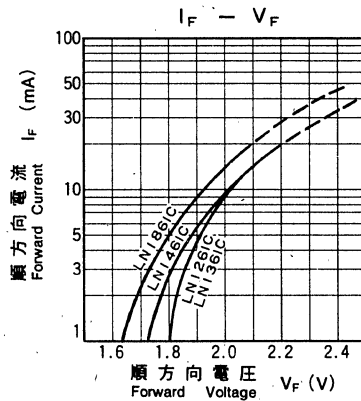
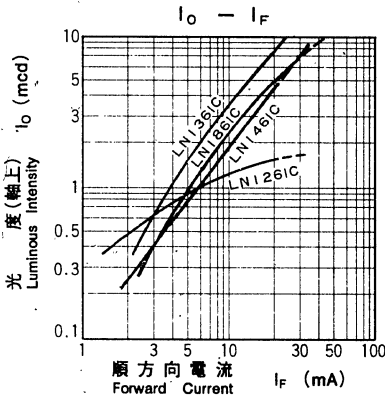
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	60	4	-25~+65	-30~+75
Green	60	20	60	4	-25~+65	-30~+75
Amber	60	20	60	4	-25~+65	-30~+75
Orange	60	20	60	3	-25~+65	-30~+75

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN1261C	Red	Clear	1.4	0.5	15	2.2	2.8	700	100	20	10	4
LN1361C	Green	Clear	7.5	2.8	20	2.2	2.8	565	30	20	10	4
LN1461C	Amber	Clear	4.5	1.6	20	2.2	2.8	590	30	20	10	4
LN1861C	Orange	Clear	5.0	1.9	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



可視発光ダイオード／VISIBLE LED'S

双 頭 形

Two Head Type



双頭形

Two Head Type

二面 Dual Surface

2-□1.9mm×1.9mm Series

Type No. Lighting Color

LN244RP Red

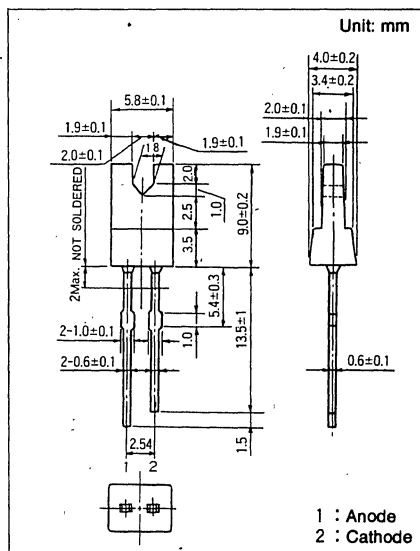
LN344GP Green

LN444YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

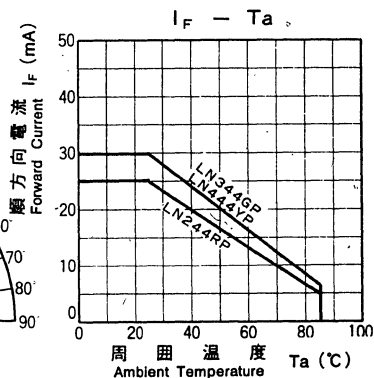
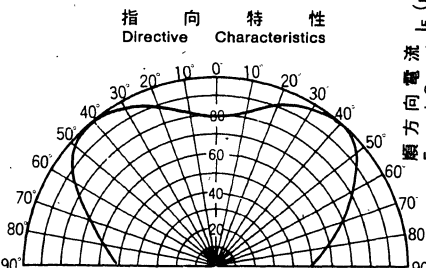
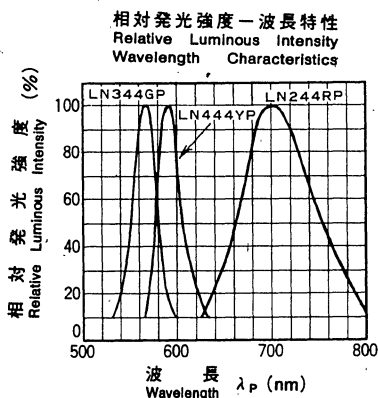
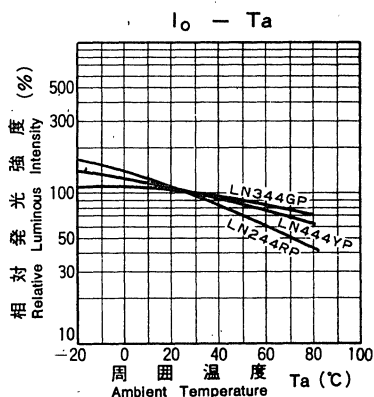
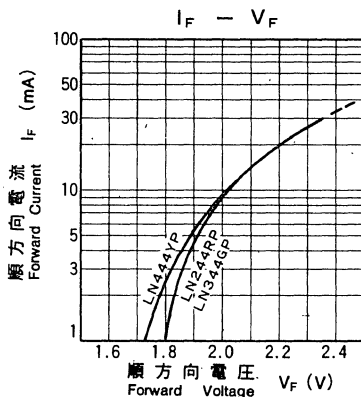
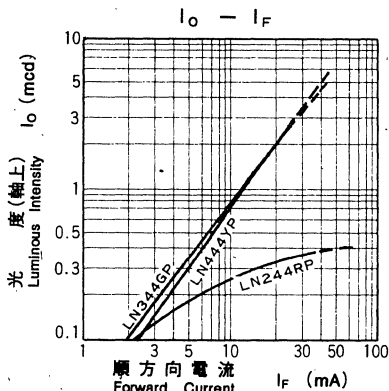
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN244RP	Red	Red Diffused	0.3	0.10	15	2.2	2.8	700	100	20	5	4
LN344GP	Green	Green Diffused	2.0	0.80	20	2.2	2.8	565	30	20	10	4
LN444YP	Amber	Amber Diffused	2.0	0.80	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



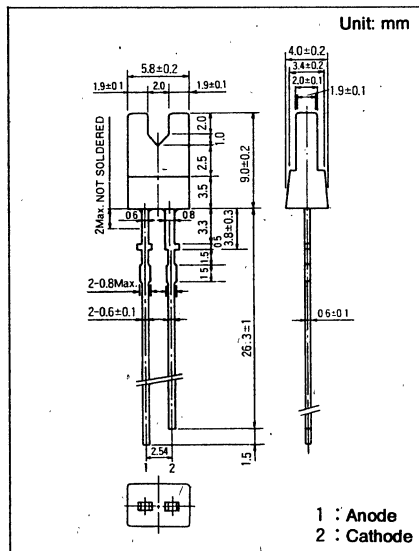
二面 Dual Surface 2-□1.9mm×1.9mm Series

Type No. Lighting Color
 LN244RPH Red
 LN344GPH Green
 LN444YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	PD (mW)	IF (mA)	IFP (mA)*	VR (V)	Topt (°C)	Tsig (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

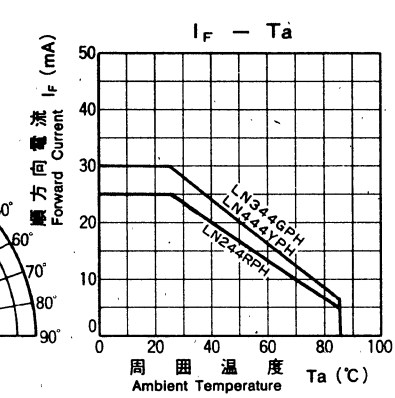
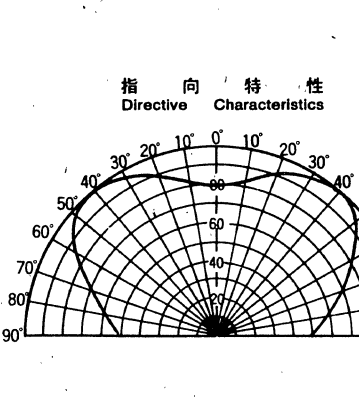
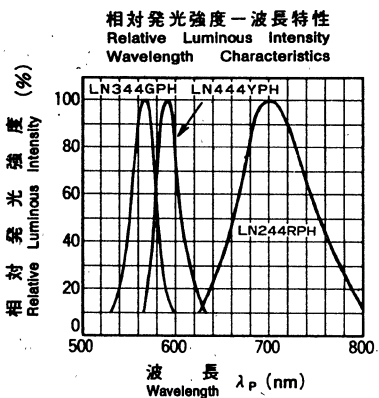
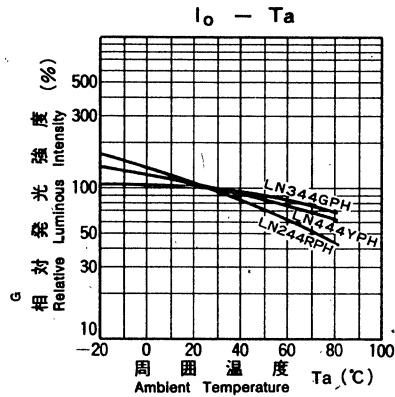
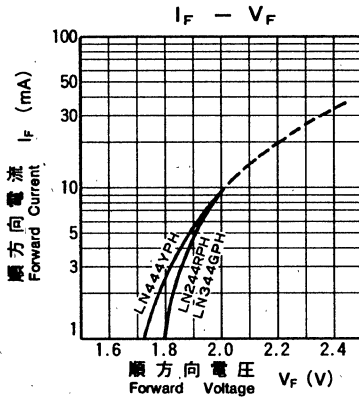
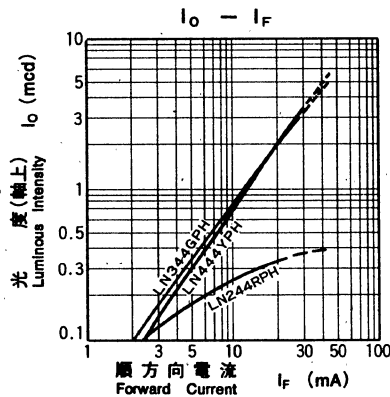
* IFPの条件は、duty 10%、Pulse width 1 msec. The condition of Ifp is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	Io			VF		λp	Δλ	IF	IR	
			Typ.	Min.	IF	Typ.	Max.				Typ.	Max.
LN244RPH	Red	Red Diffused	0.3	0.10	15	2.2	2.8	700	100	20	5	4
LN344GPH	Green	Green Diffused	2.0	0.80	20	2.2	2.8	565	30	20	10	4
LN444YPH	Amber	Amber Diffused	2.0	0.80	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	micd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



双頭形

Two Head Type

二面 Dual Surface

2-□1.0mm×2.0mm Series

Type No. Lighting Color

LN245RP Red

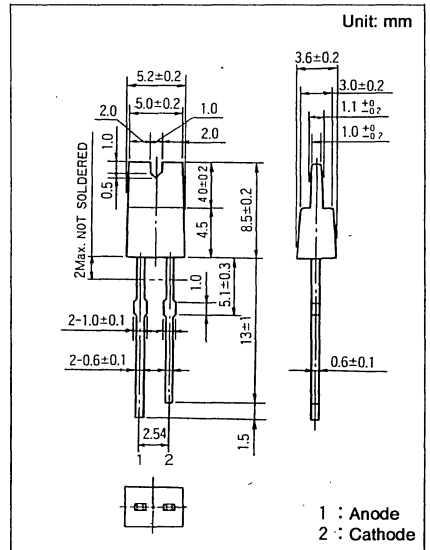
LN345GP Green

LN445YP Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

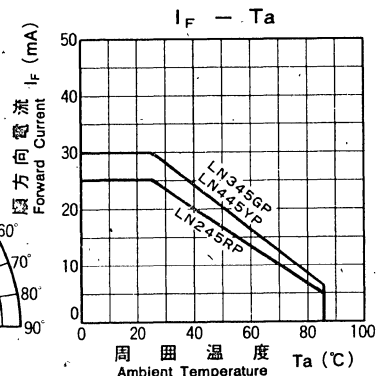
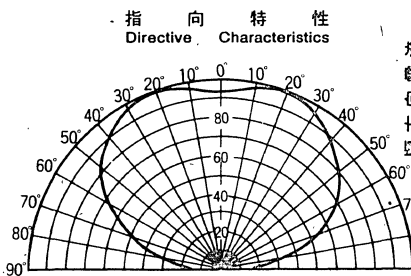
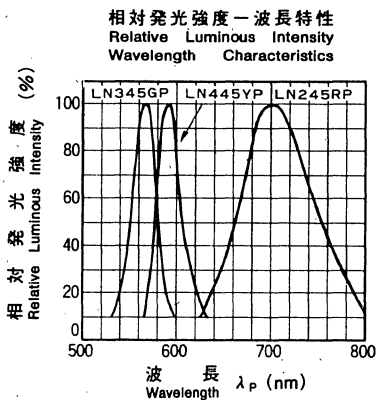
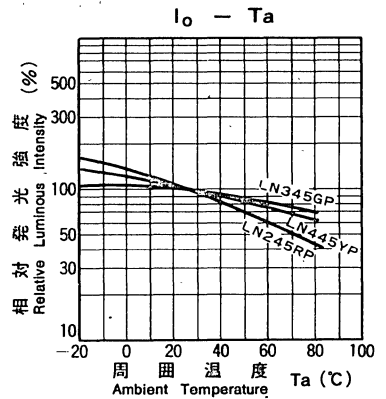
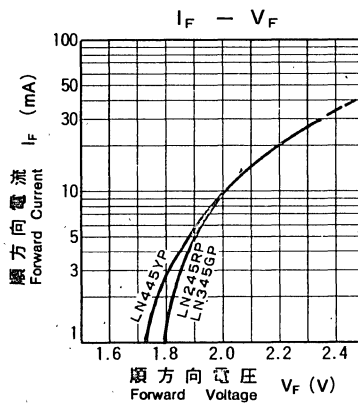
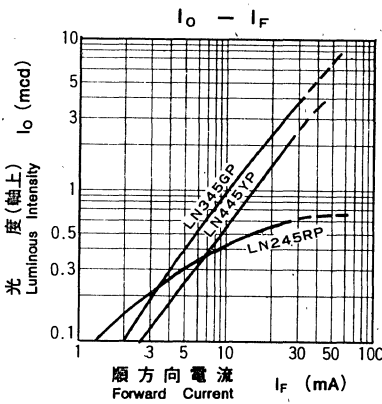
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN245RP	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN345GP	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN445YP	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



双頭形

Two Head Type

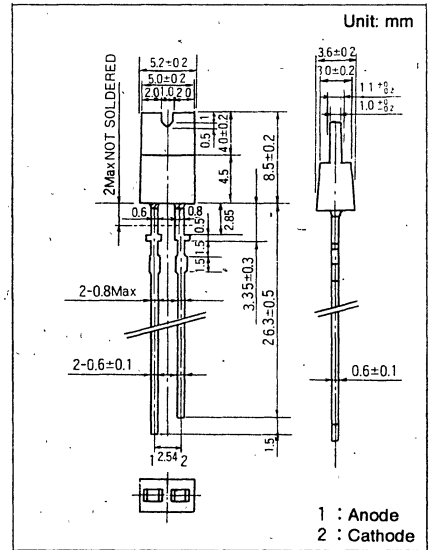
二面 Dual Surface 2-□1.0mm×2.0mm Series

Type No. Lighting Color
 LN245RPH Red
 LN345GPH Green
 LN445YPH Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

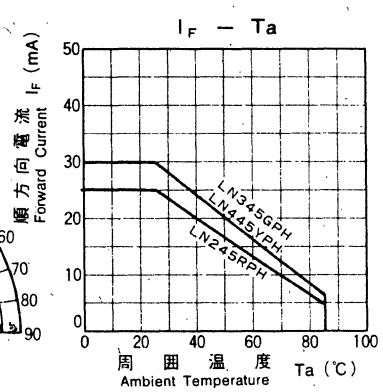
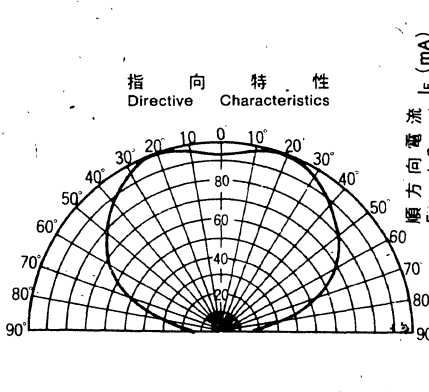
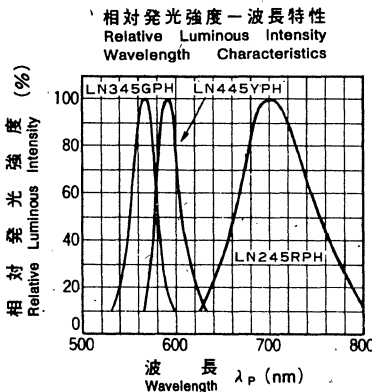
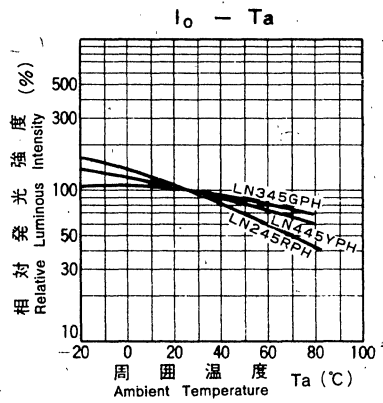
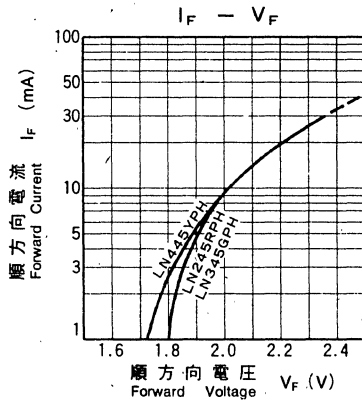
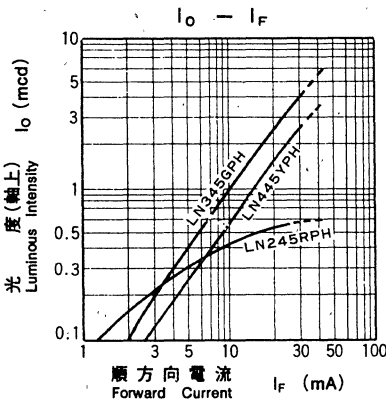
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN245RPH	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN345GPH	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN445YPH	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



可視発光ダイオード／VISIBLE LED'S

超高輝度 GaAlAs(赤色)

Ultra-High-Brightness GaAlAs(Red Color)

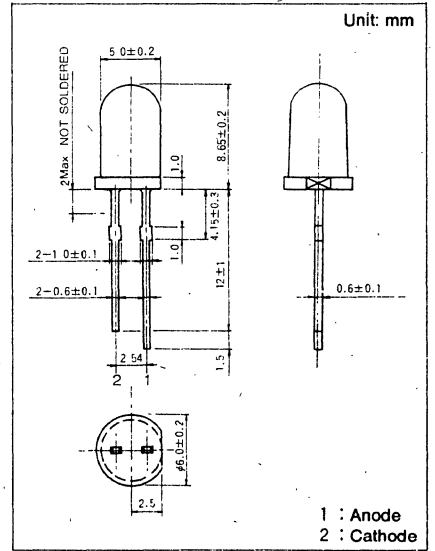
丸形 Round Type
φ 5.0mm Series

Type No. Lighting Color
LN21RAL(U)Red
LN21RCAL(U)Red
LN21WAL(U)Red
LN21CAL(U)Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

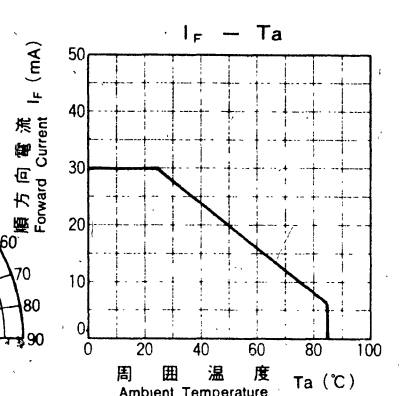
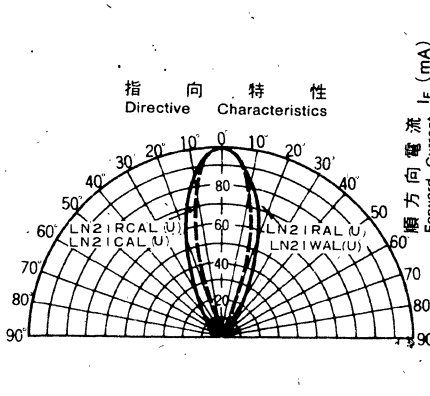
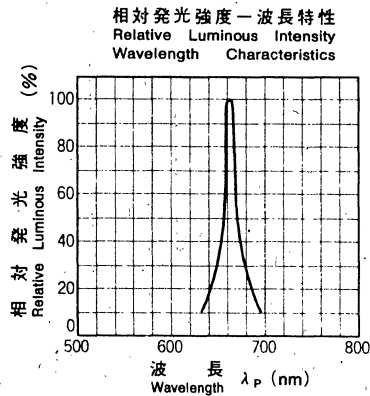
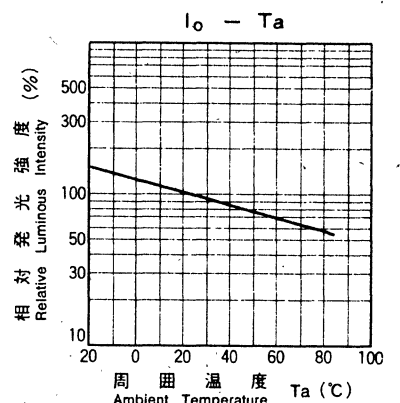
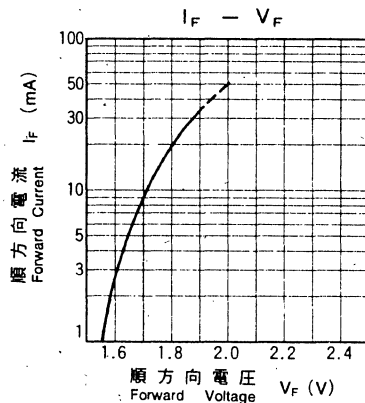
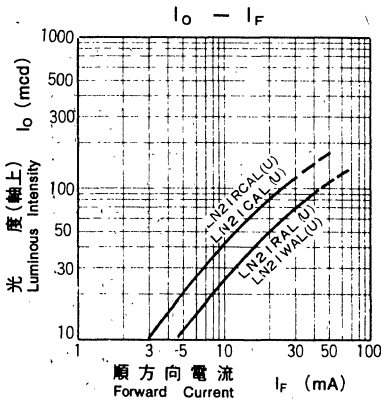
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN21RAL(U)	Red	Red Diffused	50	20	20	1.8	2.6	665	20	20	100	3
LN21RCAL(U)	Red	Red Clear	85	30	20	1.8	2.6	665	20	20	100	3
LN21WAL(U)	Red	White Diffused	50	20	20	1.8	2.6	665	20	20	100	3
LN21CAL(U)	Red	Clear	85	30	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type φ 5.0mm Series

Type No. Lighting Color

LN21RAL(UR)Red

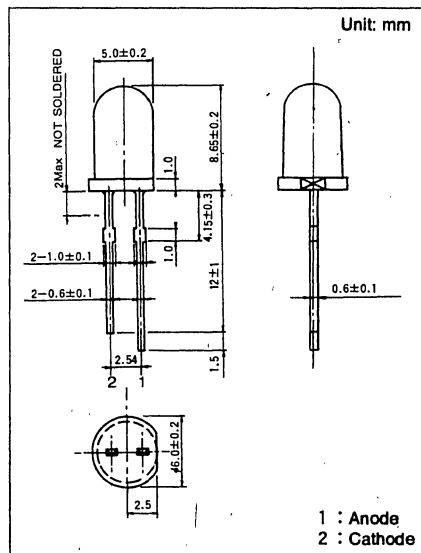
LN21RCAL(UR)Red

LN21CAL(UR)Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

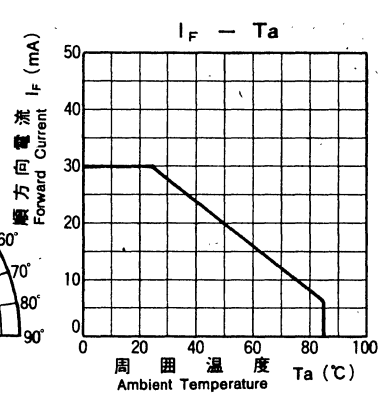
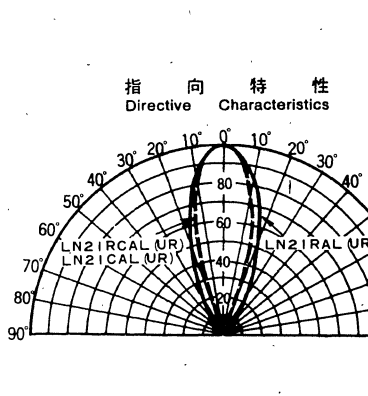
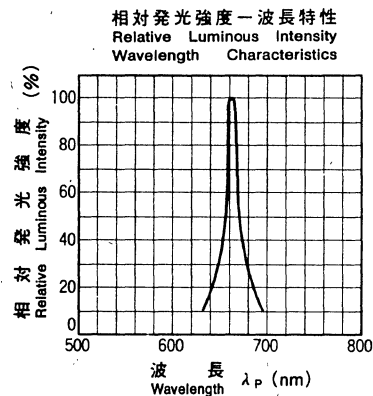
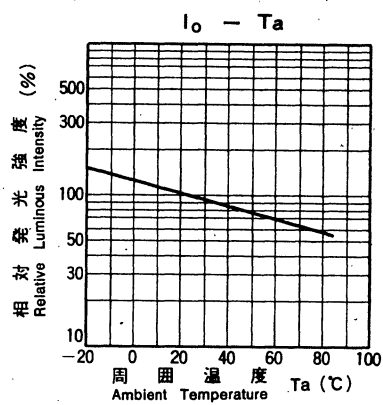
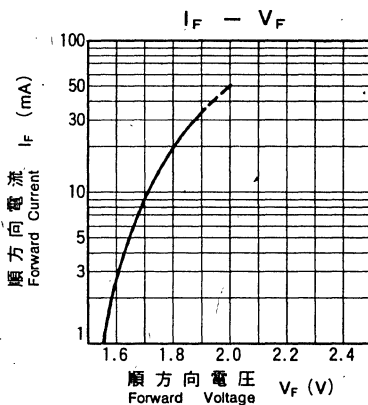
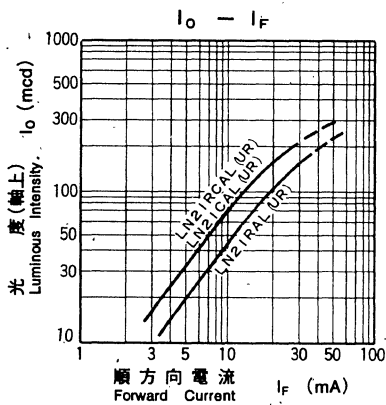
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _r	I _r Max.	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN21RAL(UR)	Red	Red Diffused	100	75	20	1.8	2.6	665	20	20	100	3
LN21RCAL(UR)	Red	Red Clear	170	125	20	1.8	2.6	665	20	20	100	3
LN21CAL(UR)	Red	Clear	170	125	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



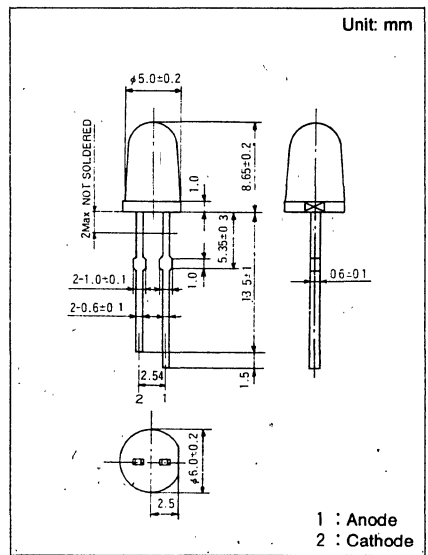
丸形 Round Type
 ϕ 5.0mm Series

Type No. Lighting Color
 LN21CAL(US).....Red
 LN21CAL(URS).....Red
 LN21CAL(UQS).....Red
 LN21CAL(UQPS).....Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

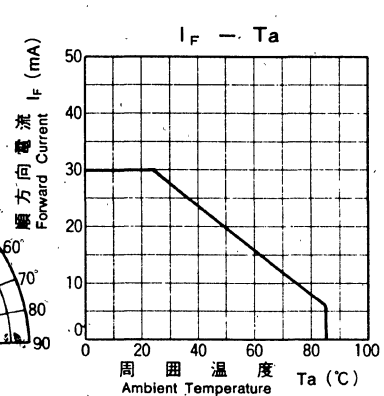
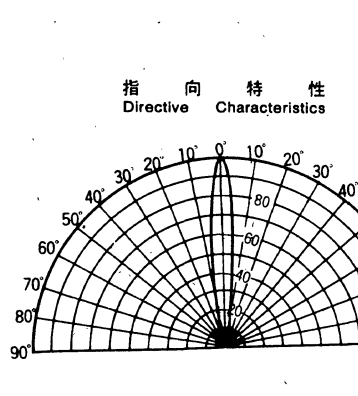
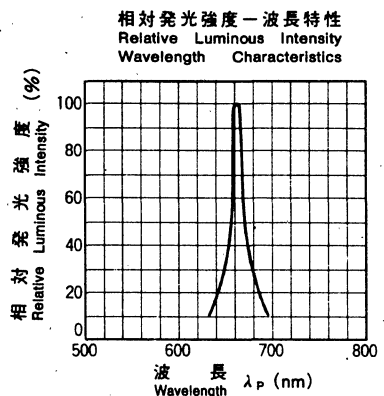
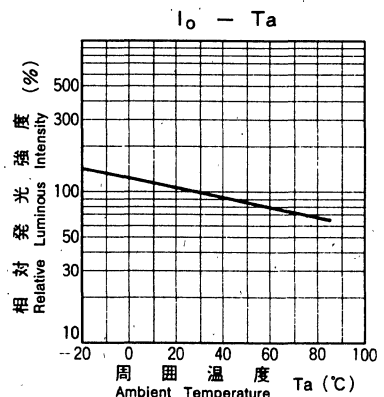
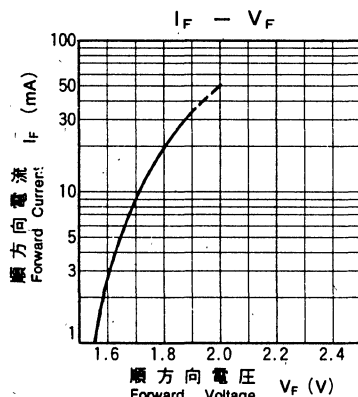
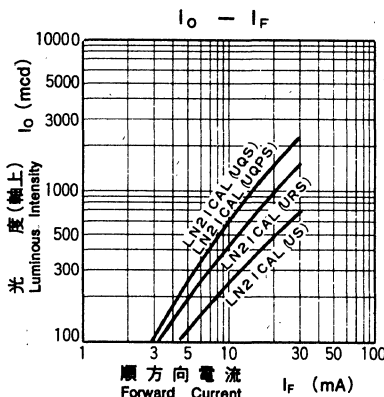
Lighting Color	P _O (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ_p	$\Delta \lambda$	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN21CAL(US)	Red	Clear	500	300	20	1.8	2.6	665	20	20	100	3
LN21CAL(URS)	Red	Clear	1000	750	20	1.8	2.6	665	20	20	100	3
LN21CAL(UQS)	Red	Clear	1500	1000	20	1.8	2.6	665	20	20	100	3
LN21CAL(UQPS)	Red	Clear	1500	1000	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V



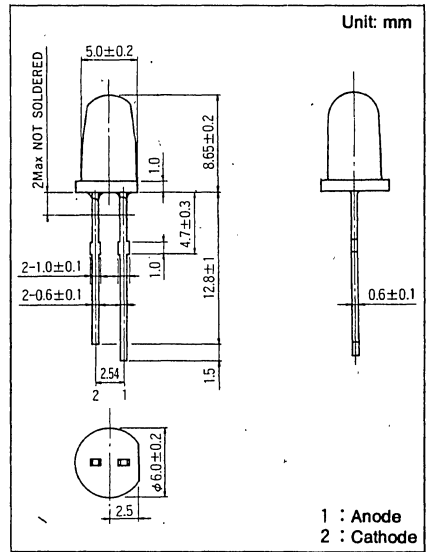
丸形 Round Type
φ 5.0mm Series

Type No. LN261CAL(UR)Red
Lighting Color

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

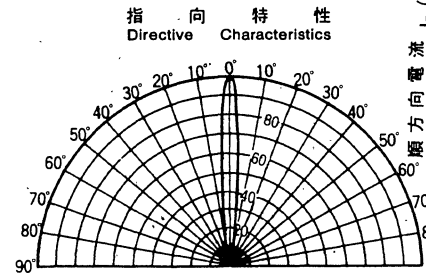
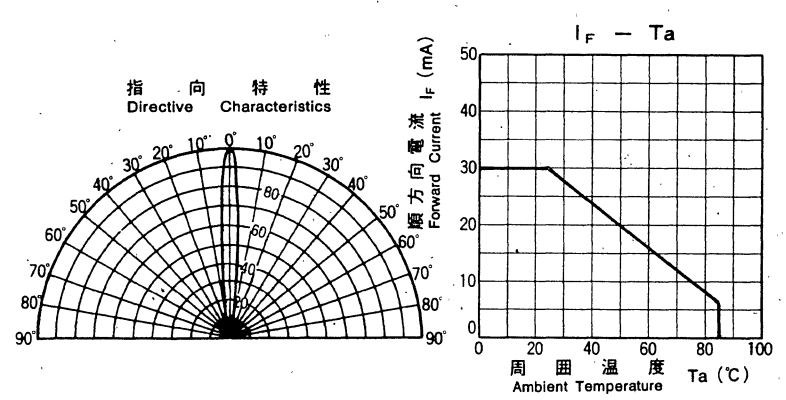
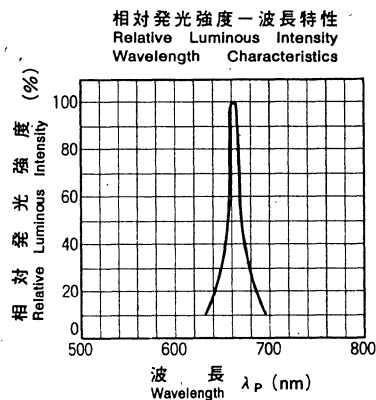
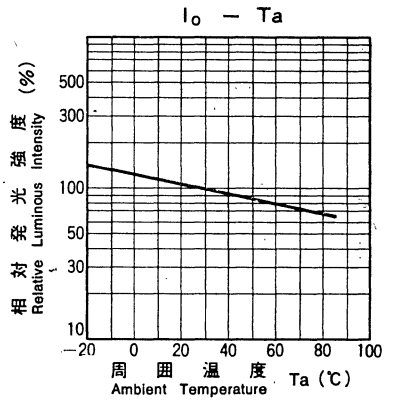
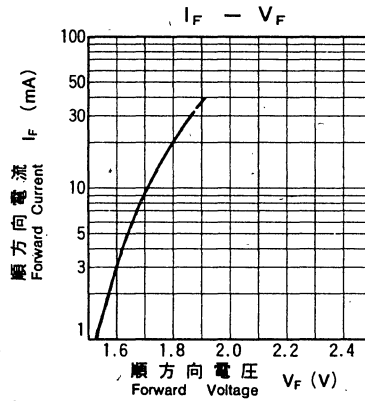
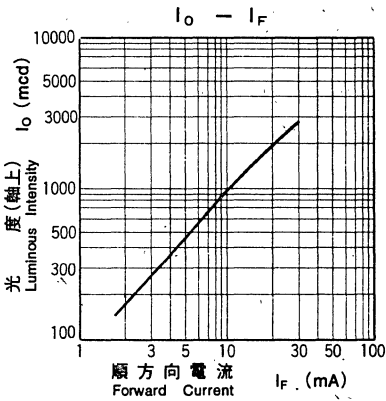
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	30	150	3	-25~+85	-30~+85

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



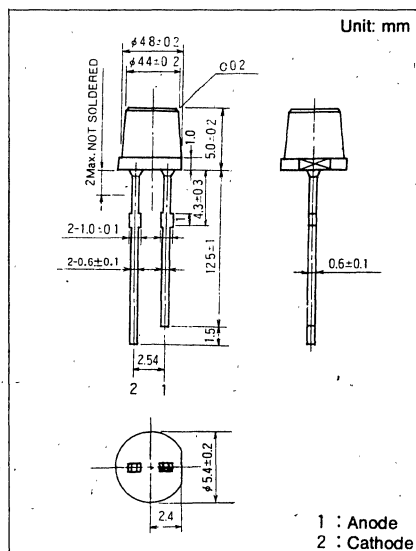
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN261CAL(UR)	Red	Clear	2000	1000	20	1.8	2.6	665	20	100	3	
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type
 ϕ 4.4mm Series

Type No. Lighting Color
 LN240CALF(U).....Red



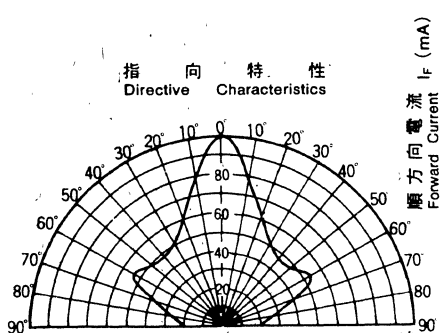
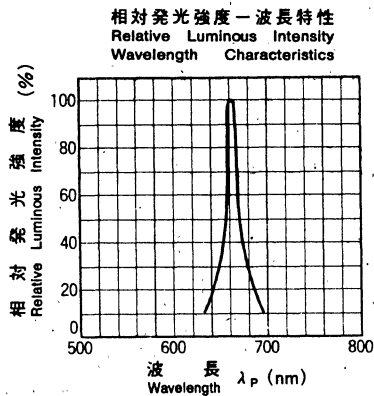
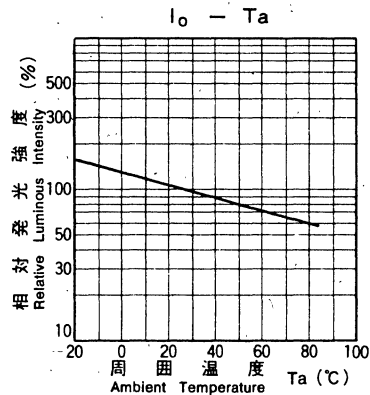
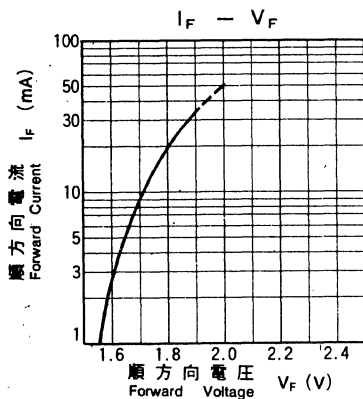
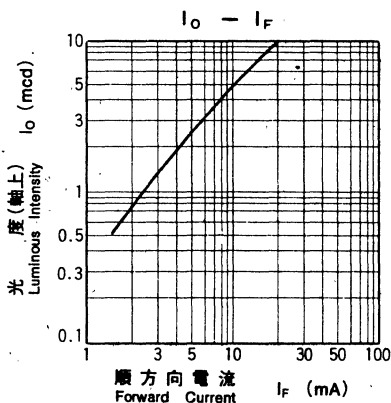
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ_P	$\Delta \lambda$	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN240CALF(U)	Red	Clear	10	4	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V



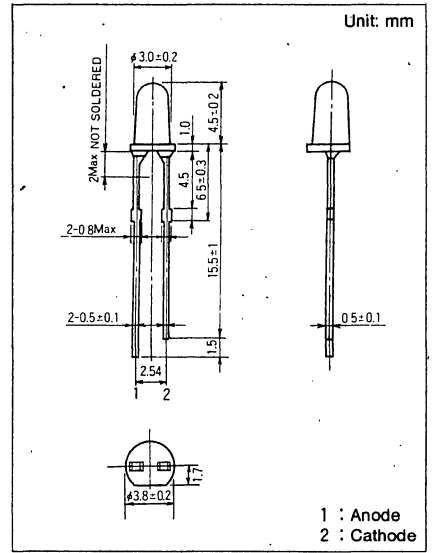
丸形 Round Type
φ 3.0mm Series

Type No.	Lighting Color
LN28RAL(US)	Red
LN28RCAL(US)	Red
LN28WAL(US)	Red
LN28CAL(US)	Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

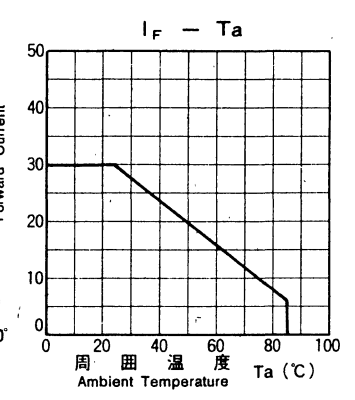
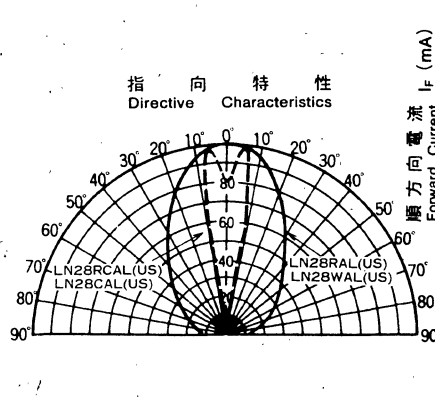
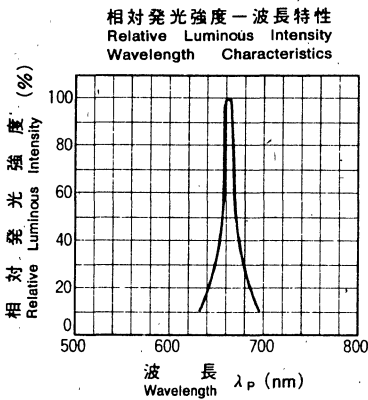
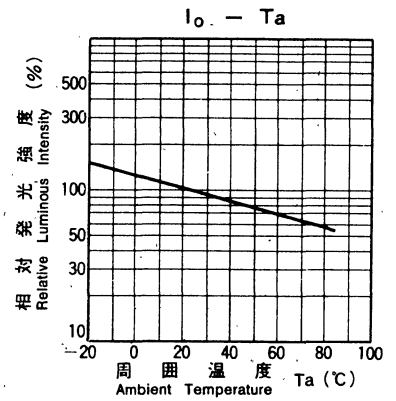
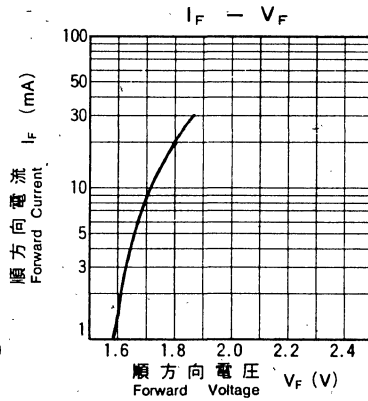
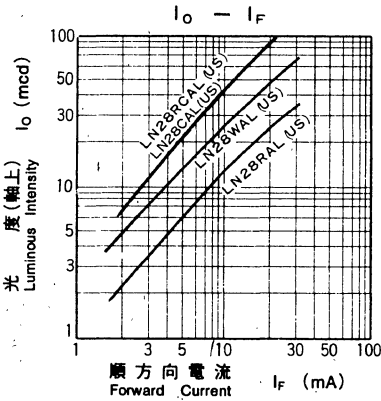
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN28RAL(US)	Red	Red Diffused	25	10	20	1.8	2.6	665	20	20	100	3
LN28RCAL(US)	Red	Red Clear	85	—	20	1.8	2.6	665	20	20	100	3
LN28WAL(US)	Red	White Diffused	50	—	20	1.8	2.6	665	20	20	100	3
LN28CAL(US)	Red	Clear	85	30	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



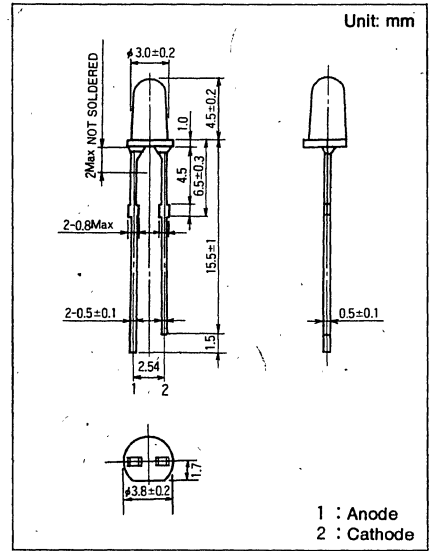
丸形 Round Type
 ϕ 3.0mm Series

Type No. Lighting Color
 LN28CAL(URS).....Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

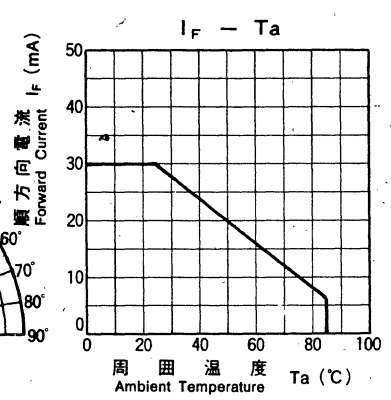
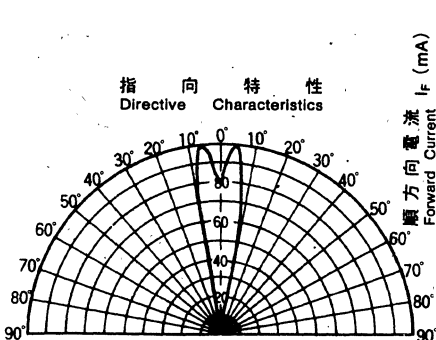
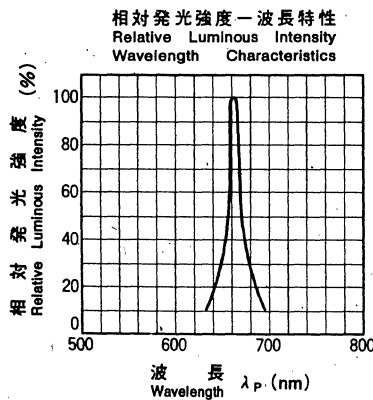
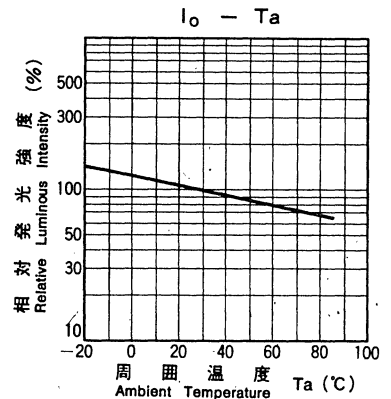
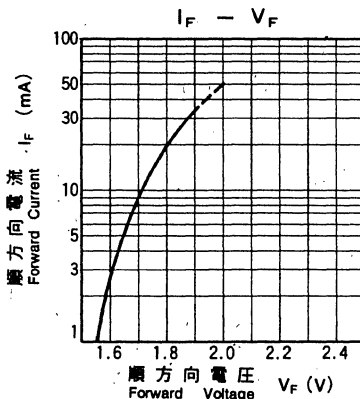
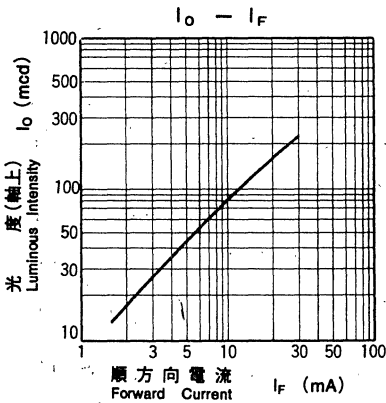
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ_P		I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN28CAL(URS)	Red	Clear	170	60	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V



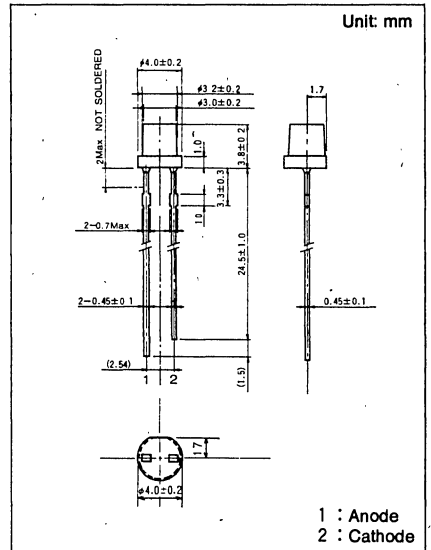
丸形 Round Type φ 3.0mm Series

Type No. Lighting Color
LN277WALX.....Red
LN277CALX.....Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	30	150	3	-25~+85	-30~+100

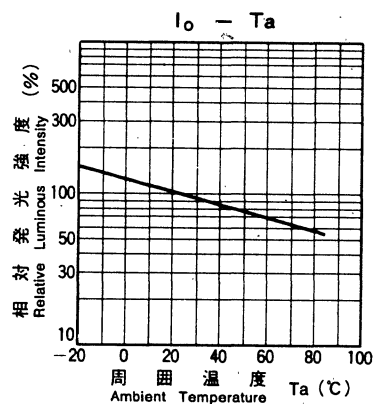
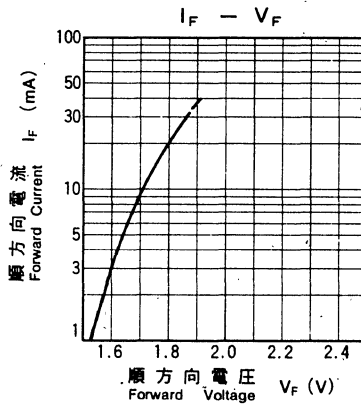
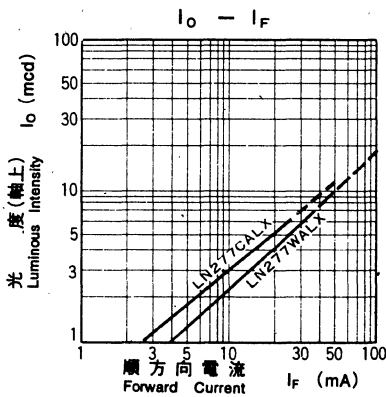
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



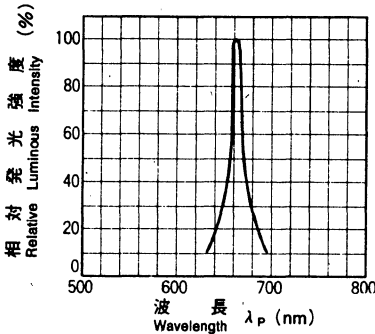
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN277WALX	Red	White Diffused	4.0	1.5	20	1.8	2.6	665	20	20	100	3
LN277CALX	Red	Clear	5.0	2.0	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

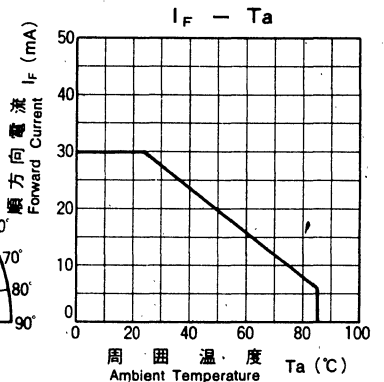
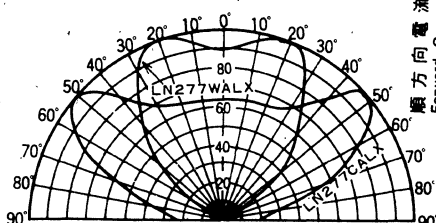
△印は暫定規格を示す。△ Tentative Specification



相対発光強度—波長特性
Relative Luminous Intensity
Wavelength Characteristics



指向特性
Directive Characteristics



角形 Square Type

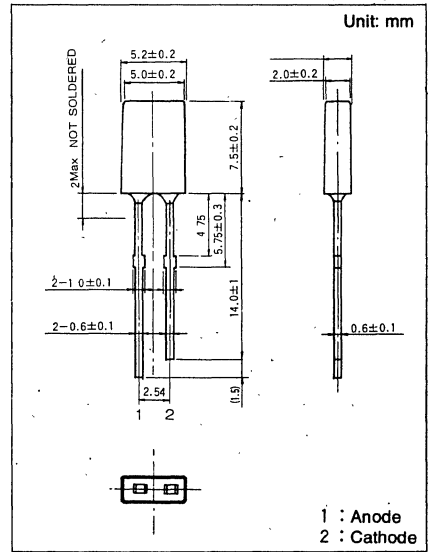
□ 2.0mm×5.0mm Series

Type No. Lighting Color
LN242RAL(U).....Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

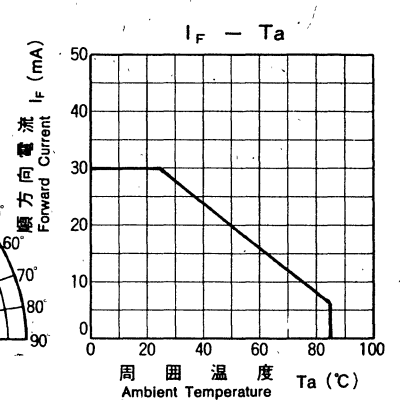
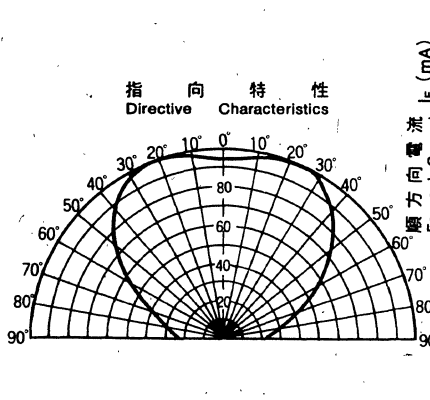
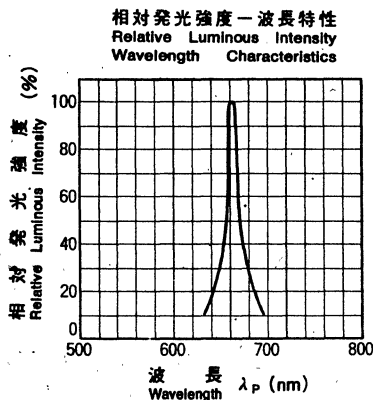
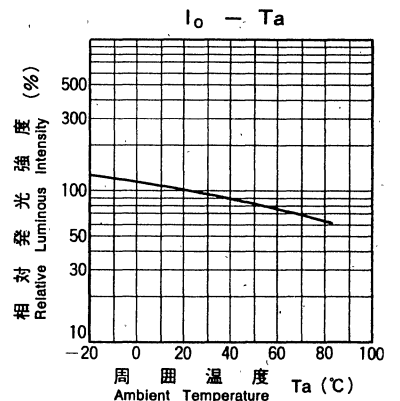
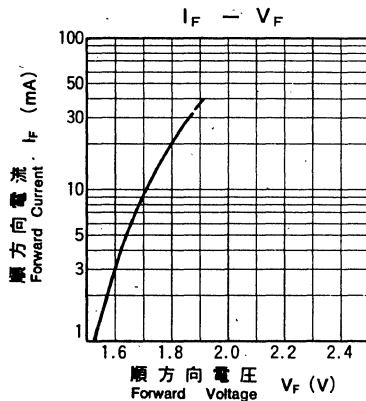
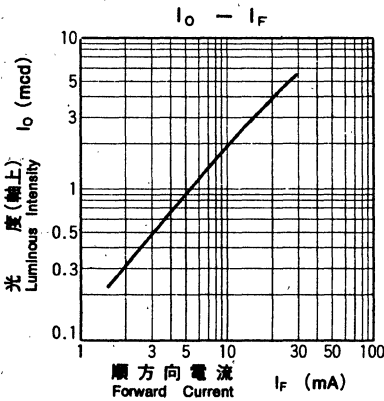
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

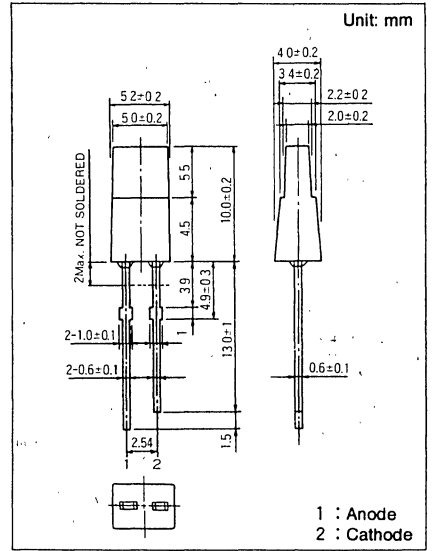
Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN242RAL(U)	Red	Red Diffused	4	—	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

□ 2.0mm×5.0mm Series

Type No. Lighting Color
LN248WAL(U).....Red



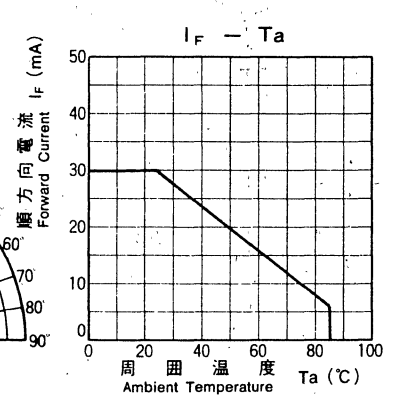
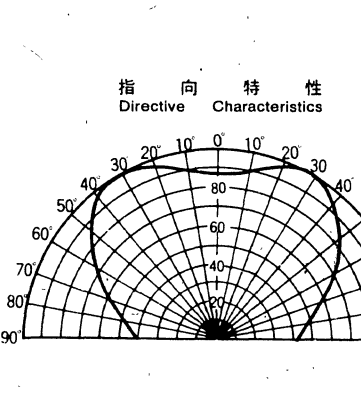
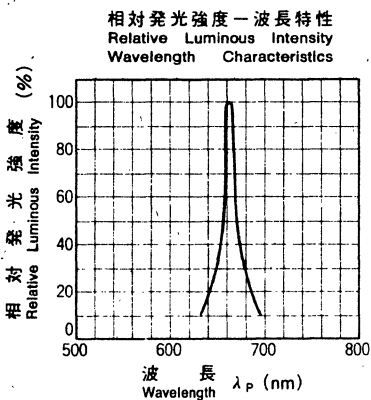
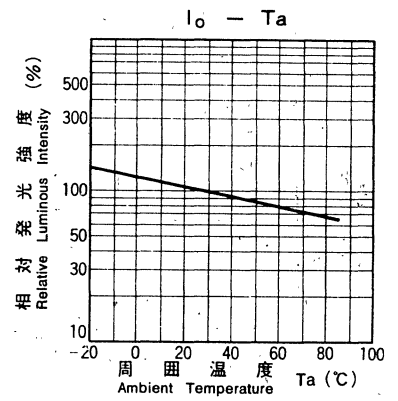
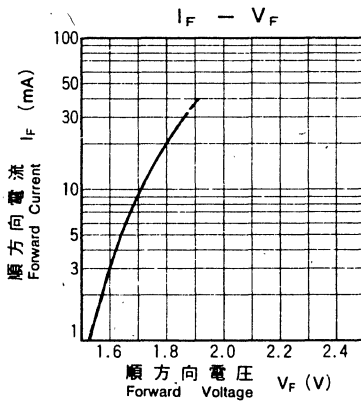
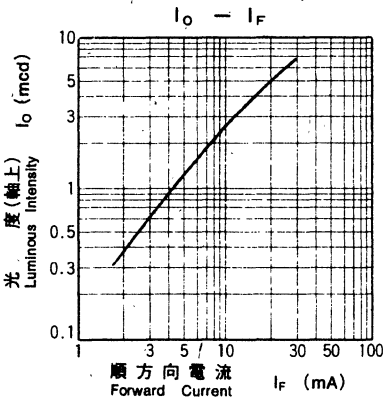
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _p		Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			Max.	V _R
LN248WAL(U)	Red	white Diffused	5	2	20	1.8.	2.6	665	20	20	100.	3	
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V	



角形 Square Type

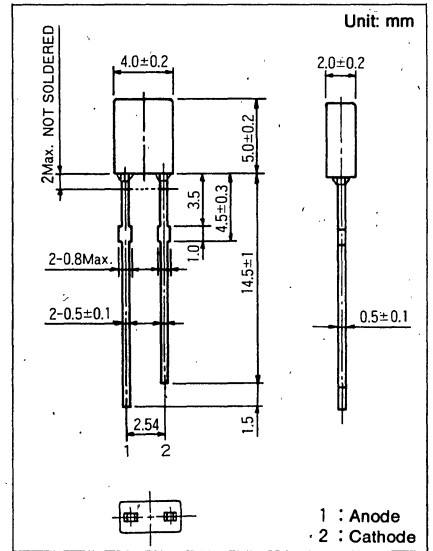
□ 2.0mm×4.0mm Series

Type No. Lighting Color
LN251CAL(U)Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

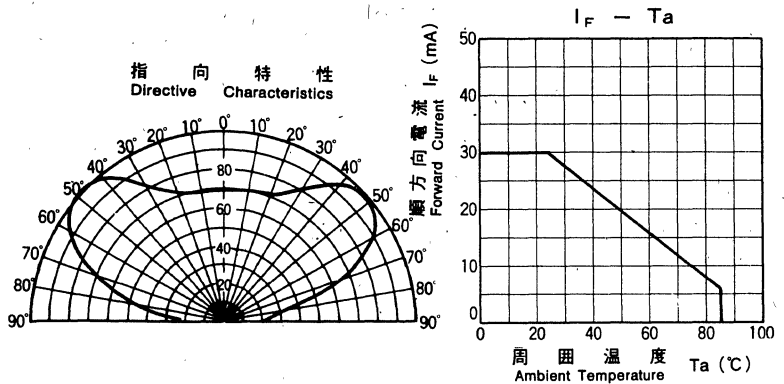
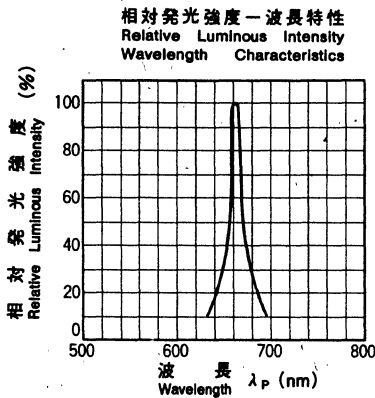
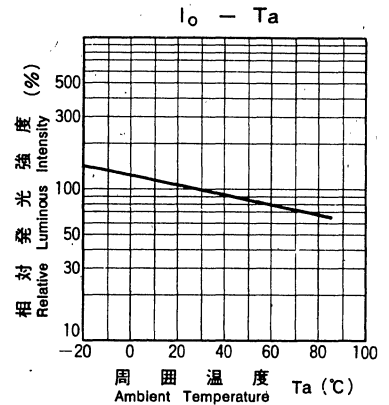
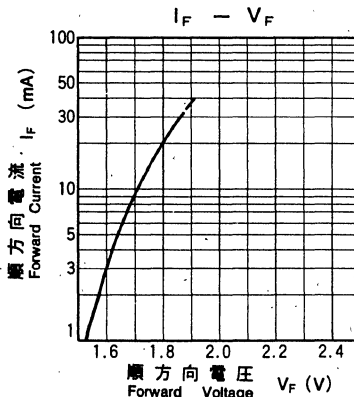
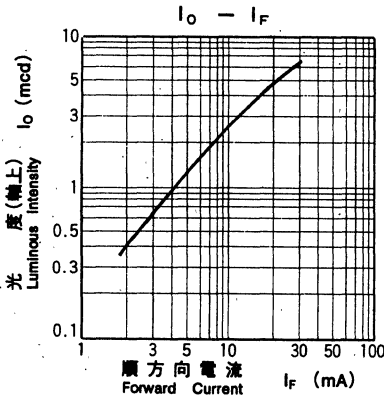
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN251CAL(U)	Red	Clear	5	2	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



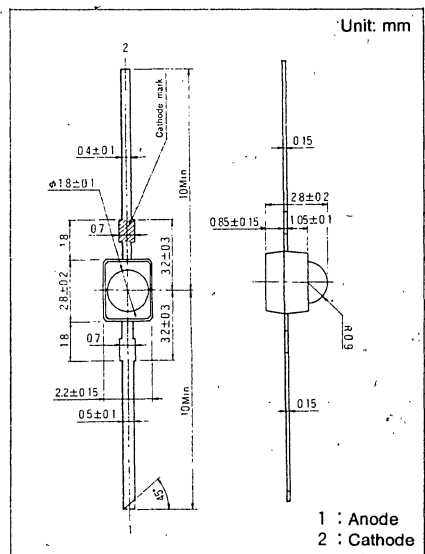
小形 Small Type

Type No. Lighting Color
LN247RCAL(U) Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

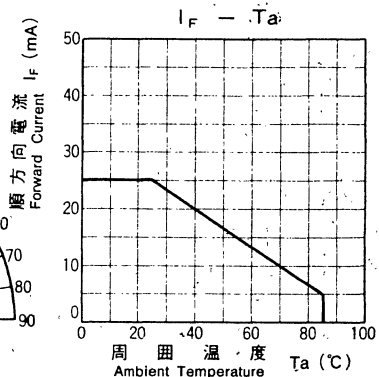
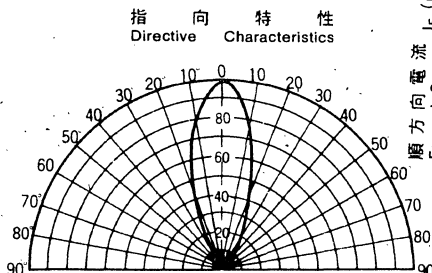
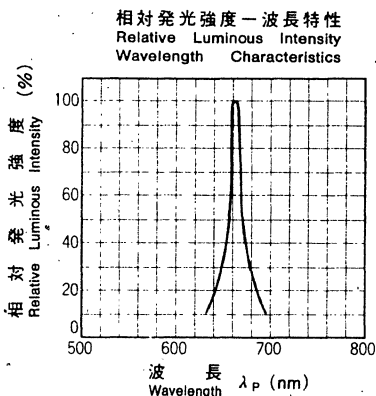
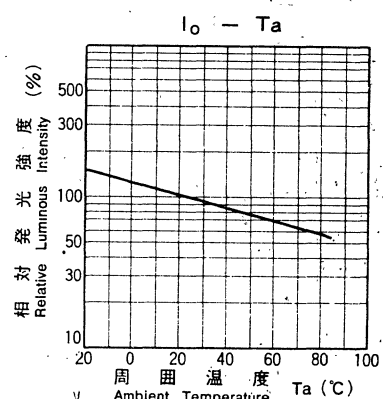
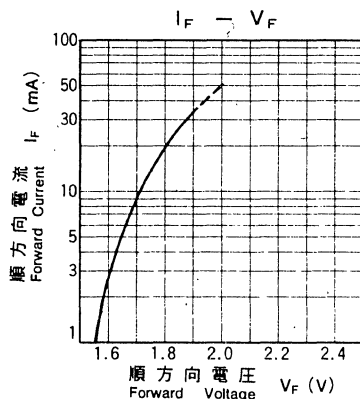
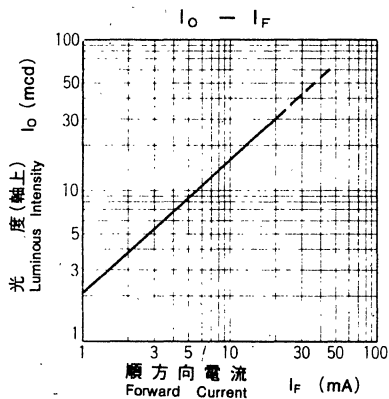
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	65	25	100	3	-25~+85	-30~+100

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN247RCAL(U)	Red	Red Clear	30	15	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



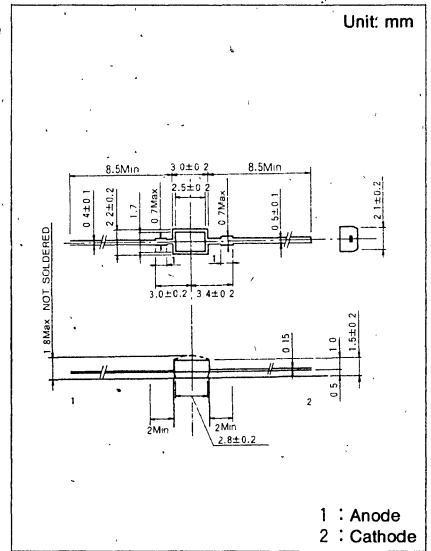
小形 Small Type

Type No. Lighting Color
LN01201CAL(U) Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

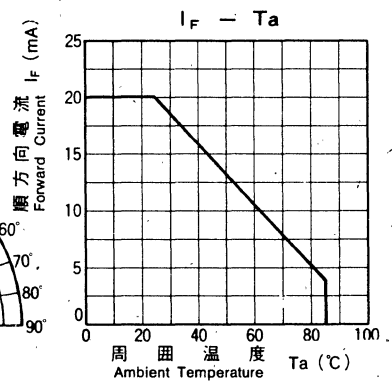
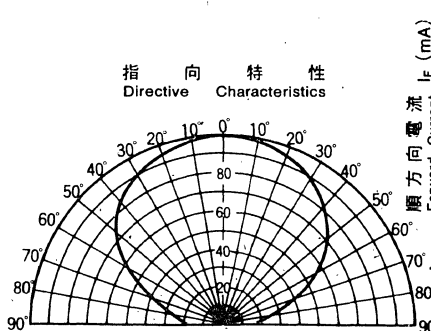
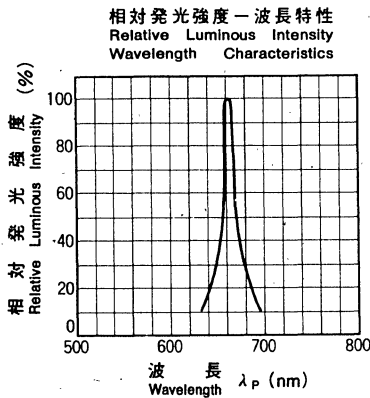
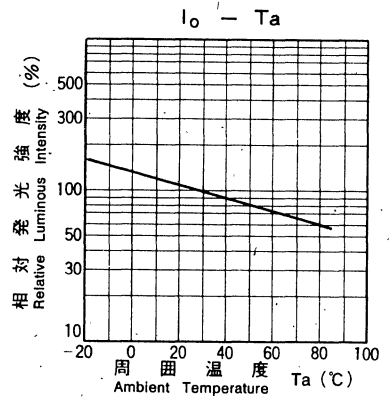
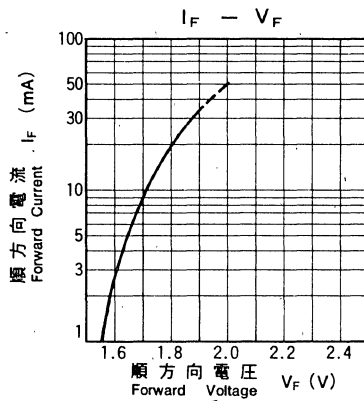
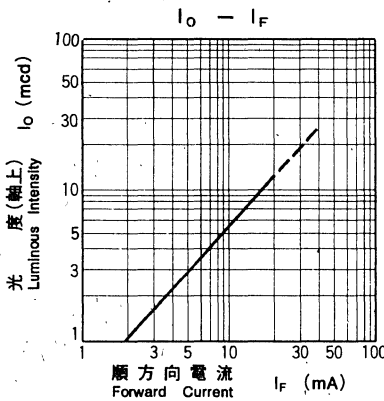
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	50	20	100	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN01201CAL(U)	Red	Clear	12	5	20	1.8	2.6	665	20	20	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



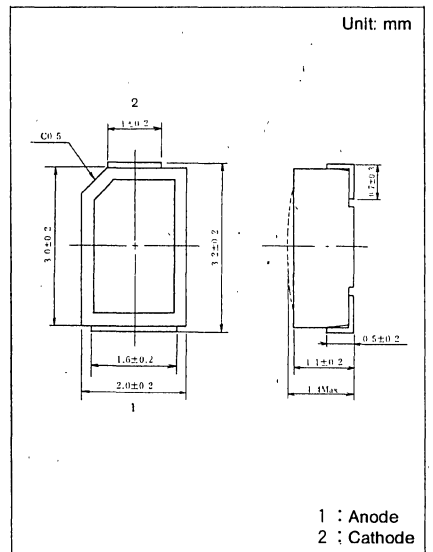
小形 Small Type

Type No. Lighting Color
LN1251CAL.....Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

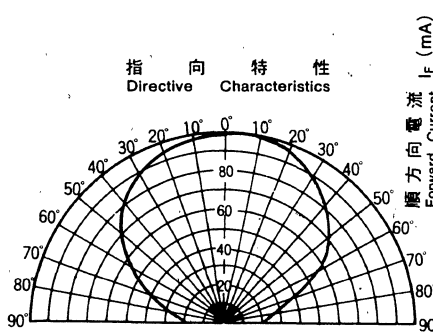
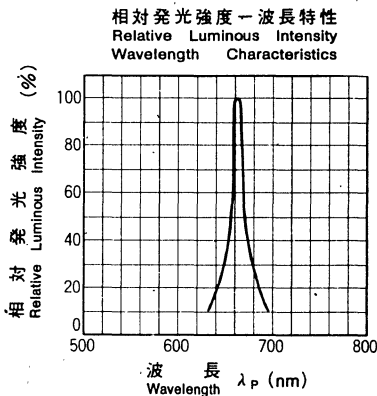
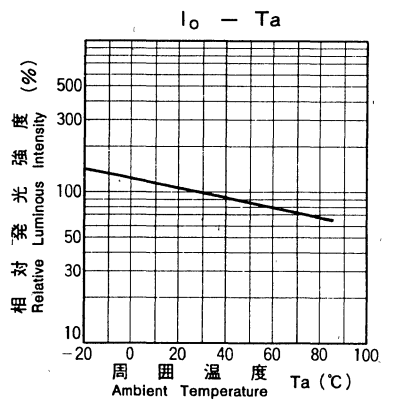
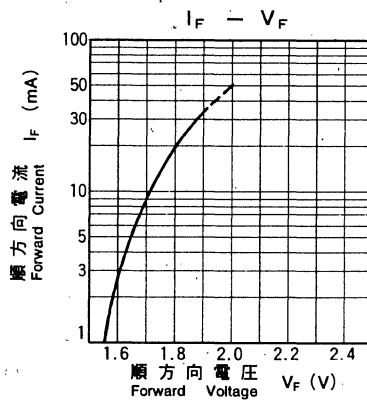
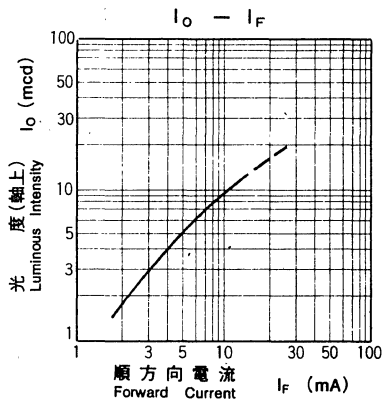
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	45	15	60	3	-25~+65	-30~+75

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN1251CAL	Red	Clear	9.0	3.3	10	1.75	2.6	665	20	15	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



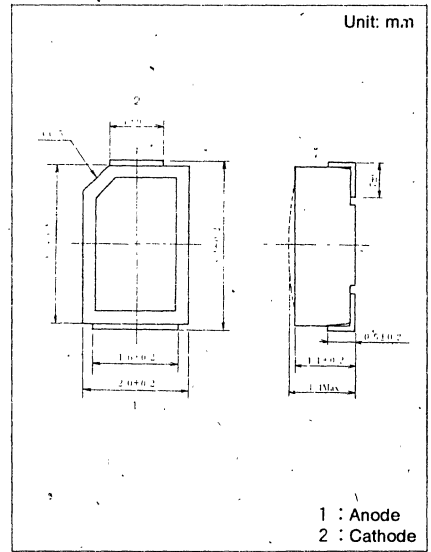
小形 Small Type

Type No. Lighting Color
LN1251CAL.....Red

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

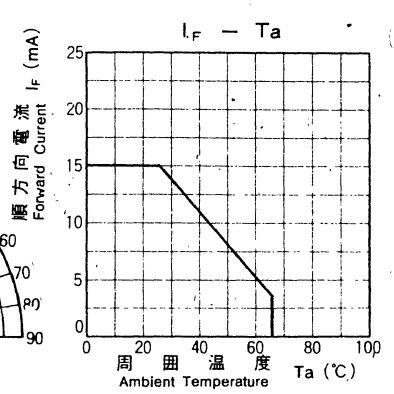
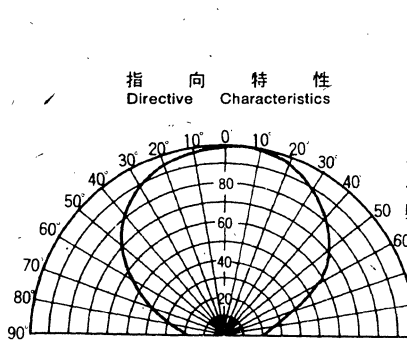
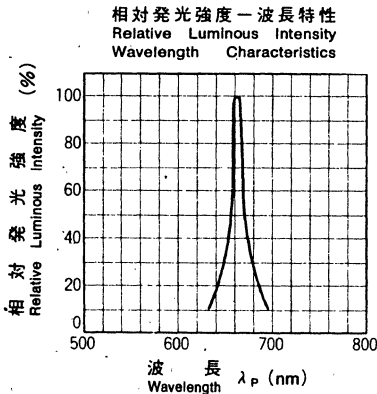
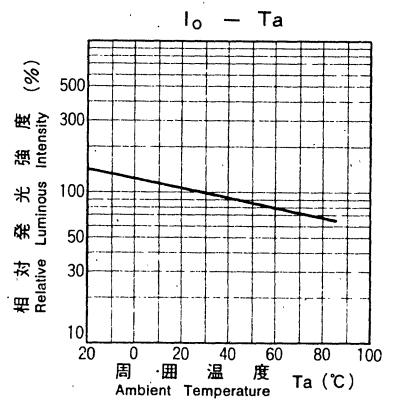
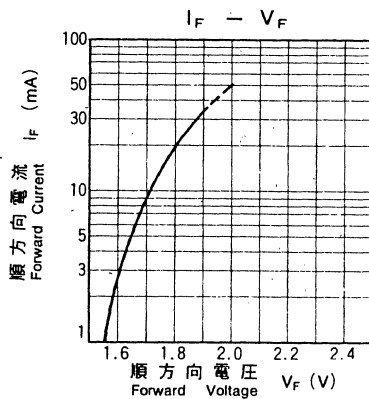
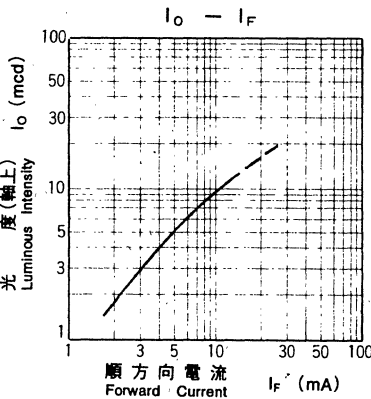
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	45	15	60	3	-25~+65	-30~+75

* I_{FP}の条件は、duty 10%. Pulse width 1 msec. The condition of I_{FP} is duty 10%. Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN1251CAL	Red	Clear	9.0	3.3	10	1.75	2.6	665	20	15	100	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



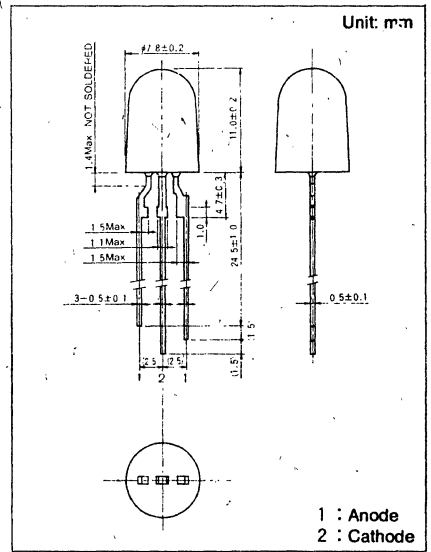
可視発光ダイオード／VISIBLE LED'S

二 色 発 光

Two Color Lighting

丸形 Round Type φ 7.8mm Series

Type No. Lighting Color
LN088WP38 Green, Orange



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

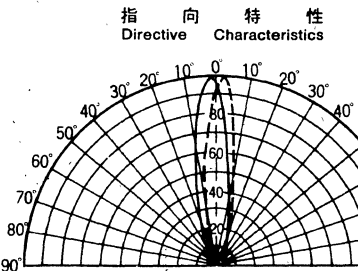
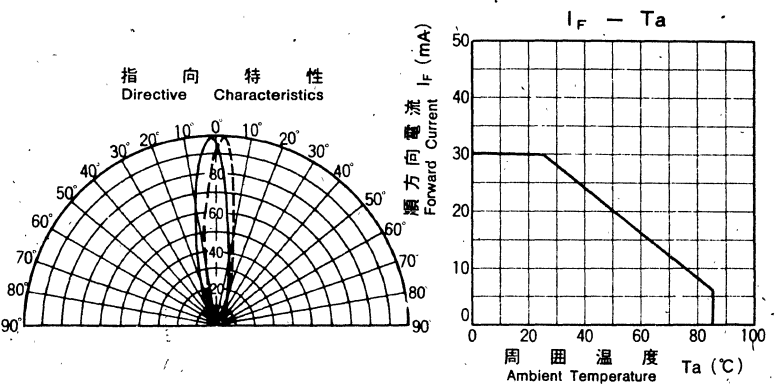
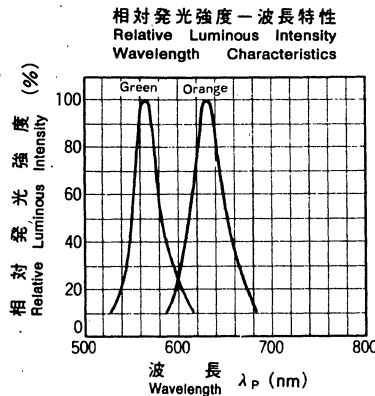
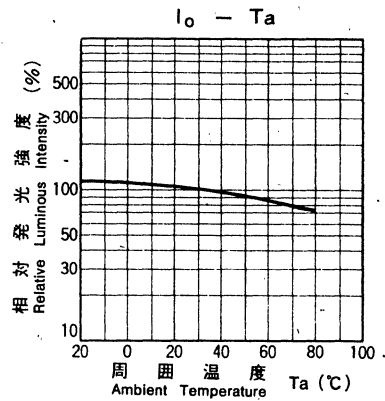
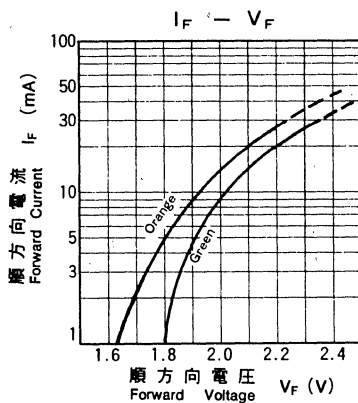
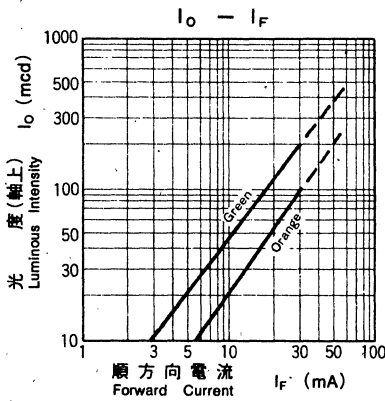
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

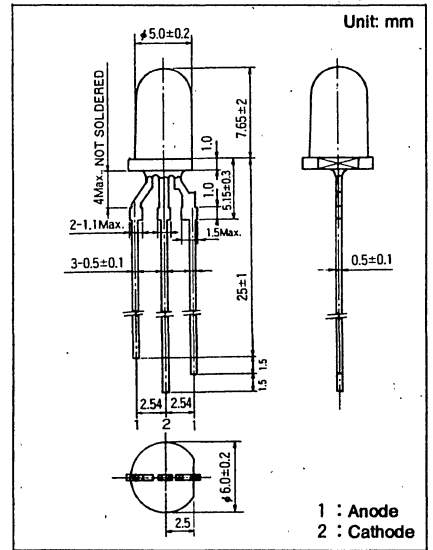
Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN088WP38	Green	White Diffused	120.0	45.0	20	2.2	2.8	565	30	20	10	4
	Orange		55.0	20.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



丸形 Round Type
φ 5.0mm Series

Type No. Lighting Color
LN11WP23.....Red, Green



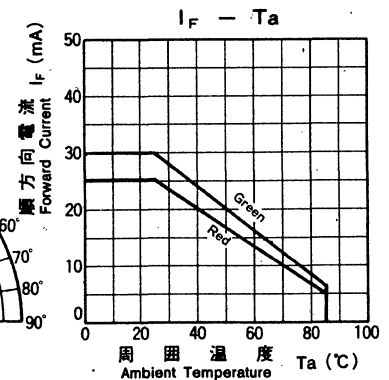
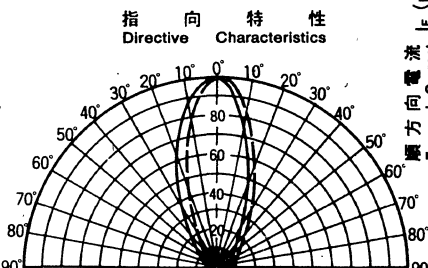
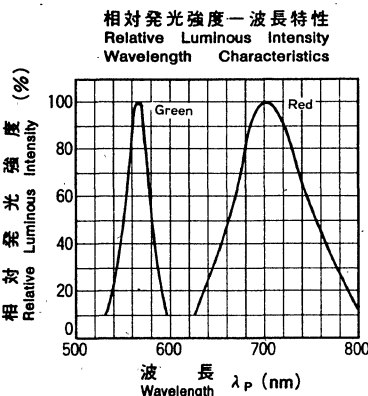
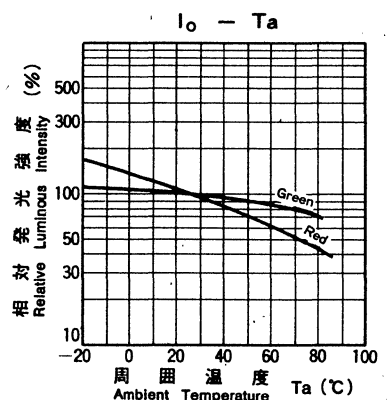
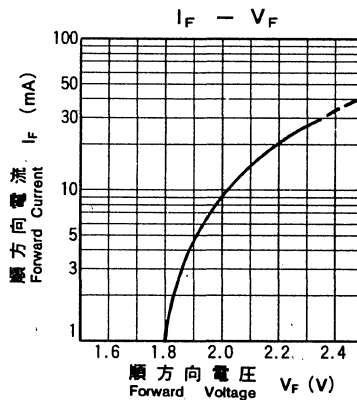
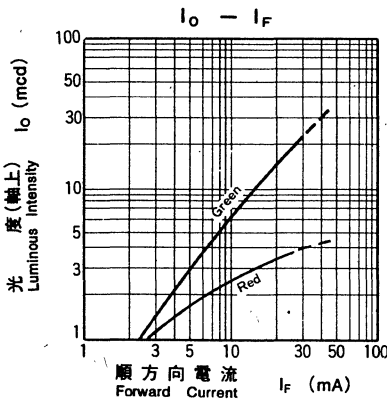
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

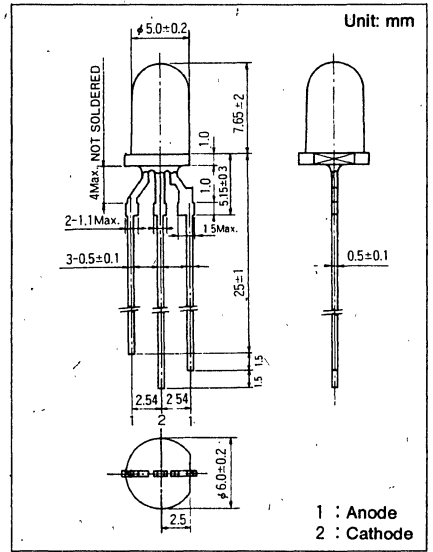
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _r		λ _p	Δλ	I _r	I _n	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN11WP23	Red	White Diffused	3.0	1.0	15	2.2	2.8	700	100	20	10	4
	Green		15.0	3.0	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type
φ 5.0mm Series

Type No. Lighting Color
LN11WP34.....Green, Amber



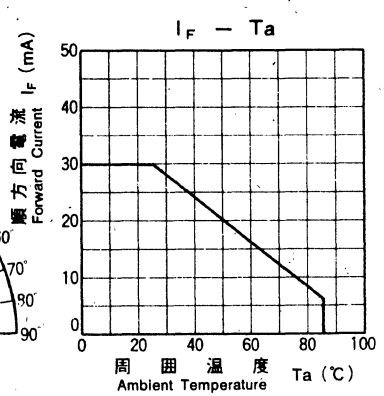
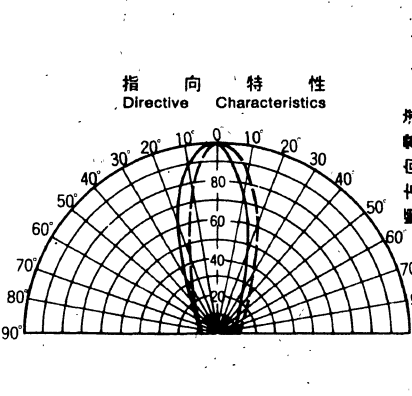
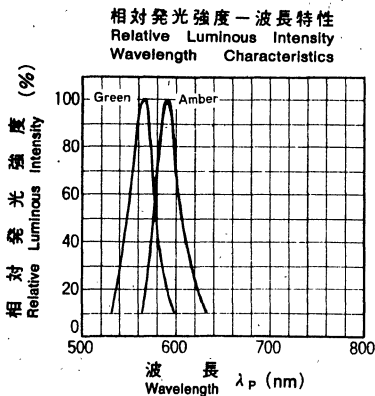
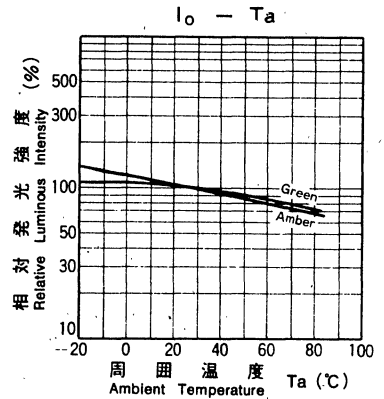
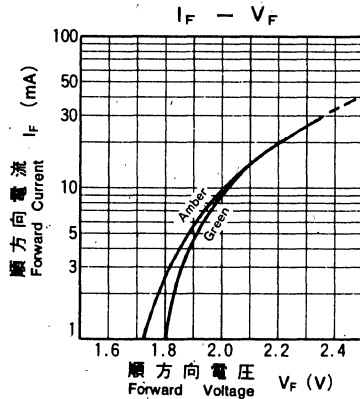
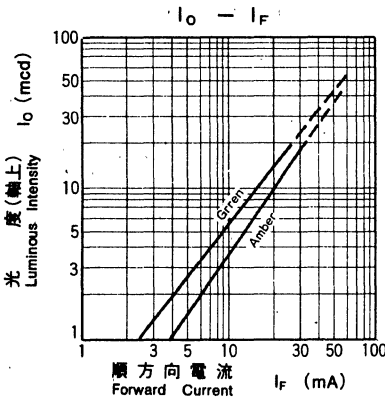
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P		I _R		
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Δλ	I _F	Max.	V _R
LN11WP34	Green	White Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
	Amber		10.0	4.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



二色発光

Two Color Lighting

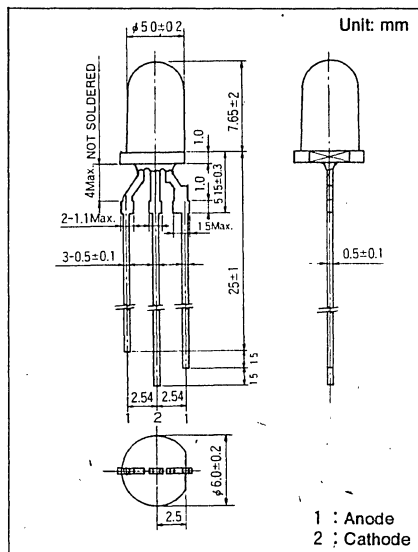
丸形 Round Type φ 5.0mm Series

Type No. Lighting Color
LN11WP38.....Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

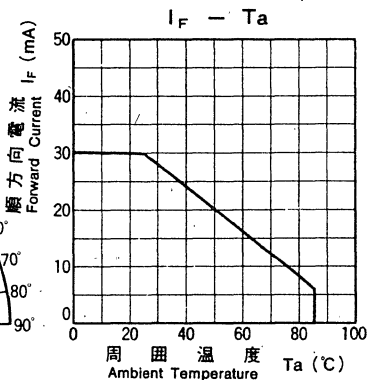
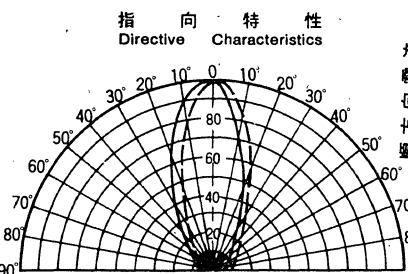
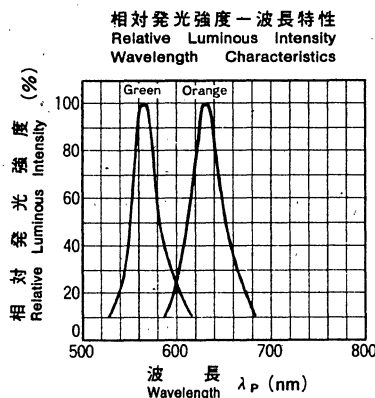
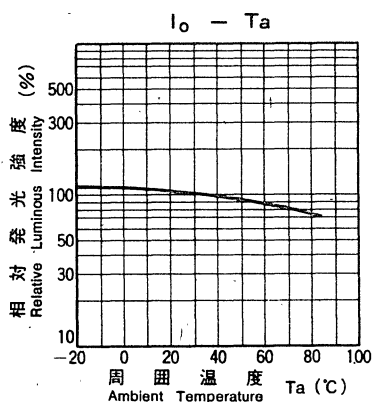
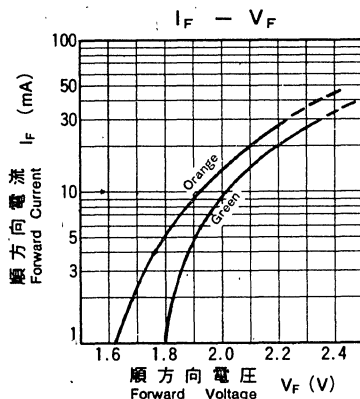
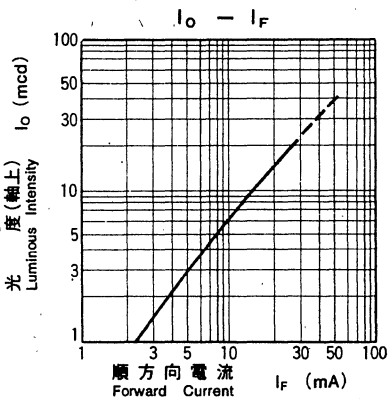
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.	I _F	Max.	V _R
LN11WP38	Green	White Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
	Orange		15.0	3.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



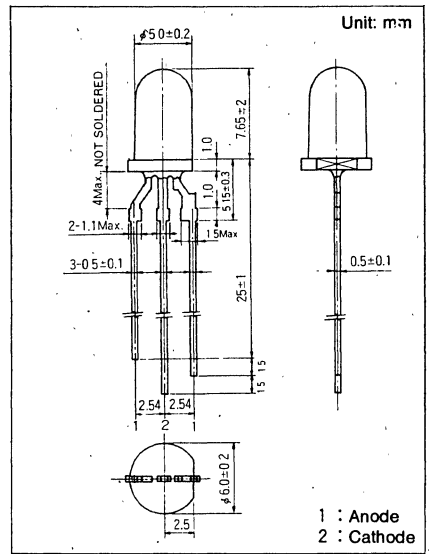
丸形 Round Type φ 5.0mm Series

Type No. Lighting Color
 LN11CP23.....Red, Green
 LN11CP34.....Green, Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

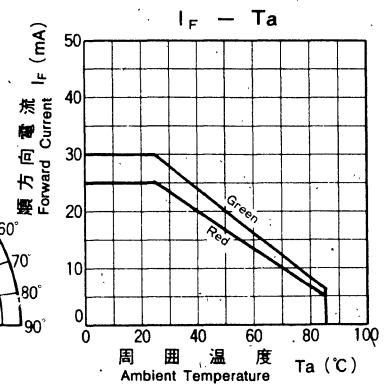
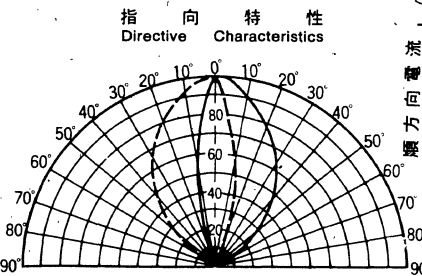
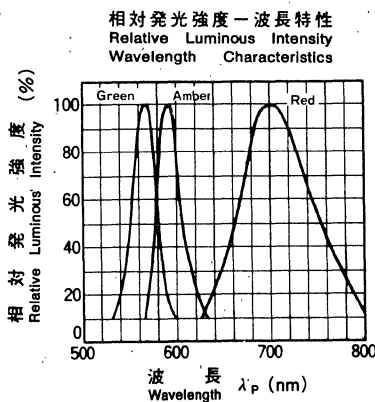
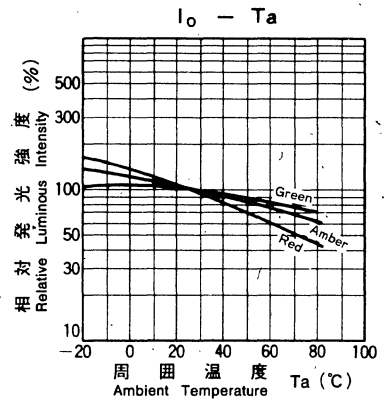
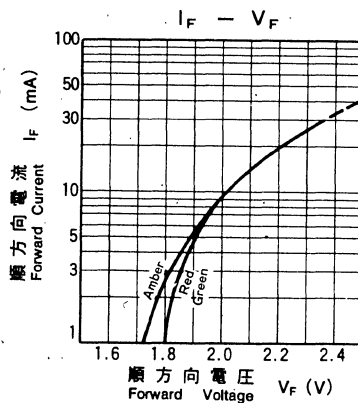
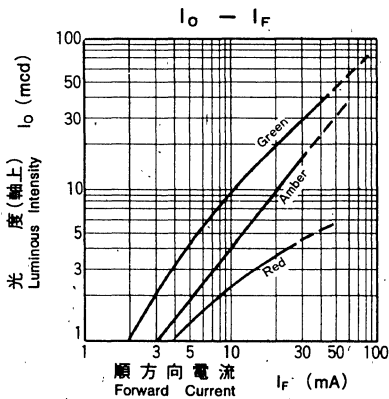
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN11CP23	Red	Clear	3.0	1.2	15	2.2	2.8	700	100	20	10	4
	Green		20.0	8.0	20	2.2	2.8	565	30	20	10	4
LN11CP34	Green	Clear	20.0	8.0	20	2.2	2.8	565	30	20	10	4
	Amber		10.0	4.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



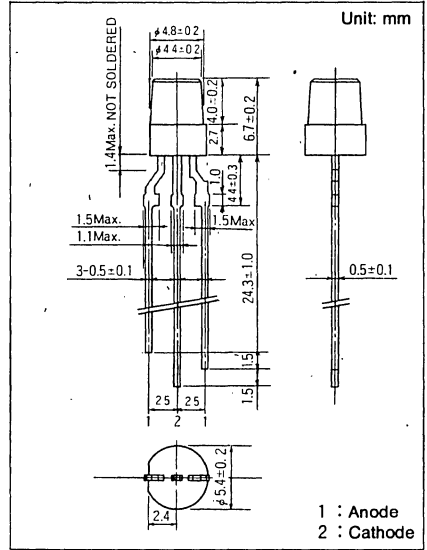
丸形 Round Type
φ 4.4mm Series

Type No. Lighting Color
LN170WP38Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

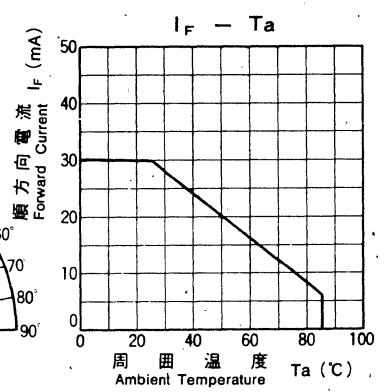
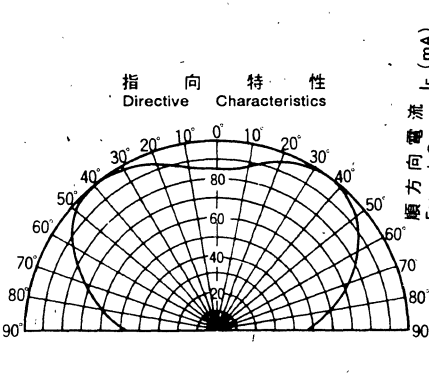
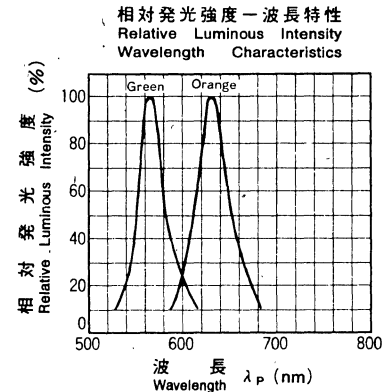
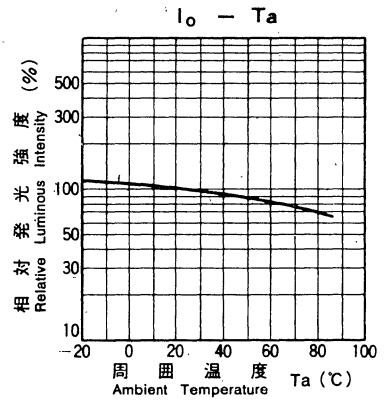
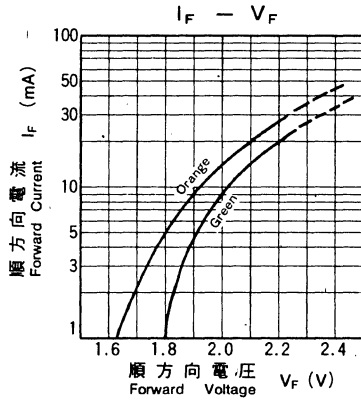
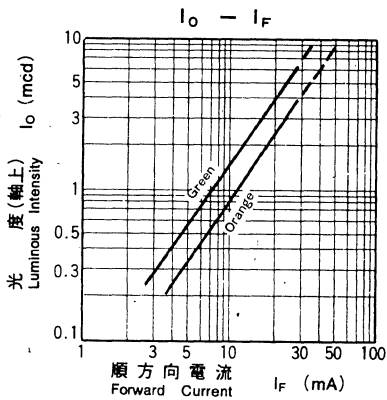
Lighting Color	P _b (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	3	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



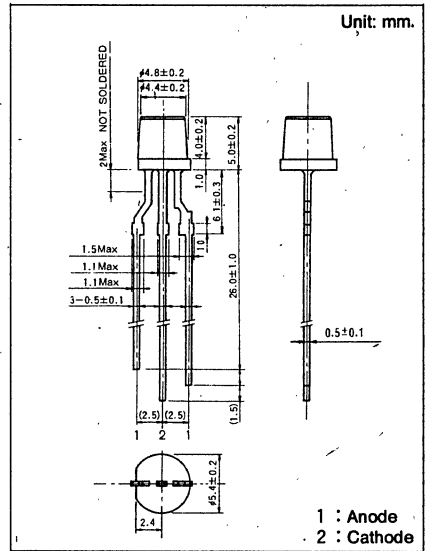
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN170WP38	Green	White Diffused	4.0	0.8	20	2.2	2.50	565	30	20	10	4
	Orange		2.5	0.5	20	2.1	2.45	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type φ 4.4mm Series

Type No. Lighting Color
LN140WP38 Green, Orange



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

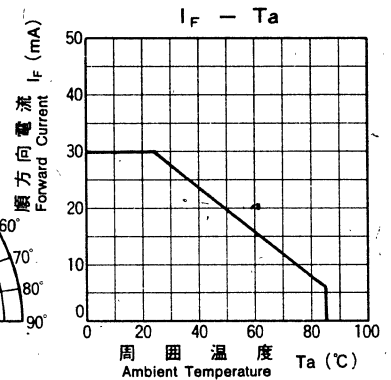
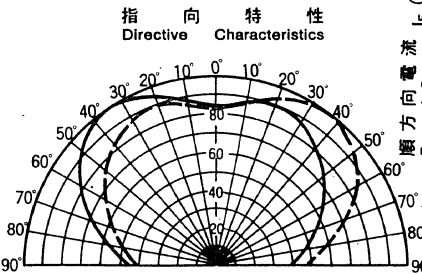
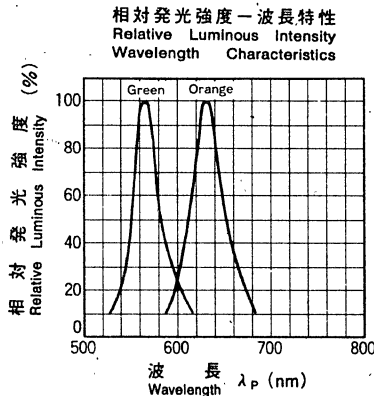
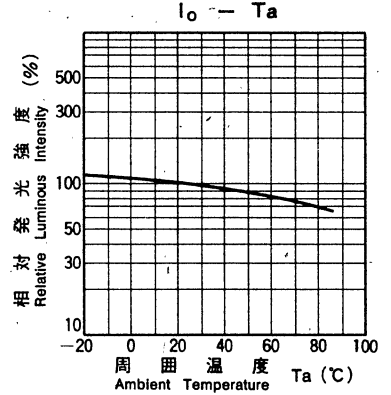
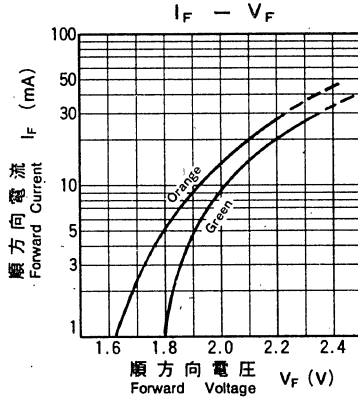
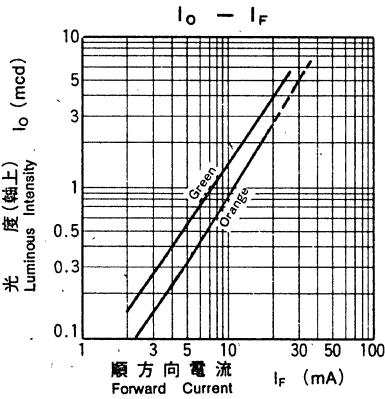
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P Δλ		I _F	I _n	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN140WP38	Green	White Diffused	4.0	0.8	20	2.2	2.8	565	30	20	10	4
	Orange		2.5	0.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



丸横形 Round-Side View Type

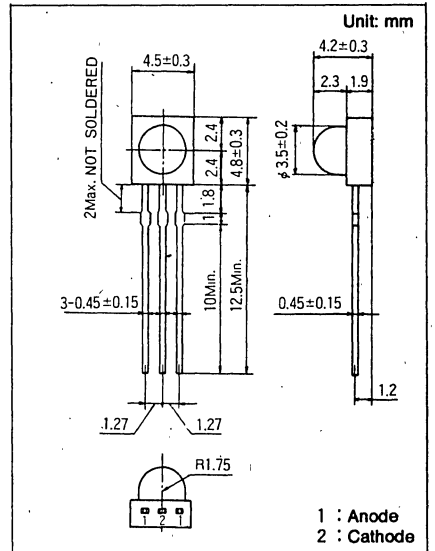
φ 3.5mm Series

Type No. Lighting Color
 LN15BP..... Red, Green
 LN15WP..... Red, Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

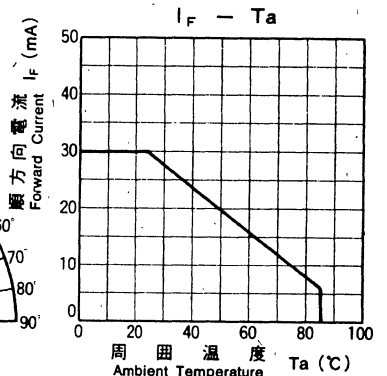
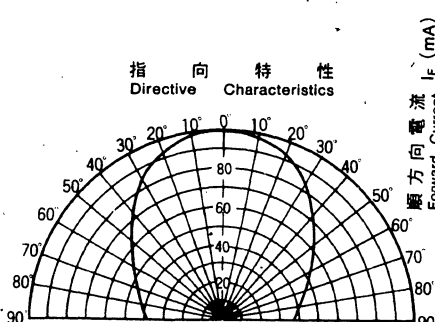
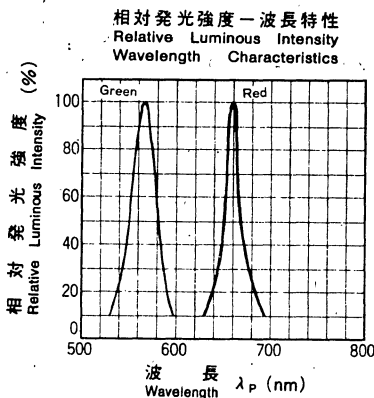
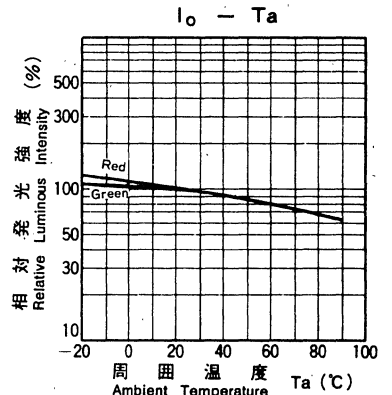
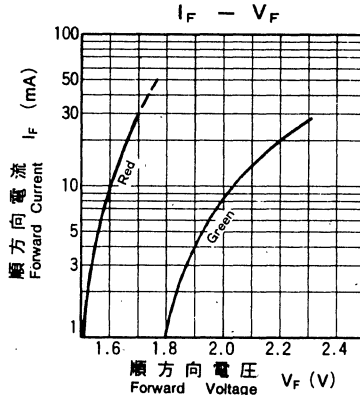
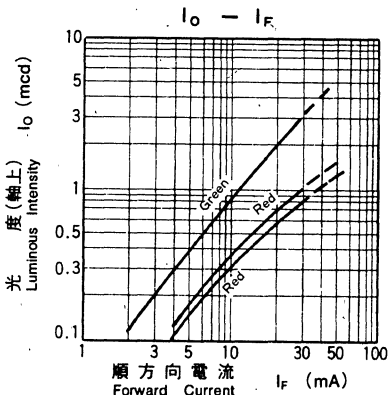
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	30	100	4	-25~+85	-30~+100
Green	90	30	100	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

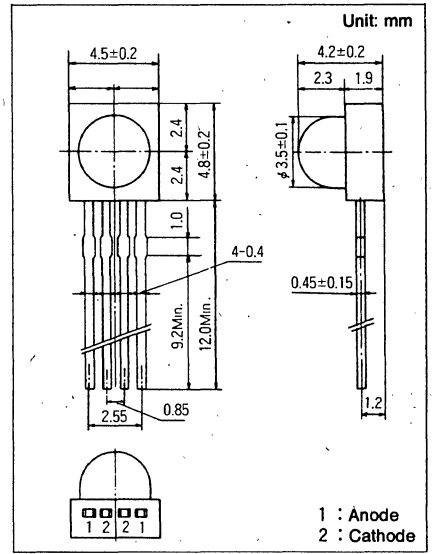
Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN15BP	Red	Blue Diffused	0.7	0.2	20	1.75	2.0	660	20	30	10	3
	Green		2.0	0.6	20	2.20	2.8	565	30	20	10	4
LN15WP	Red	White Diffused	0.6	0.2	20	1.75	2.0	660	20	30	10	3
	Green		2.0	0.6	20	2.20	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸横形 Round-Side View Type

φ 3.5mm Series

Type No. LN15WP-(F) Lighting Color Red, Green



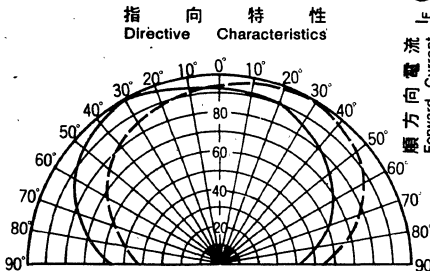
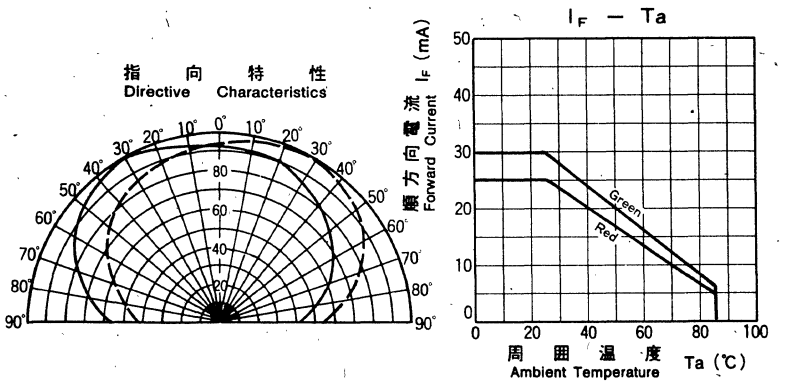
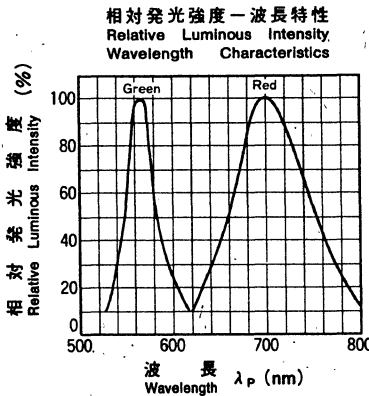
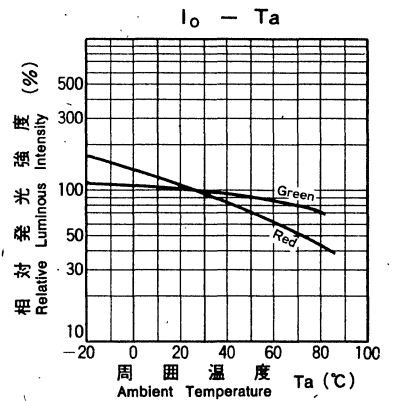
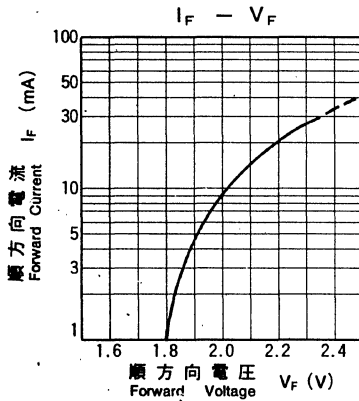
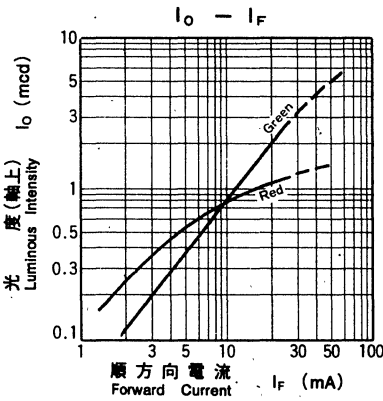
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	100	4	-25~+85	-30~+100
Green	90	30	100	4	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

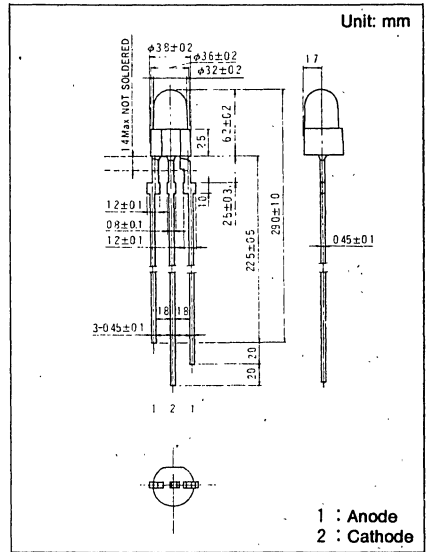
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN15WP-(F)	Red	White Diffused	1.0	0.25	15	2.2	2.8	700	100	20	10	4
	Green		2.0	0.50	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type φ 3.0mm Series

Type No. Lighting Color
LN086WP38Green, Orange



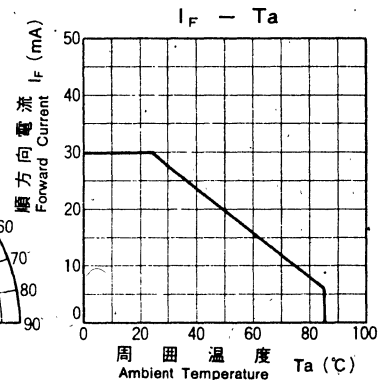
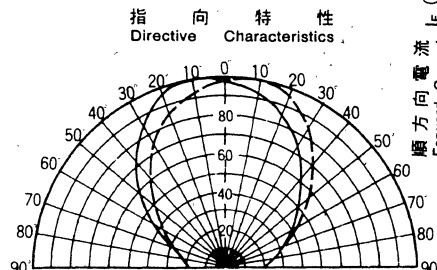
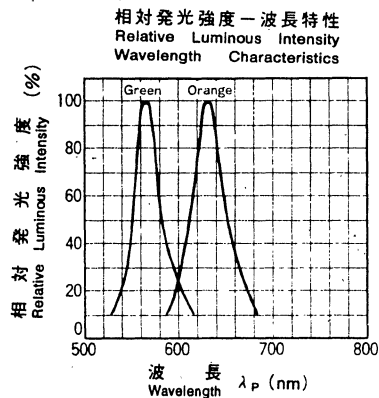
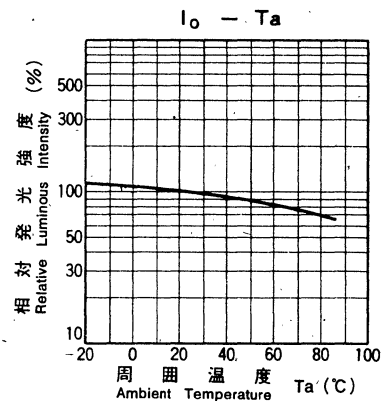
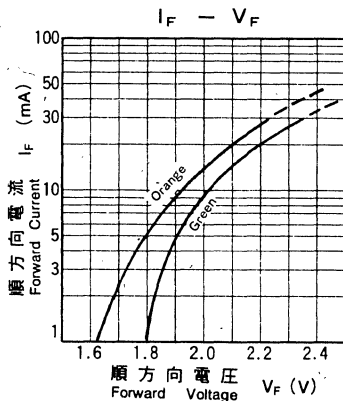
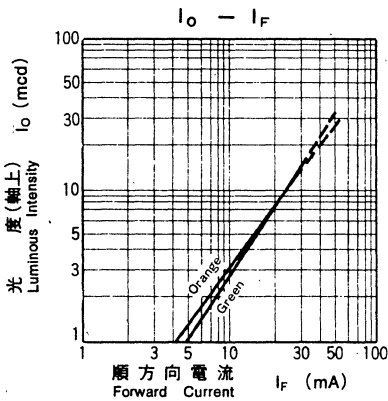
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP} の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	Max.	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN086WP38	Green	White Diffused	8.0	3.0	20	2.2	2.8	565	30	20	10	4
	Orange		8.0	3.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type

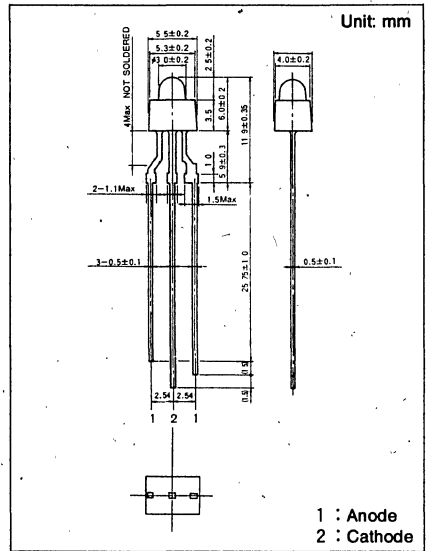
φ 3.0mm Series

Type No. Lighting Color
 LN138WP38 Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

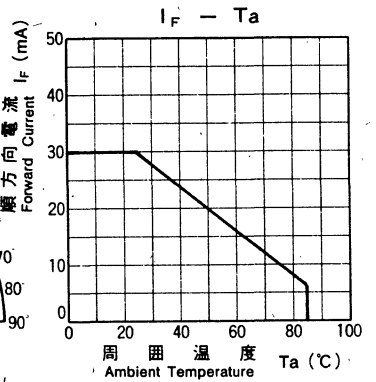
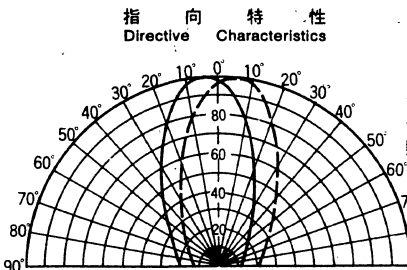
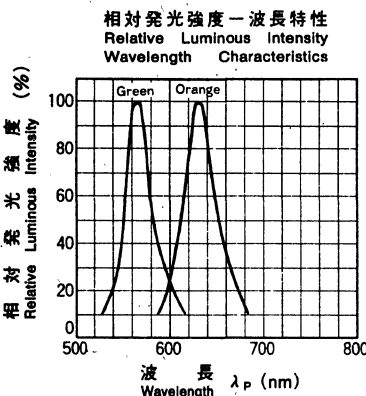
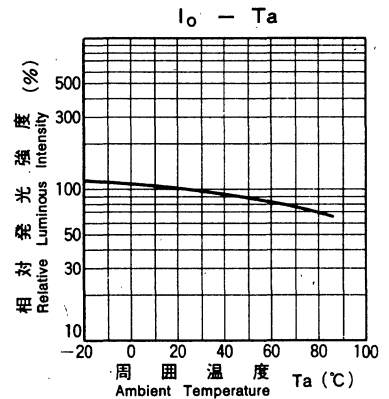
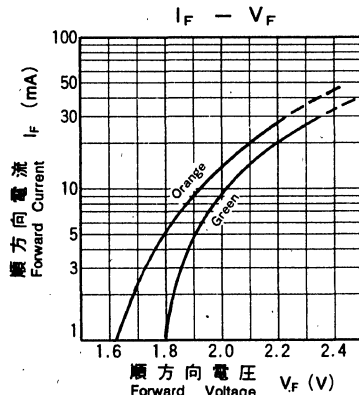
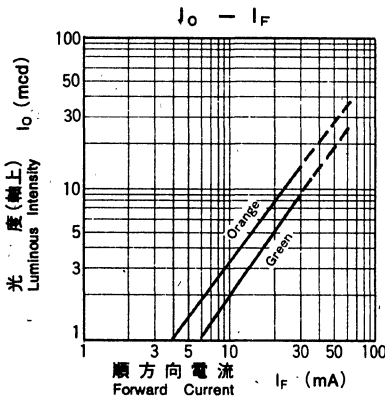
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Typ.	Typ.
LN138WP38	Green	White Diffused	5.0	2.0	20	2.2	2.8	565	30	20	10	4
	Orange		8.0	3.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸横形 Round-Side View Type

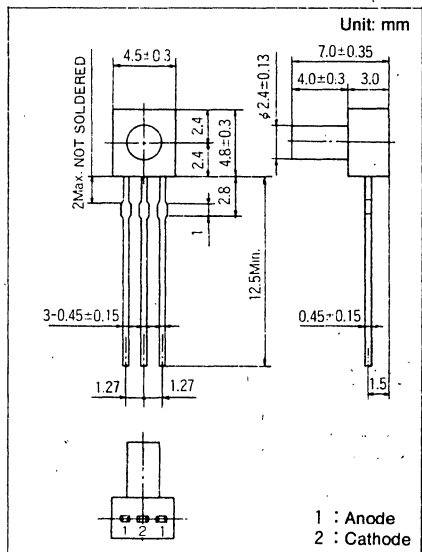
φ 2.4mm Series

Type No.	Lighting Color
LN16BP	Red, Green
LN16WP	Red, Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

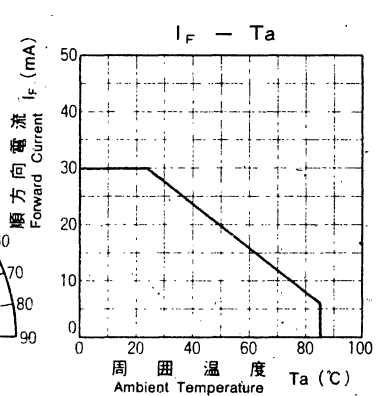
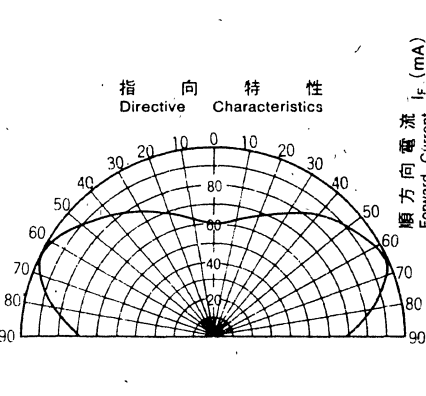
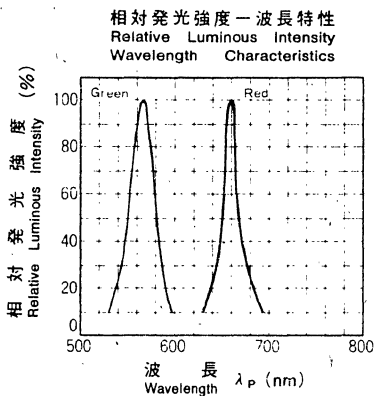
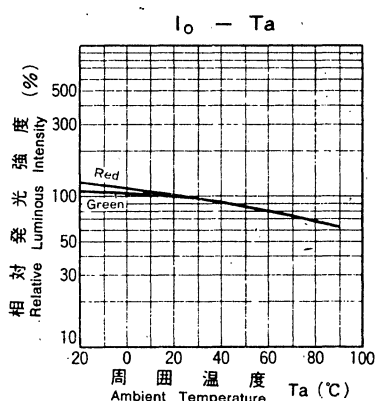
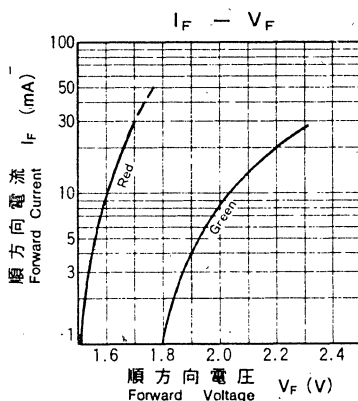
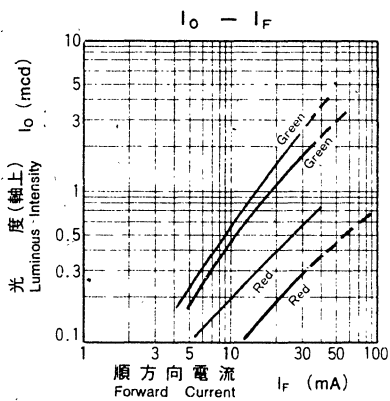
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	30	100	4	-25~+85	-30~+100
Green	90	30	100	4	-25~+85	-30~+100

* I_{FP} の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN16BP	Red	Blue Diffused	0.2	0.06	20	1.75	2.0	660	20	20	10	3
	Green		1.2	0.10	20	2.20	2.8	565	30	20	10	4
LN16WP	Red	White Diffused	0.4	0.10	20	1.75	2.0	660	20	20	10	3
	Green		1.5	0.50	20	2.20	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



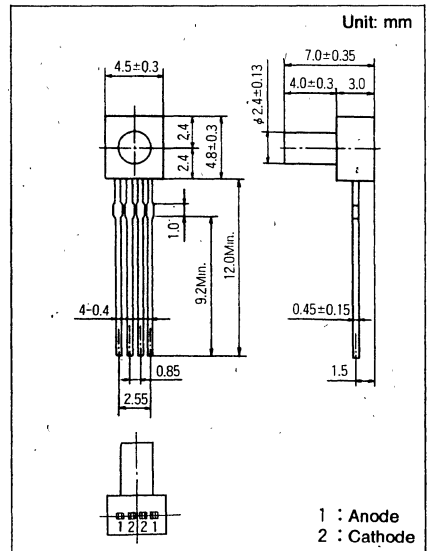
丸横形 Round-Side View Type
 ϕ 2.4mm Series

Type No. Lighting Color
 LN16WP-(F) Red, Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

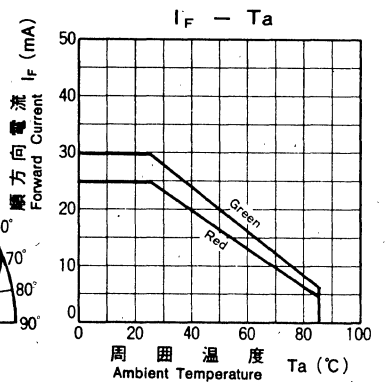
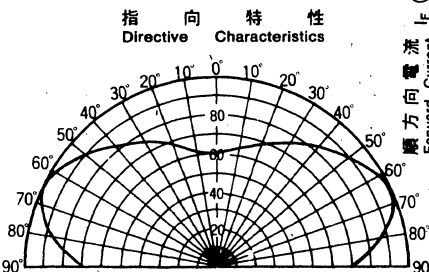
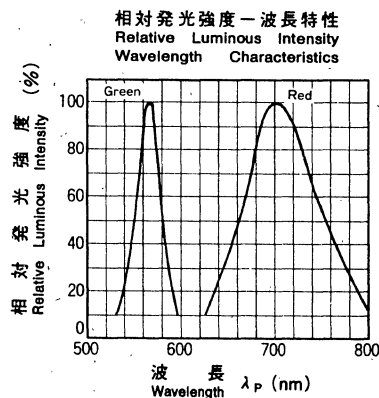
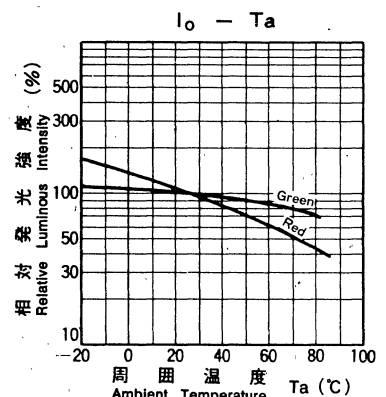
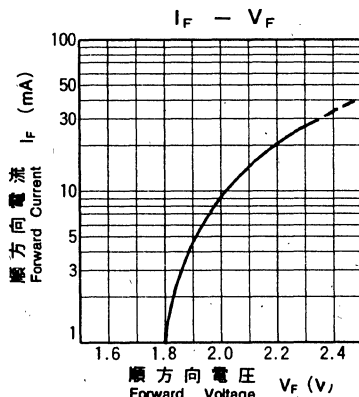
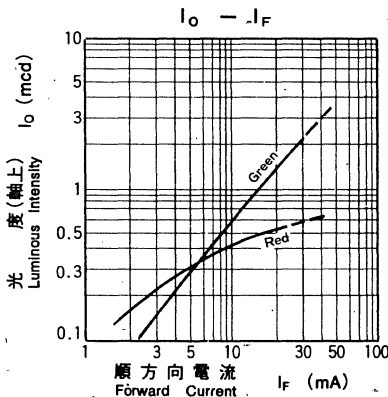
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	100	4	-25~+85	-30~+100
Green	90	30	100	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ_P $\Delta \lambda$		I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN16WP-(F)	Red	White Diffused	0.5	0.25	15	2.2	2.8	700	100	20	10	4
	Green		1.5	0.75	20	2.2	2.8	565	30			
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V



角形 Square Type

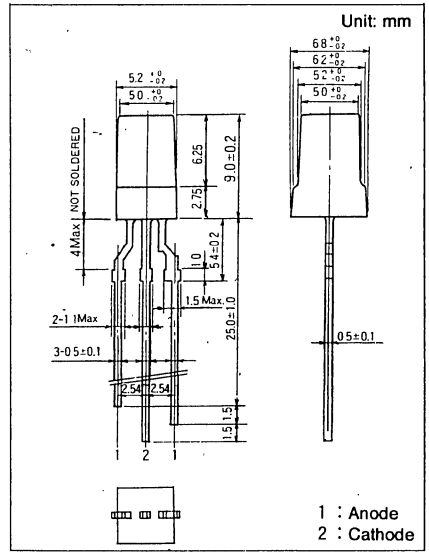
□ 5.0mm×5.0mm Series

Type No. Lighting Color
LN150WP38 Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

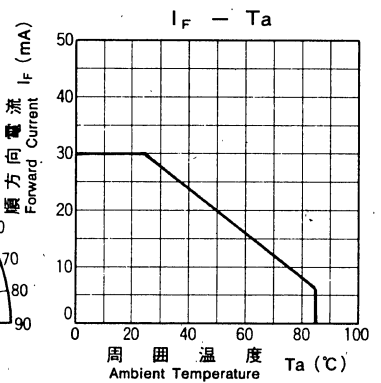
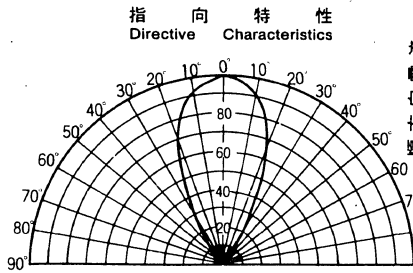
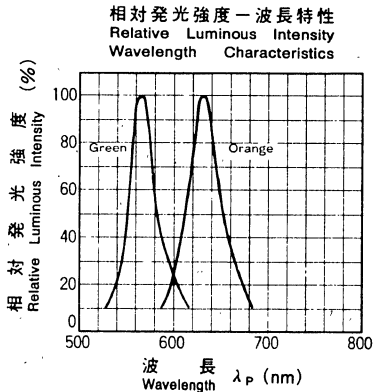
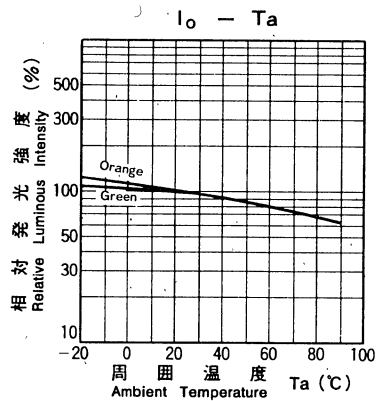
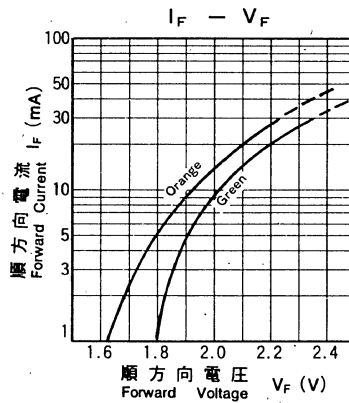
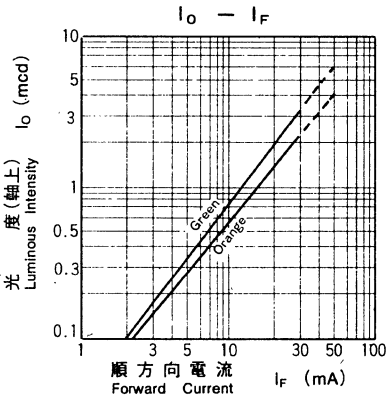


1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN150WP38	Green	White Diffused	2.0	1.0	20	2.2	2.8	565	30	20	10	4
	Orange		1.5	0.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

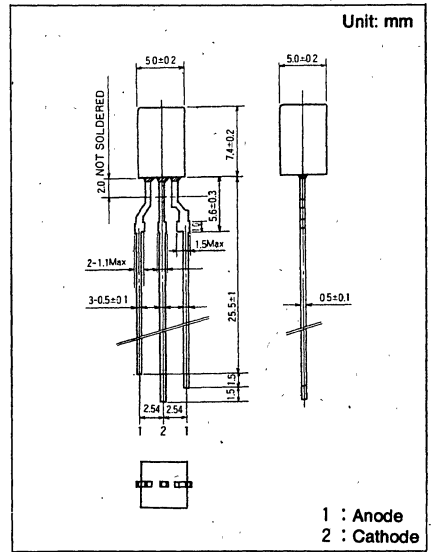
□ 5.0mm×5.0mm Series

Type No. Lighting Color
LN173WP38Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

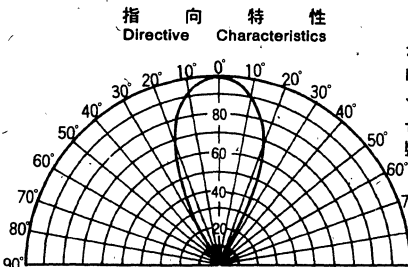
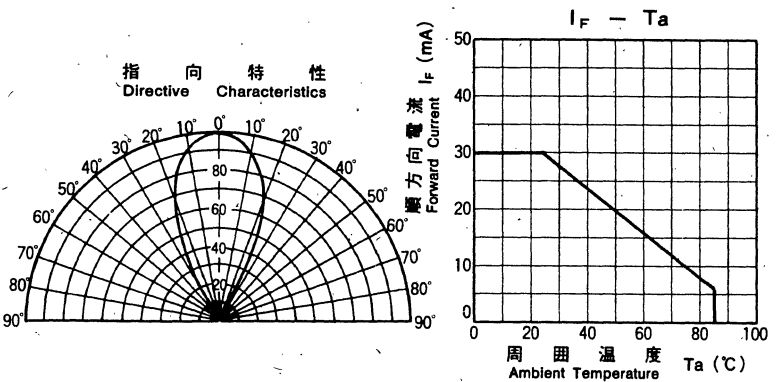
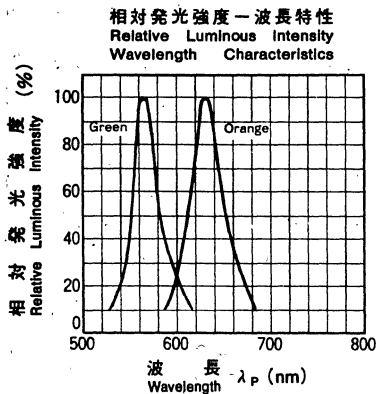
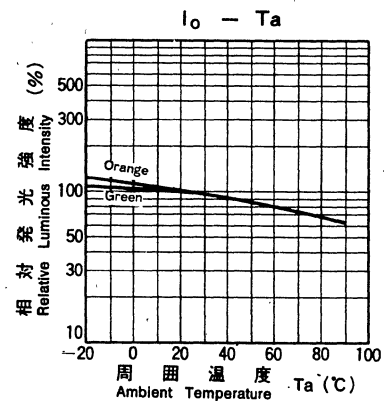
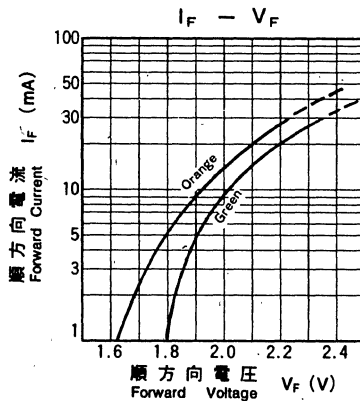
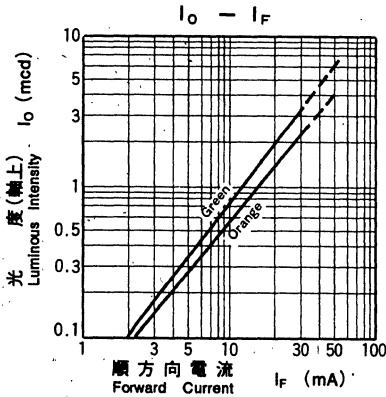
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN173WP38	Green	White Diffused	2.0	1.0	20	2.2	2.8	565	30	20	10	4
	Orange		1.5	0.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

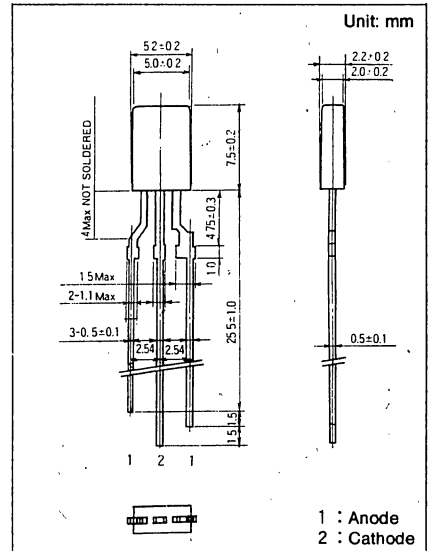
□ 2.0mm×5.0mm Series

Type No. Lighting Color
 LN142WP34 Green, Amber
 LN142WP38 Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

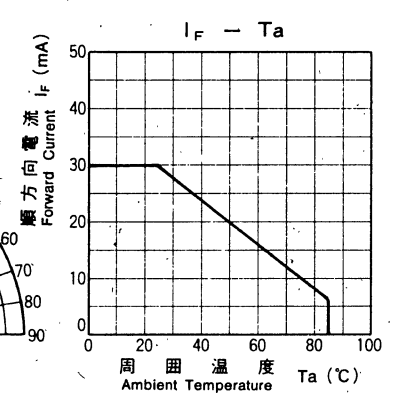
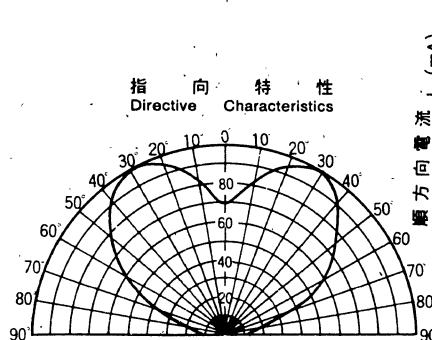
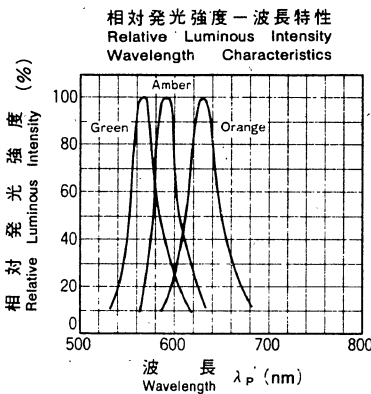
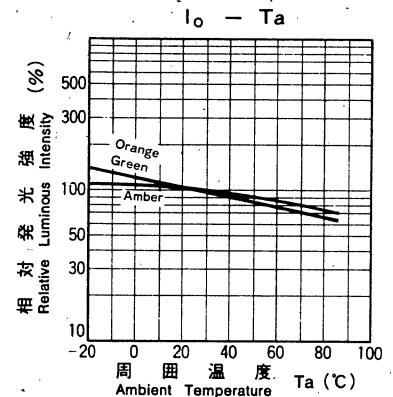
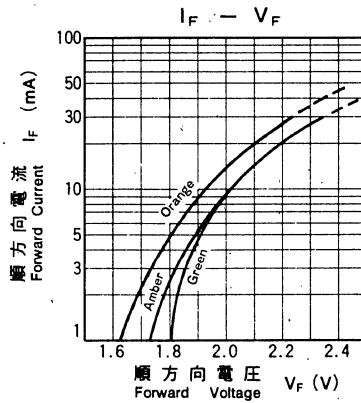
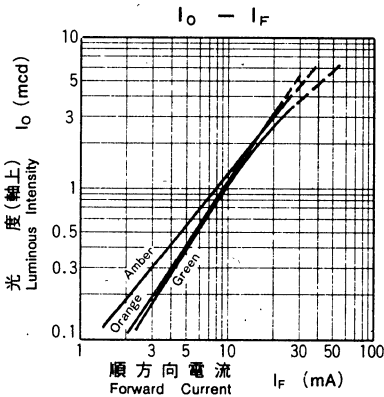
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN142WP34	Green	White Diffused	3.0	1.0	20	2.2	2.8	565	30	20	10	4
	Amber		3.0	1.0	20	2.2	2.8	590	30	20	10	4
LN142WP38	Green	White Diffused	3.0	1.0	20	2.2	2.8	565	30	20	10	4
	Orange		2.5	1.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

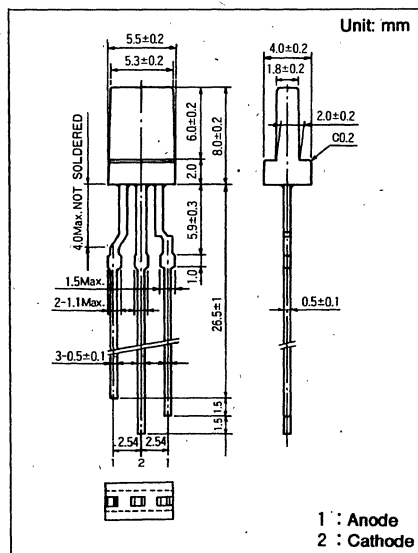
□ 1.8mm×5.3mm Series

Type No. Lighting Color
 LN117WP23 Red, Green
 LN117WP38 Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

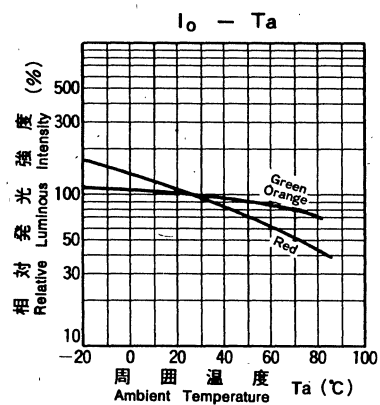
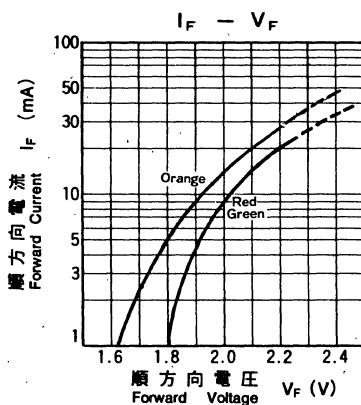
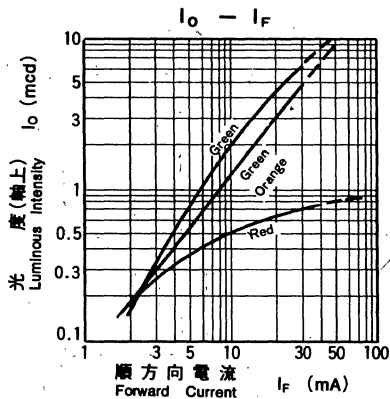
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



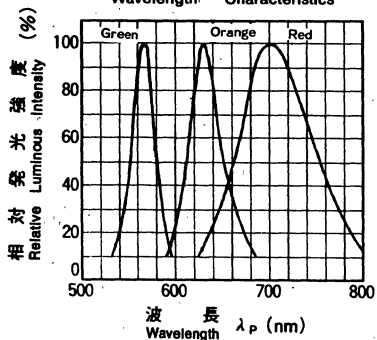
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN117WP23	Red	White Diffused	0.6	0.25	15	2.2	2.8	700	100	20	5	4
	Green		4.5	1.70	20	2.2	2.8	565	30	20	10	4
LN117WP38	Green	White Diffused	3.0	1.00	20	2.2	2.8	565	30	20	10	4
	Orange		3.0	1.00	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

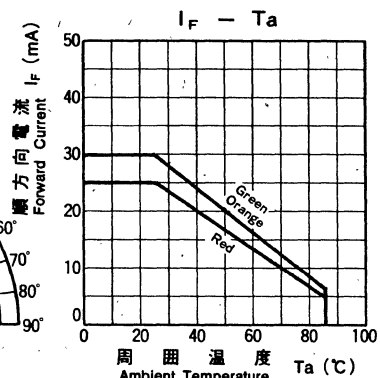
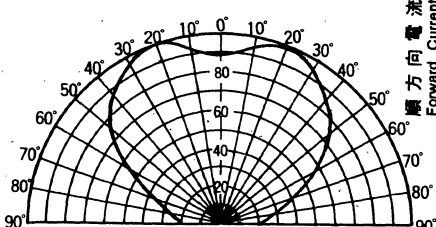
△印は暫定規格を示す。△ Tentative Specification



相对発光強度一波長特性
 Relative Luminous Intensity
 Wavelength Characteristics



指向特性
 Directive Characteristics



角形 Square Type

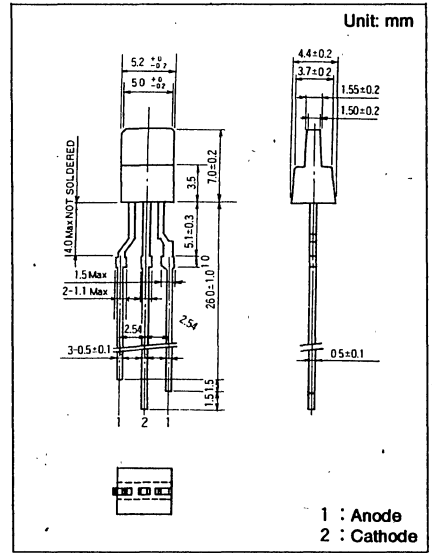
□ 1.5mm×5.0mm Series

Type No. Lighting Color
LN129WP38 Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Green	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

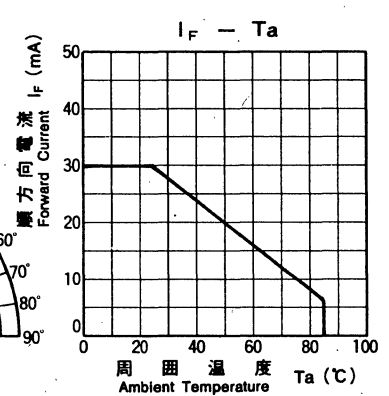
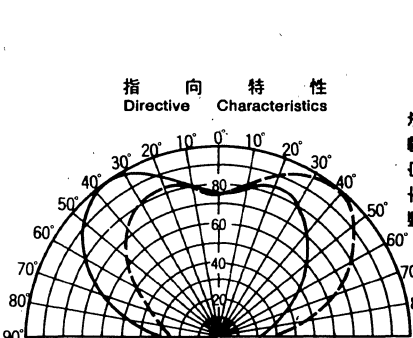
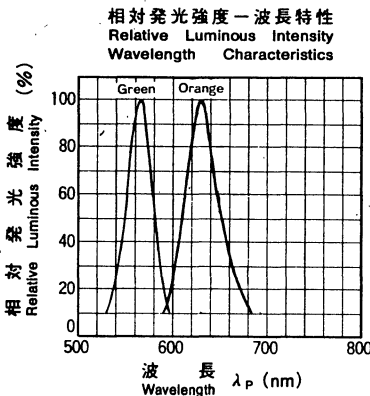
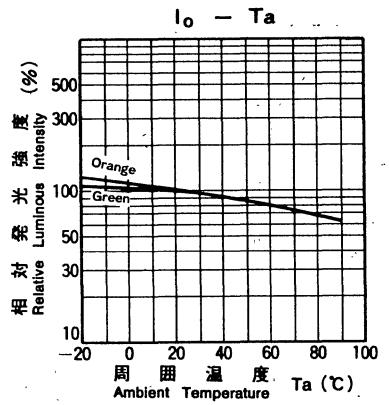
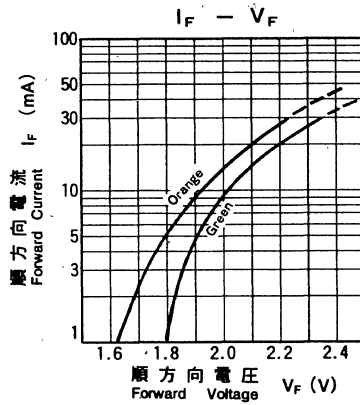
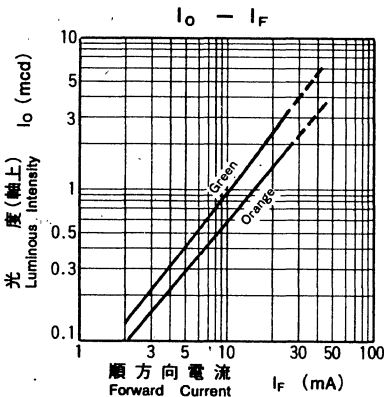
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ		I _n	
			Typ.	Min.	I _F	Typ.	Max.		Typ.	I _F	Max.	V _R
LN129WP38	Green	White Diffused	2.5	0.75	20	2.2	2.8	565	30	20	10	4
	Orange		1.5	0.50	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



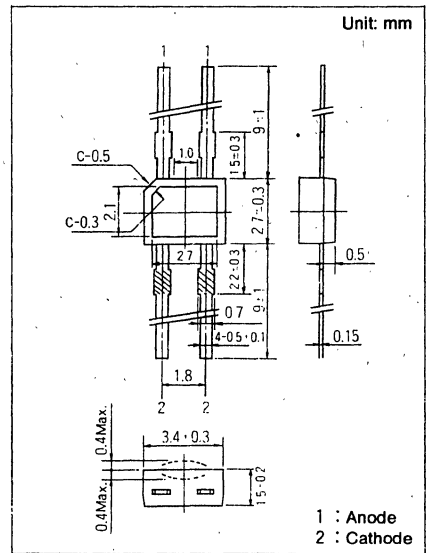
小形 Small Type Minibright Series

Type No. Lighting Color
LN02102C68 Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

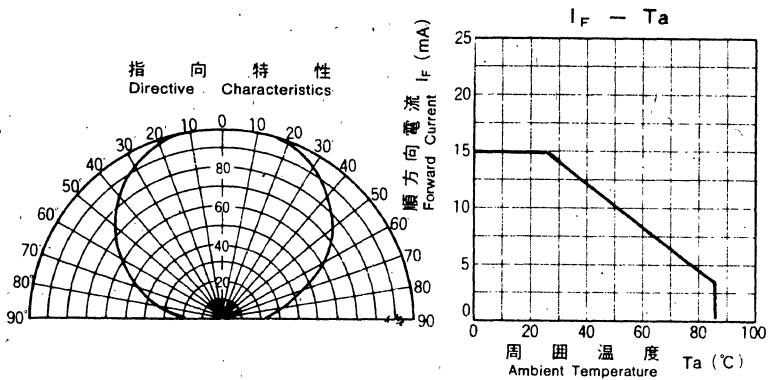
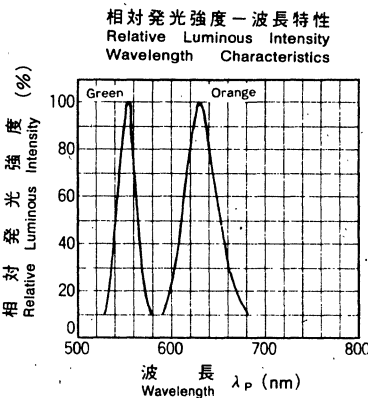
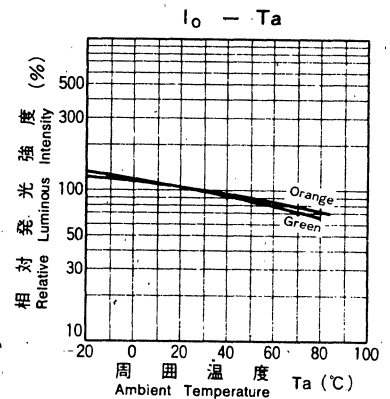
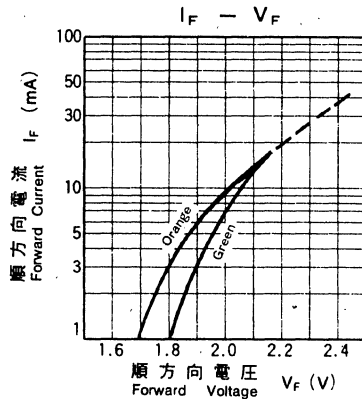
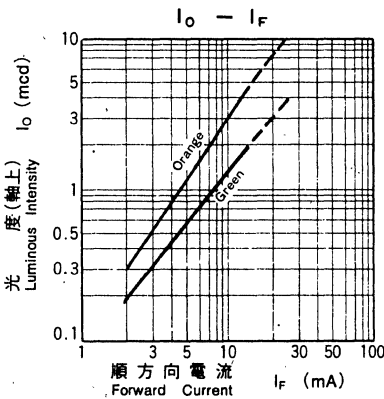
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	45	15	80	3	-25~+85	-30~+100
Orange	45	15	80	3	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



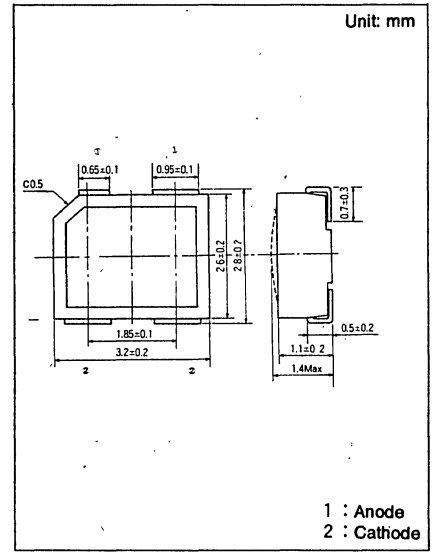
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _a	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN02102C68	Green	Clear	1.5	0.75	10	2.05	2.8	555	25	10	10	3
	Orange		3.0	1.00	10	2.00	2.8	630	40	10	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



小形 Small Type Chip LED Series

Type No.: Lighting Color
LN2152C13 Red, Green



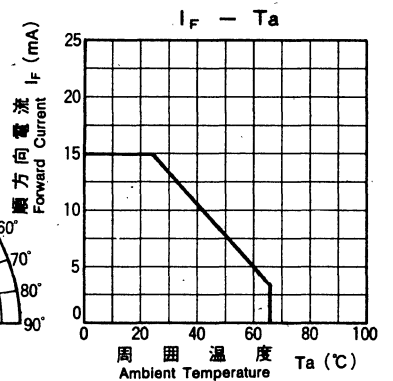
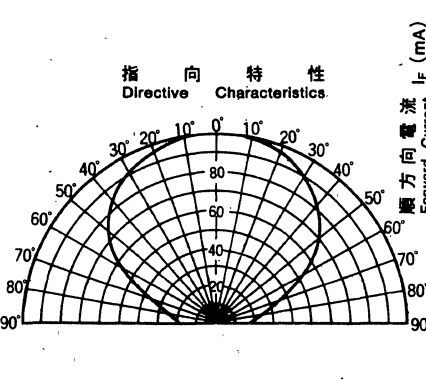
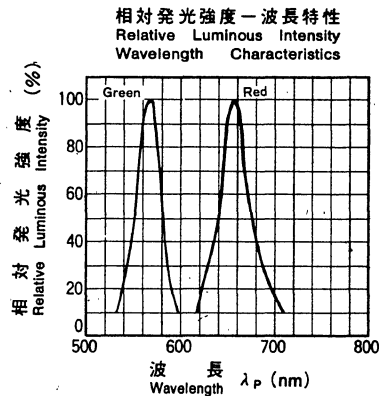
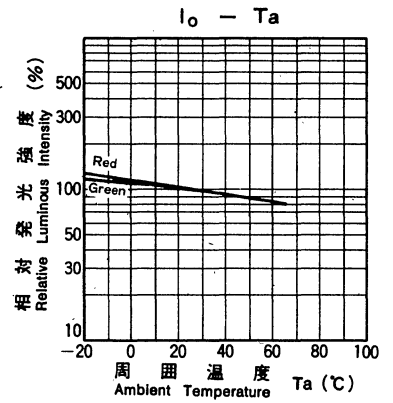
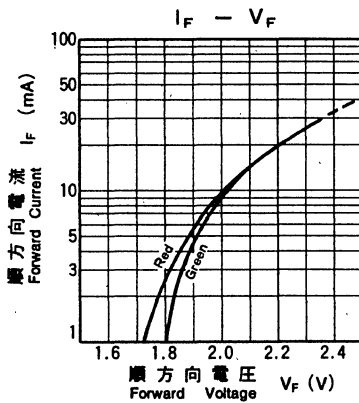
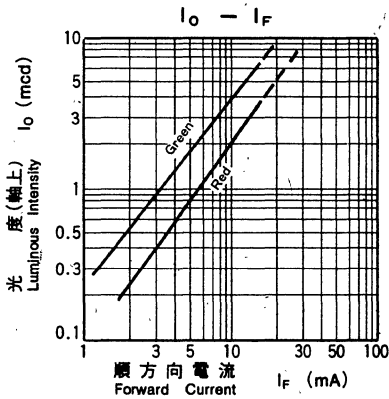
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{PP} (mA)*	V _R (V)	Temp. (°C)	Tstg. (°C)
Red	45	15	60	3	-25~+65	-30~+75
Green	45	15	60	3	-25~+65	-30~+75

* I_{PP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{PP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I ₀	Max.	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN2152C13	Red	Clear	2.0	0.7	10	2.1	2.8	655	40	15	10	3
	Green		4.0	1.5	10	2.1	2.8	565	30			
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



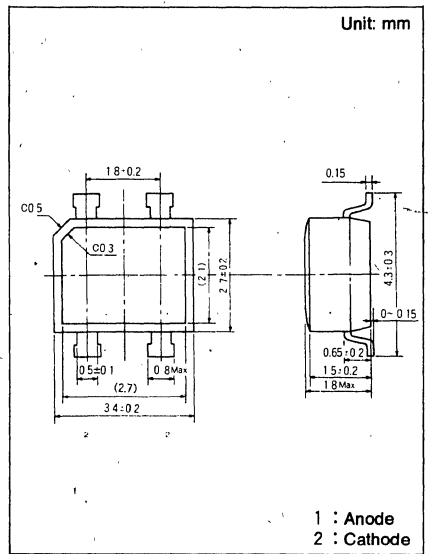
小形 Small Type Chip LED Series

Type No. Lighting Color
LN2162C13 Red, Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

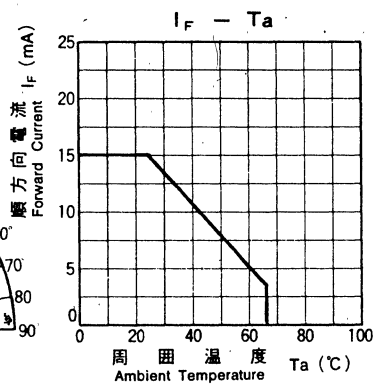
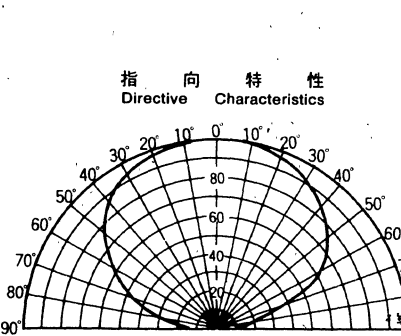
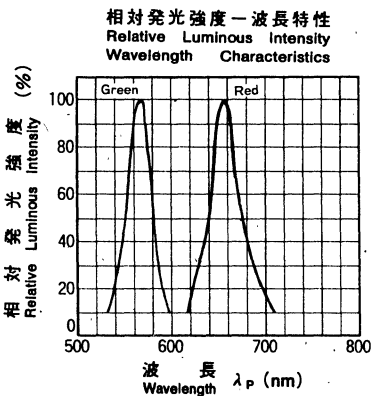
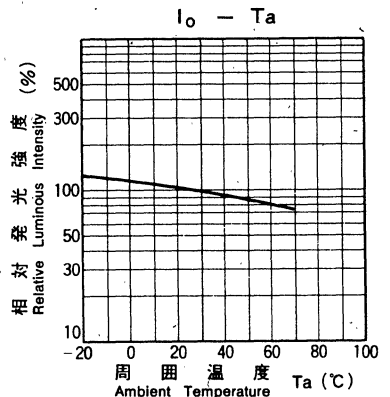
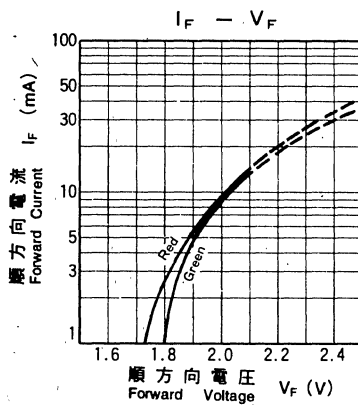
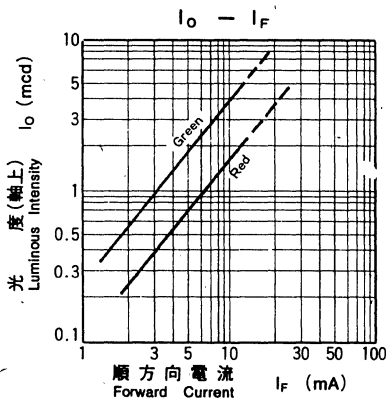
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	45	15	60	3	-25~+65	-30~+75
Green	45	15	60	3	-25~+65	-30~+75

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN2162C13	Red	Clear	1.8	0.65	10	2.00	2.8	655	40	10	10	3
	Green		4.0	1.50	10	2.05	2.8					
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



可視発光ダイオード/VISIBLE LED'S

テーピング（丸形・角形・小形・二色）

Taping (Round・Square・Small・Two Color Type)



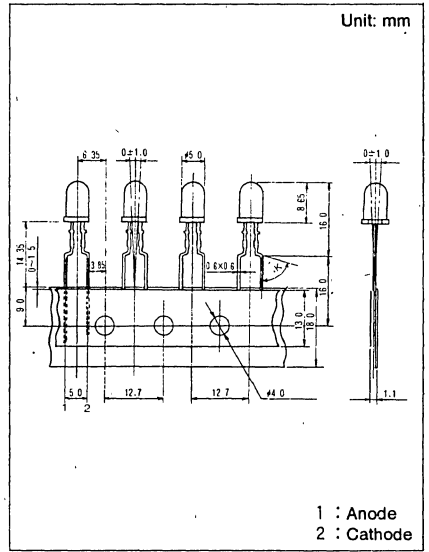
丸形 Round Type φ 5.0mm Series

Type No. Lighting Color
 LN21RPH-(TA).....Red
 LN31GPH-(TA).....Green
 LN41YPH-(TA).....Amber
 LN81RPH-(TA).....Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

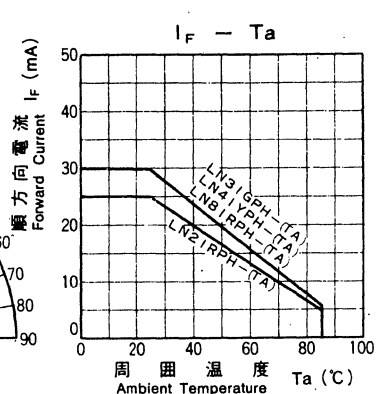
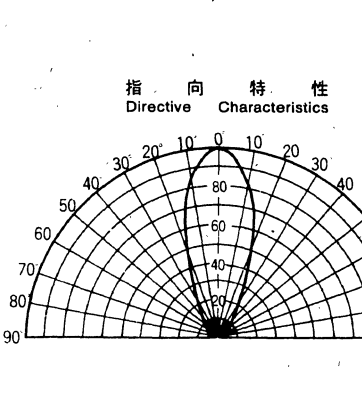
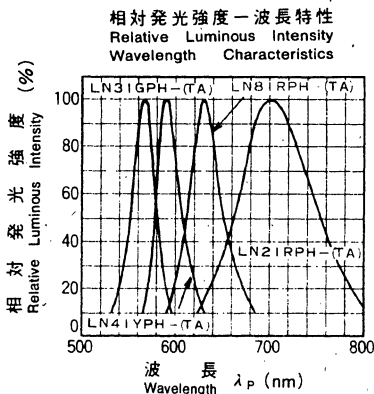
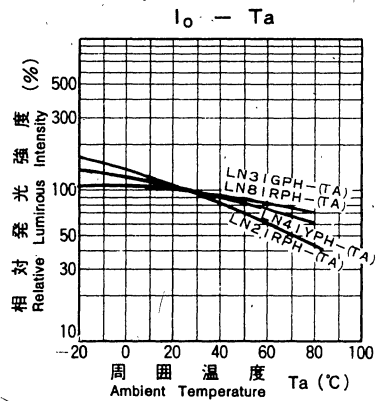
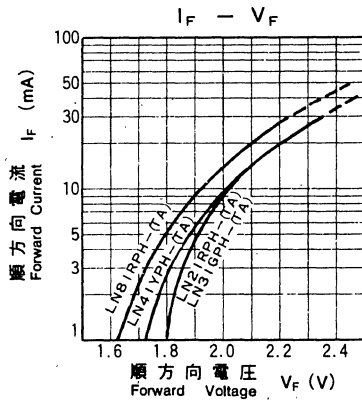
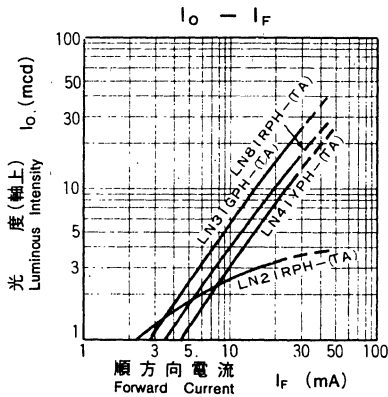
* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN21RPH-(TA)	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN31GPH-(TA)	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
LN41YPH-(TA)	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
LN81RPH-(TA)	Orange	Red Diffused	10.0	5.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



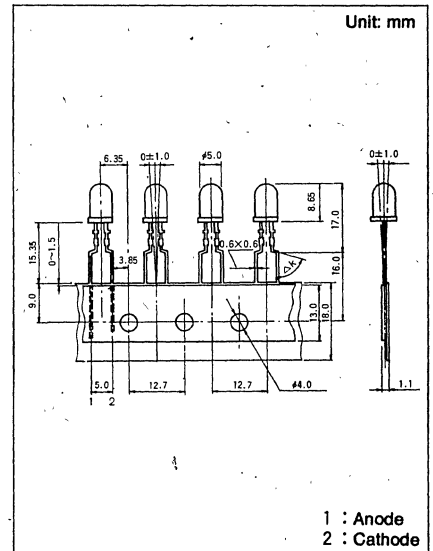
丸形 Round Type φ 5.0mm Series

Type No. Lighting Color
 LN21RPH-(TA2).....Red
 LN31GPH-(TA2).....Green
 LN41YPH-(TA2).....Amber
 LN81RPH-(TA2).....Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

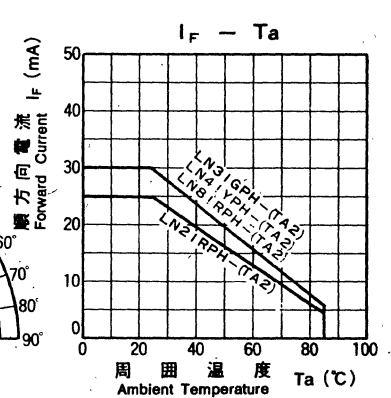
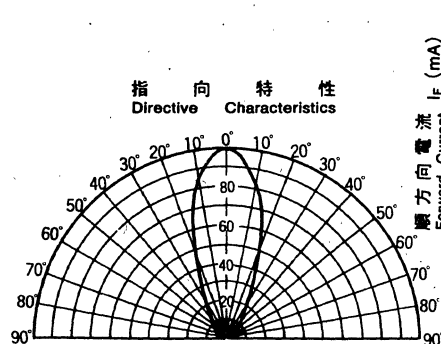
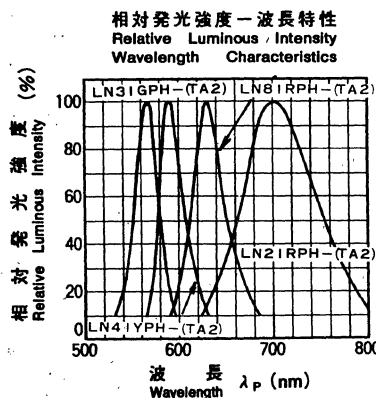
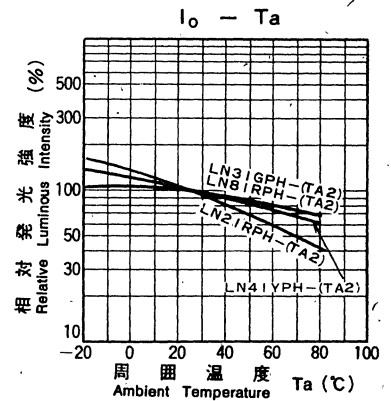
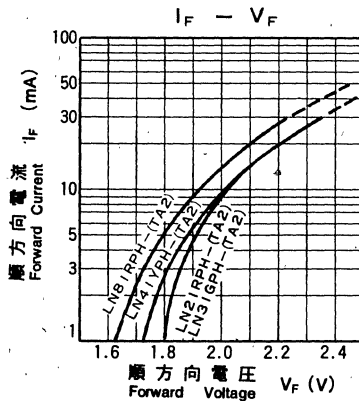
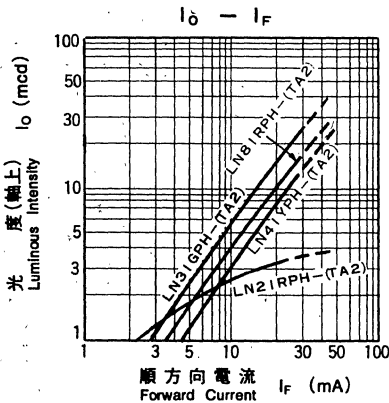
Lighting Color	P _O (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN21RPH-(TA2)	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
LN31GPH-(TA2)	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
LN41YPH-(TA2)	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
LN81RPH-(TA2)	Orange	Red Diffused	10.0	5.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



丸形 Round Type

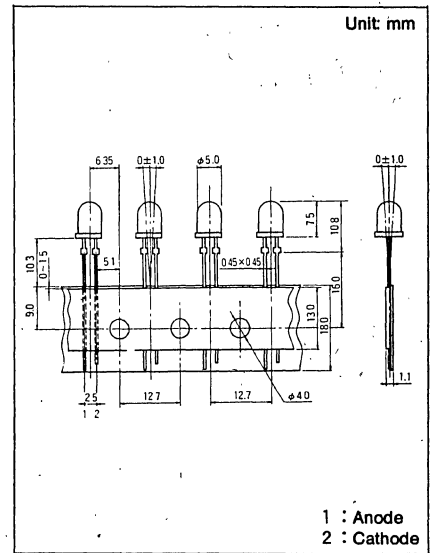
φ 5.0mm Series

Type No. Lighting Color
 LN21RPSLX-(TDA).....Red
 LN31GPSLX-(TDA).....Green
 LN41YPSLX-(TDA).....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

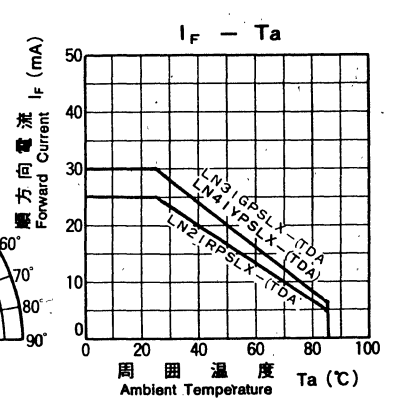
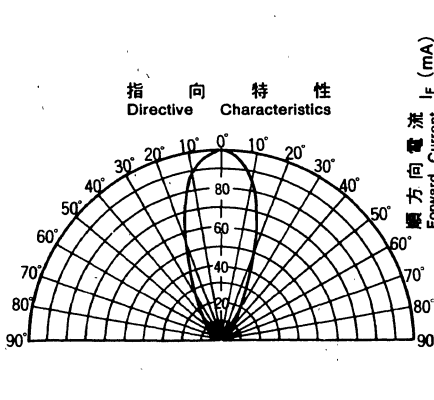
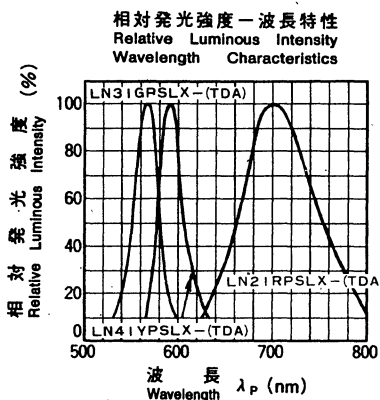
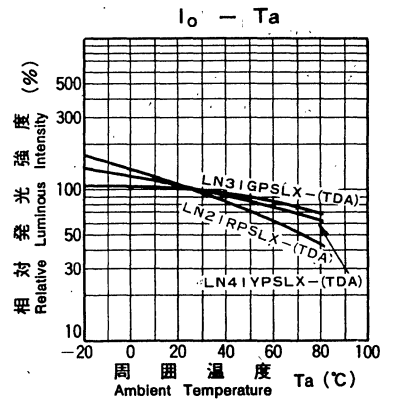
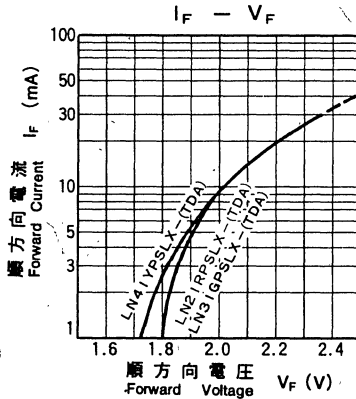
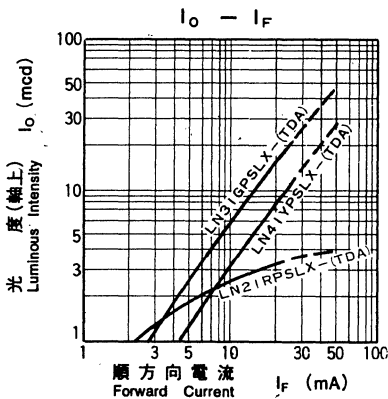
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.					
△ LN21RPSLX-(TDA)	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
△ LN31GPSLX-(TDA)	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
△ LN41YPSLX-(TDA)	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



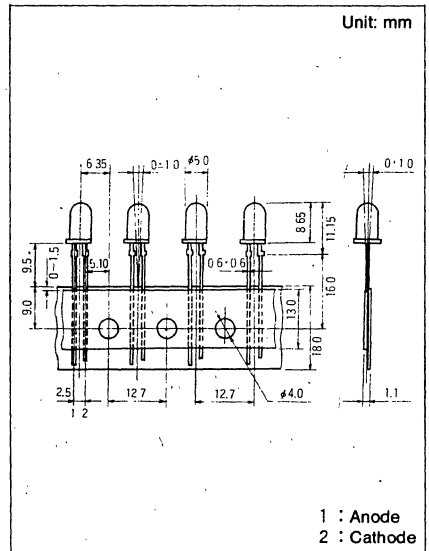
丸形 Round Type φ 5.0mm Series

Type No. Lighting Color
 LN21RPH-(TD)Red
 LN31GPH-(TD)Green
 LN41YPH-(TD)Amber
 LN81RPH-(TD)Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

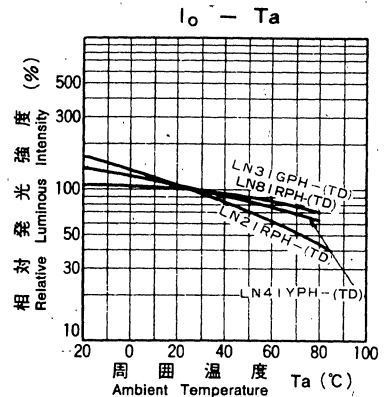
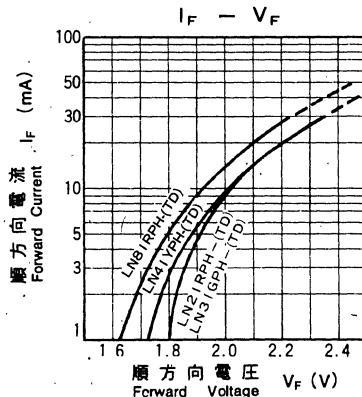
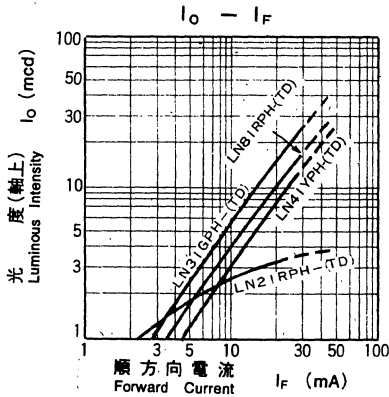
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



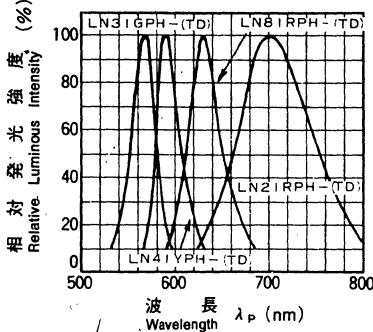
電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
△ LN21RPH-(TD)	Red	Red Diffused	3.0	1.0	15	2.2	2.8	700	100	20	5	4
△ LN31GPH-(TD)	Green	Green Diffused	15.0	3.0	20	2.2	2.8	565	30	20	10	4
△ LN41YPH-(TD)	Amber	Amber Diffused	8.0	3.0	20	2.2	2.8	590	30	20	10	4
LN81RPH-(TD)	Orange	Red Diffused	10.0	5.0	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

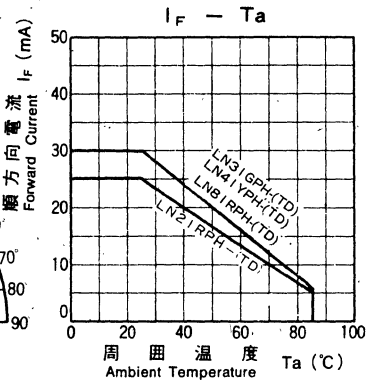
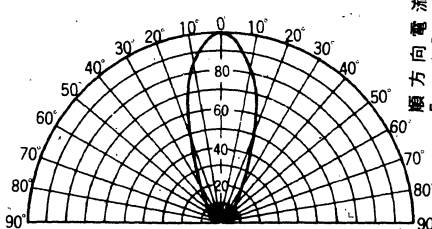
△印は暫定規格を示す。△ Tentative Specification



相対発光強度-波長特性
Relative Luminous Intensity
Wavelength Characteristics



指向特性
Directive Characteristics



丸形 Round Type

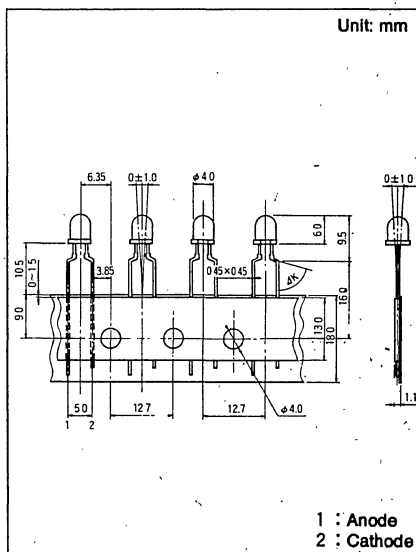
φ 4.0mm Series

Type No. Lighting Color
 LN29RPX-(TA).....Red
 LN39GPX-(TA).....Green
 LN49YPX-(TA).....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

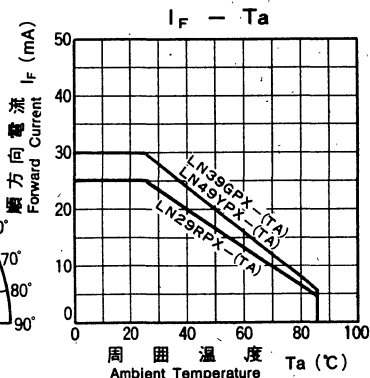
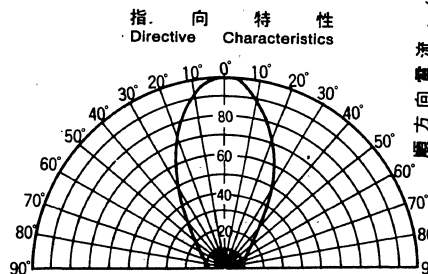
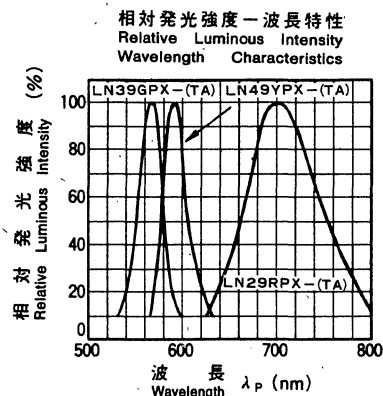
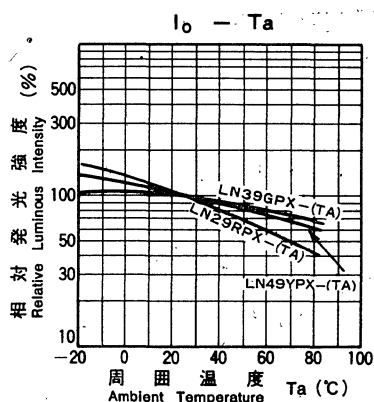
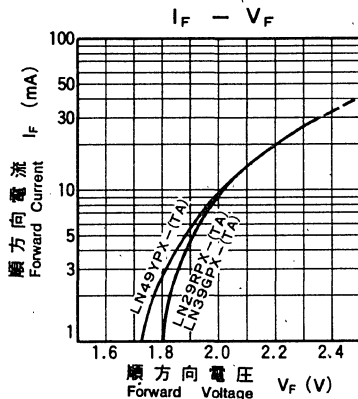
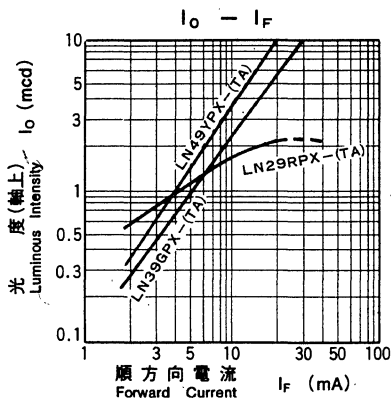
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _n	V _a
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN29RPX-(TA)	Red	Red Diffused	2.0	0.8	15	2.2	2.8	700	100	20	5	4
LN39GPX-(TA)	Green	Green Diffused	6.0	2.0	20	2.2	2.8	565	30	20	10	4
LN49YPX-(TA)	Amber	Amber Diffused	10.0	3.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



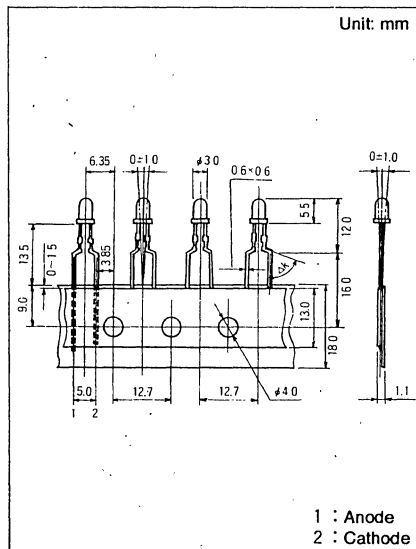
丸形 Round Type φ 3.0mm Series

Type No. Lighting Color
 LN28RPH-(TA).....Red
 LN38GPH-(TA).....Green
 LN48YPH-(TA).....Amber
 LN88RPH-(TA).....Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

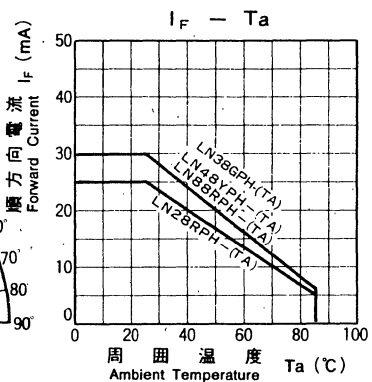
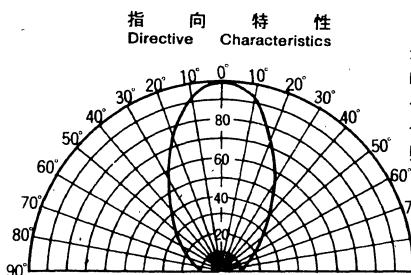
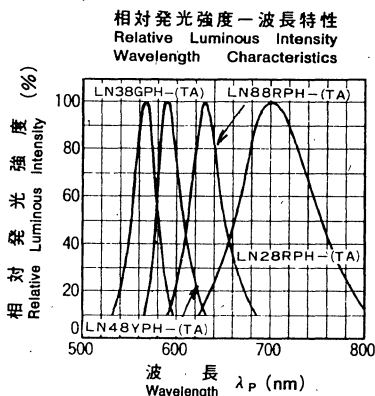
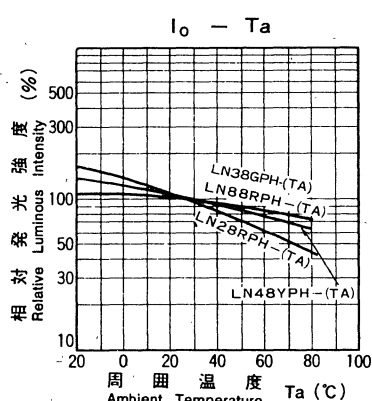
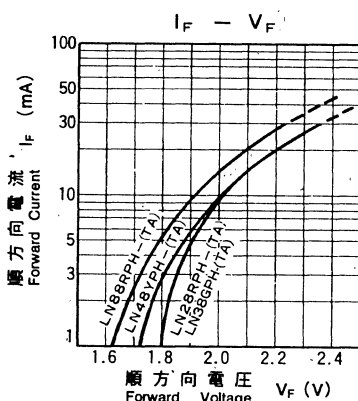
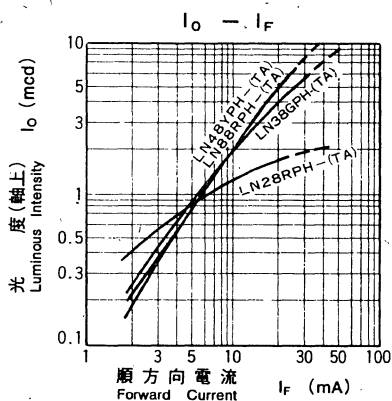
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN28RPH-(TA)	Red	Red Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN38GPH-(TA)	Green	Green Diffused	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN48YPH-(TA)	Amber	Amber Diffused	5.0	1.9	20	2.2	2.8	590	30	20	10	4
LN88RPH-(TA)	Orange	Red Diffused	5.0	1.9	20	2.1	2.8	630	40	20	10	3
Unit			mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



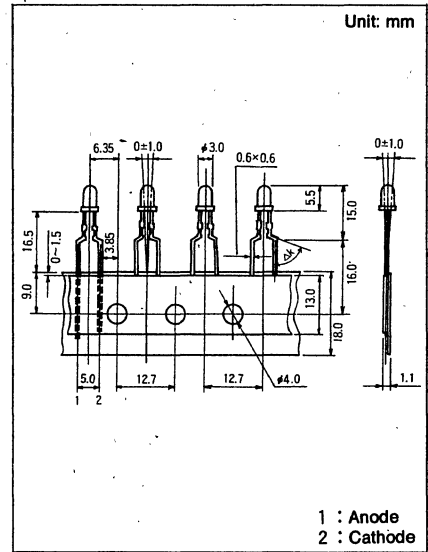
丸形 Round Type φ 3.0mm Series

Type No.	Lighting Color
LN28RPH-(TA2)	Red
LN38GPH-(TA2)	Green
LN48YPH-(TA2)	Amber
LN83RPH-(TA2)	Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

Lighting Color	P _D (mW)	I _F (mA)	I _{PP} (mA)*	V _R (V)	T _{op} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

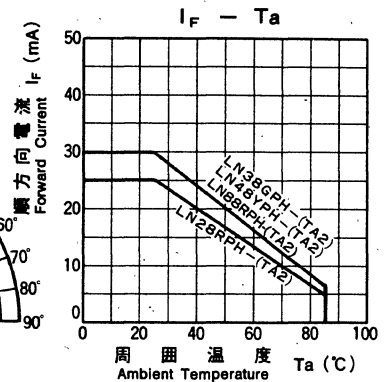
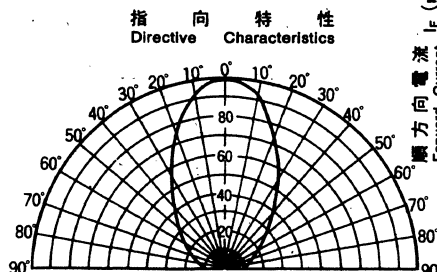
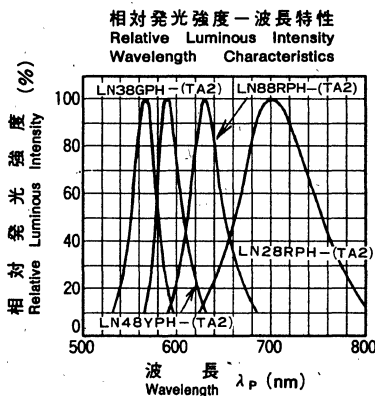
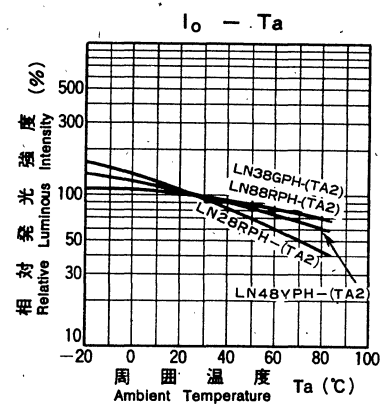
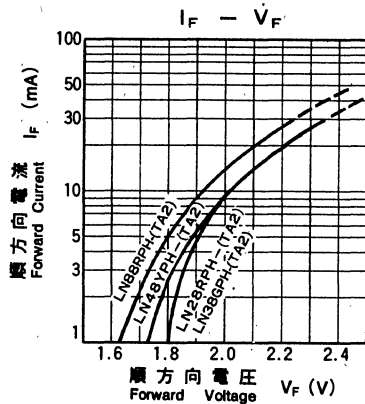
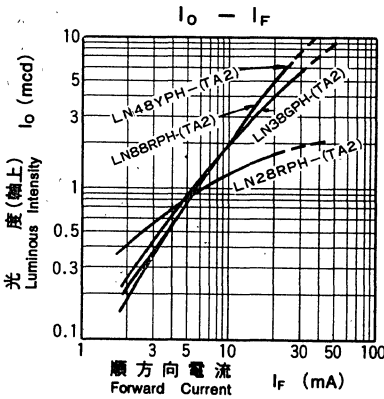
* I_{PP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{PP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25°C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _a	V _R
			Typ.	Min.	I _r	Typ.	Max.	Typ.	Typ.			
LN28RPH-(TA2)	Red	Red Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN38GPH-(TA2)	Green	Green Diffused	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN48YPH-(TA2)	Amber	Amber Diffused	5.0	1.9	20	2.2	2.8	590	30	20	10	4
LN83RPH-(TA2)	Orange	Red Diffused	5.0	1.9	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



丸形 Round Type φ 3.0mm Series

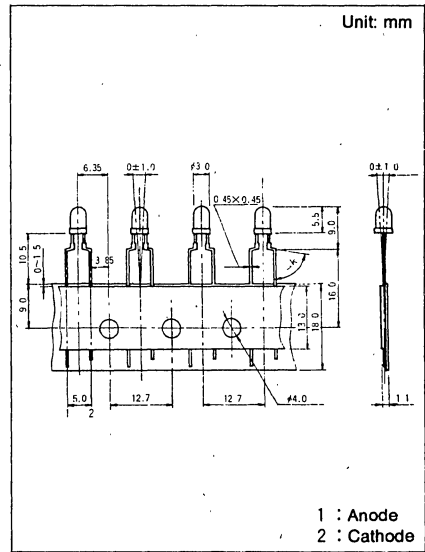
Type No. Lighting Color

- LN28RPX-(TA3)Red
- LN38GPX-(TA3)Green
- LN48YPX-(TA3)Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

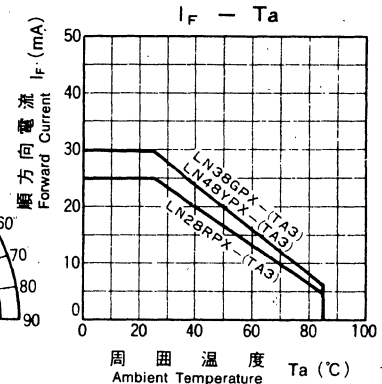
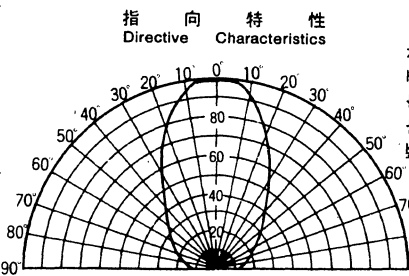
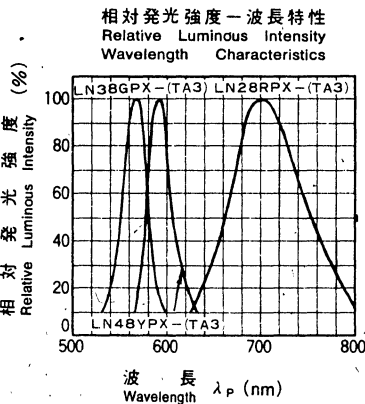
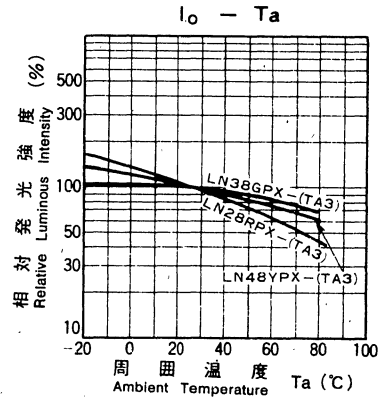
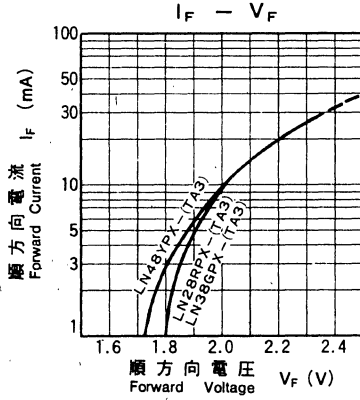
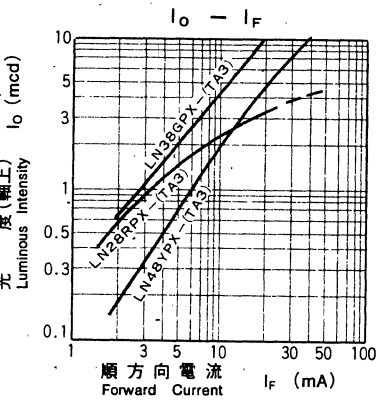
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

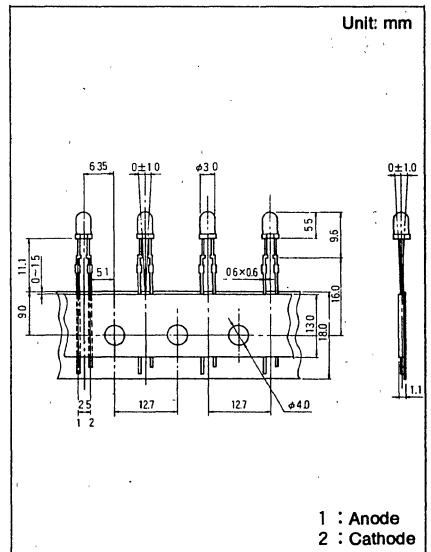
Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN28RPX-(TA3)	Red	Red Diffused	2.8	1.6	15	2.2	2.8	700	100	20	5	4
LN38GPX-(TA3)	Green	Green Diffused	10.0	5.6	20	2.2	2.8	565	30	20	10	4
LN48YPX-(TA3)	Amber	Amber Diffused	5.0	1.9	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



丸形 Round Type φ 3.0mm Series

Type No. Lighting Color
 LN28RPH-(TD) Red
 LN38GPH-(TD) Green
 LN48YPH-(TD) Amber
 LN88RPH-(TD) Orange



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

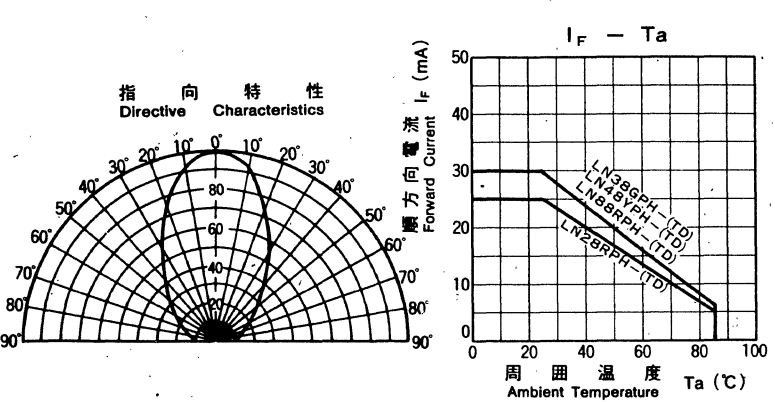
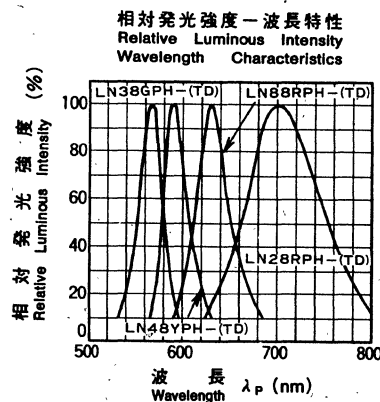
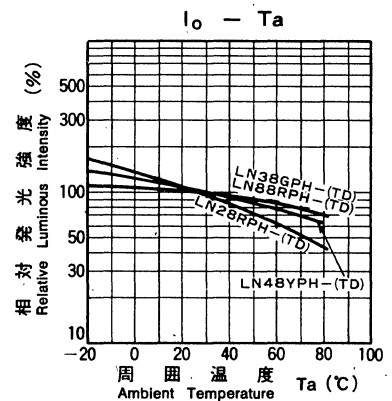
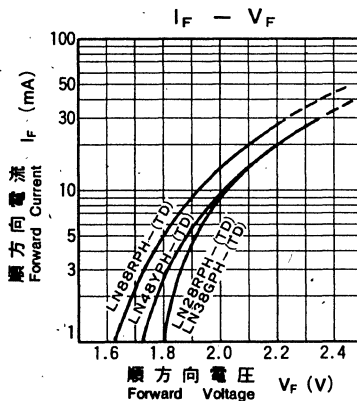
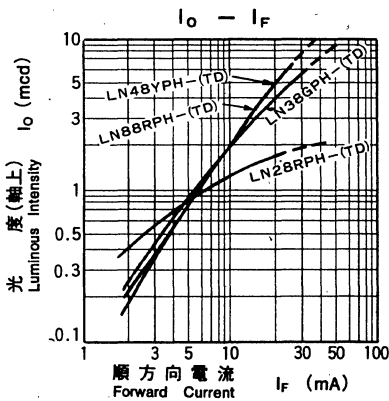
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FR} (mA)*	V _A (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FR}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FR} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.					
LN28RPH-(TD)	Red	Red Diffused	1.5	0.5	15	2.2	2.8	700	100	20	5	4
LN38GPH-(TD)	Green	Green Diffused	4.0	1.5	20	2.2	2.8	565	30	20	10	4
LN48YPH-(TD)	Amber	Amber Diffused	5.0	1.9	20	2.2	2.8	590	30	20	10	4
LN88RPH-(TD)	Orange	Red Diffused	5.0	1.9	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



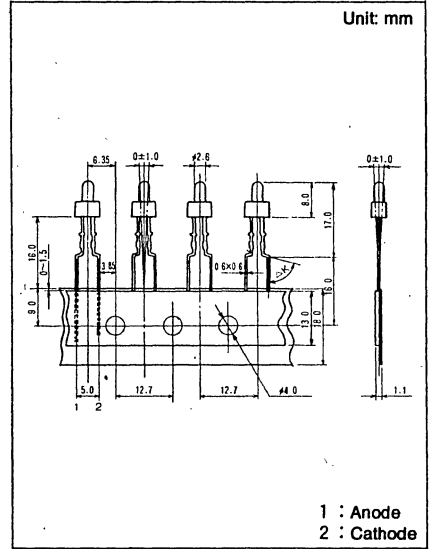
丸形 Round Type φ 2.6mm Series

Type No. Lighting Color
 LN221RPH-(TA).....Red
 LN321GPH-(TA).....Green
 LN421YPH-(TA).....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

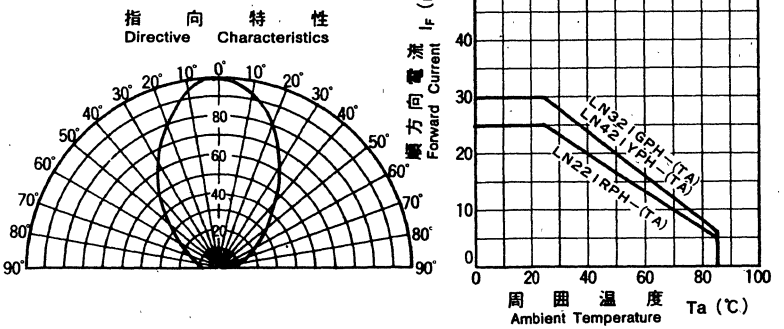
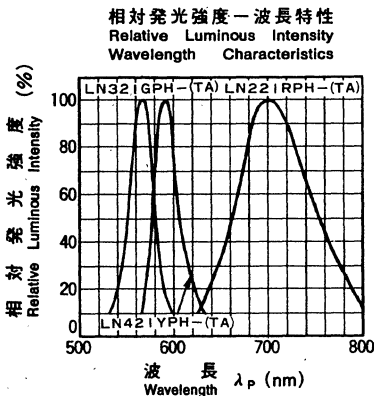
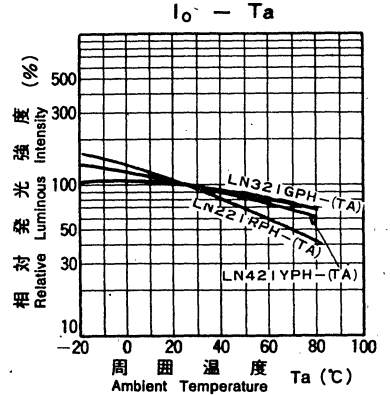
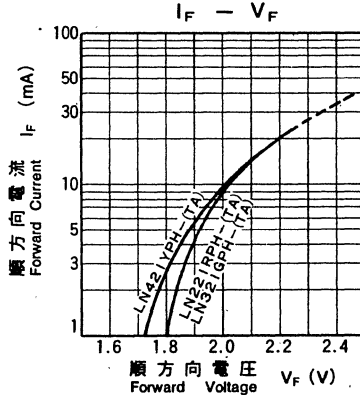
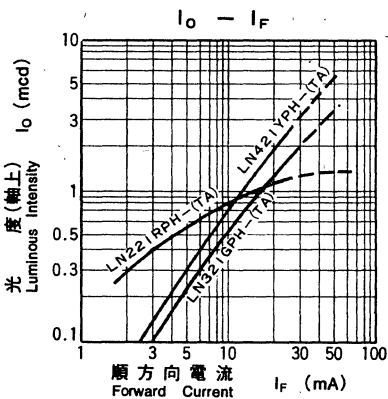


1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

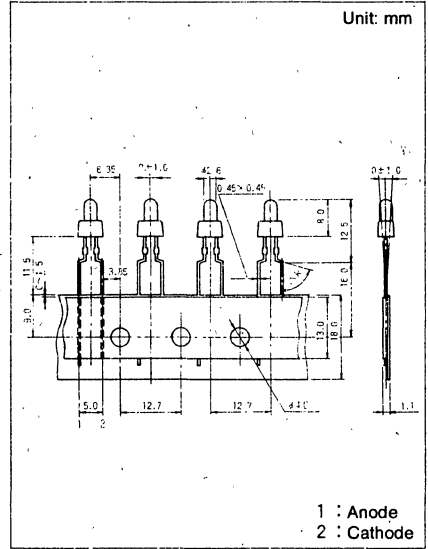
Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN221RPH-(TA)	Red	Red Diffused	1.0	0.5	15	2.2	2.8	700	100	20	5	4
LN321GPH-(TA)	Green	Green Diffused	1.2	0.5	20	2.2	2.8	565	30	20	10	4
LN421YPH-(TA)	Amber	Amber Diffused	2.0	1.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



丸形 Round Type
 ϕ 2.6mm Series

Type No. Lighting Color
 LN221RPX-(TA2).....Red
 LN321GPX-(TA2).....Green
 LN421YPX-(TA2).....Amber



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

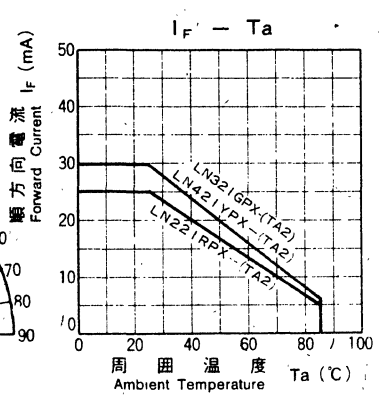
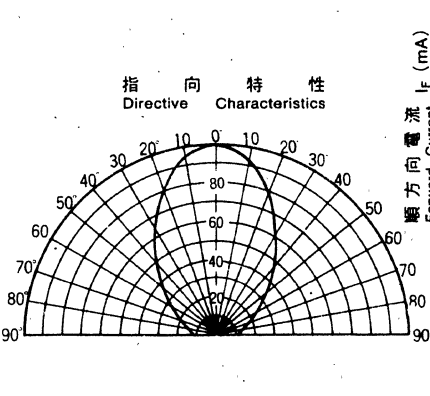
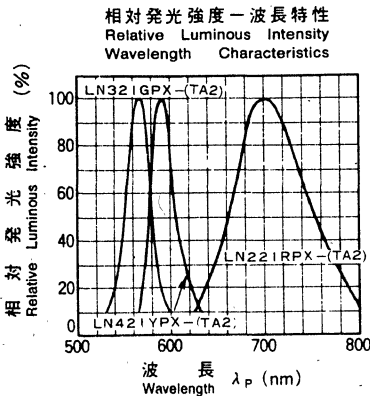
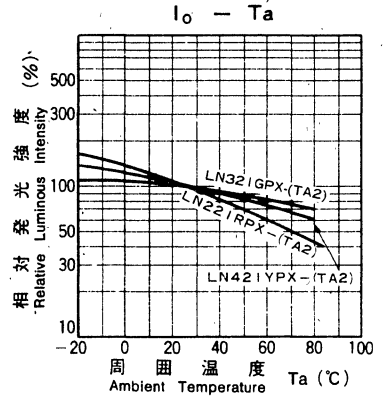
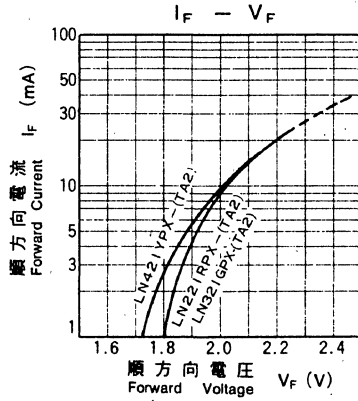
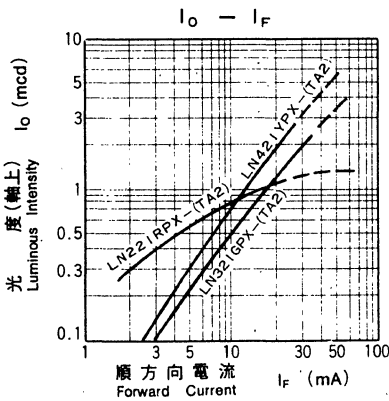
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ_p	$\Delta \lambda$	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN221RPX-(TA2)	Red	Red Diffused	1.0	0.5	15	2.2	2.8	700	100	20	5	4
LN321GPX-(TA2)	Green	Green Diffused	1.2	0.5	20	2.2	2.8	565	30	20	10	4
LN421YPX-(TA2)	Amber	Amber Diffused	2.0	1.0	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V

△印は暫定規格を示す。△ Tentative Specification



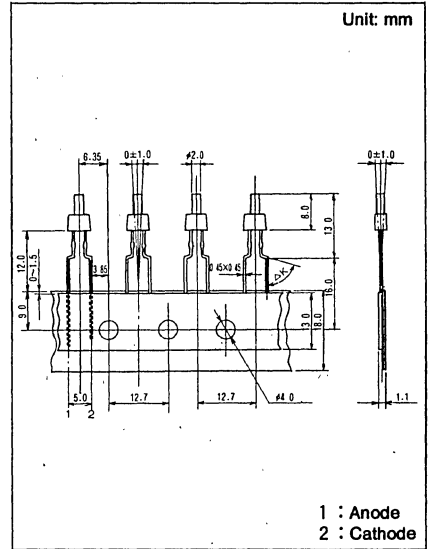
丸形 Round Type φ 2.0mm Series

Type No. Lighting Color
 LN222RPX-(TA)Red
 LN322GPX-(TA)Green
 LN422YPX-(TA)Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

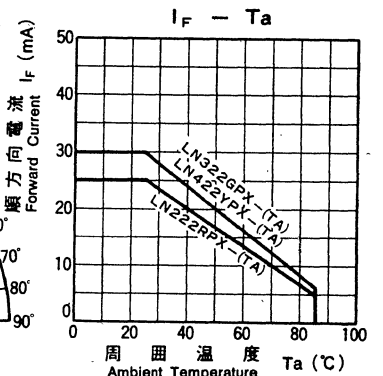
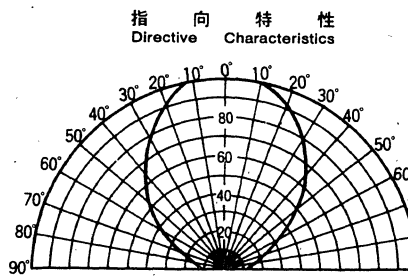
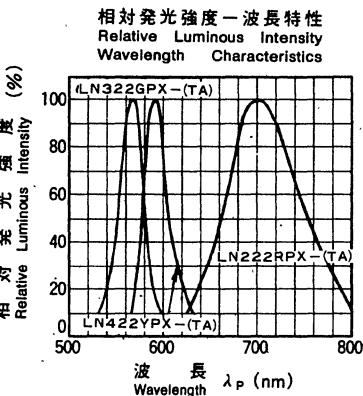
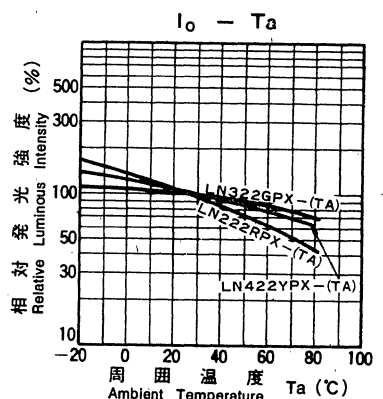
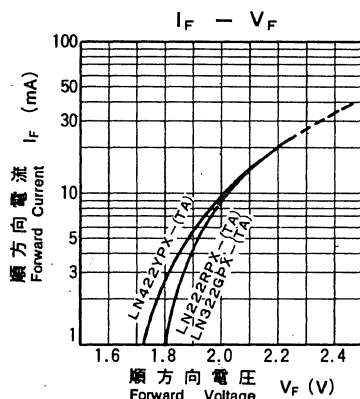
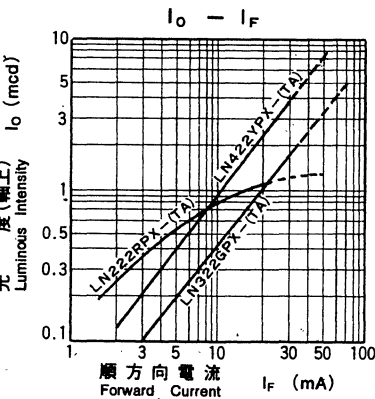
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN222RPX-(TA)	Red	Red Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN322GPX-(TA)	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4
LN422YPX-(TA)	Amber	Amber Diffused	2.5	1.2	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



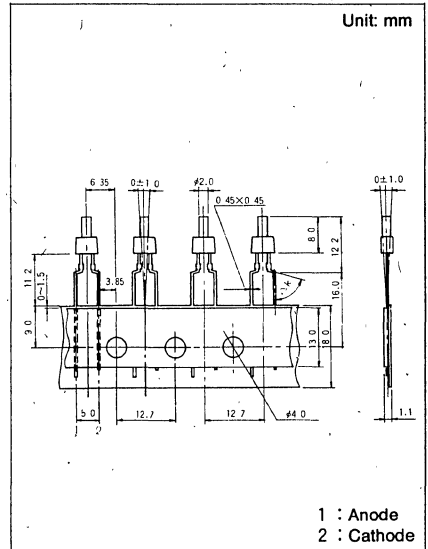
丸形 Round Type φ 2.0mm Series

Type No. Lighting Color
 LN222RPX—(TA2)……Red
 LN322GPX—(TA2)……Green
 LN422YPX—(TA2)……Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

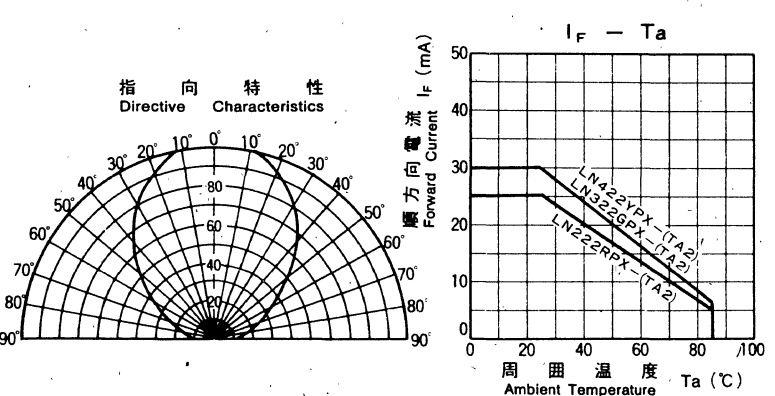
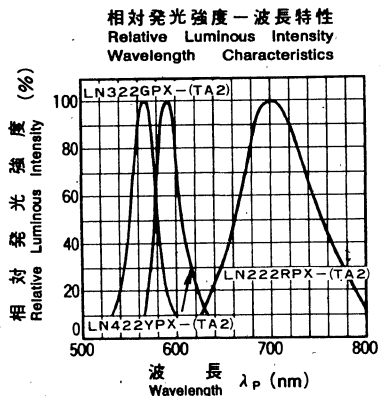
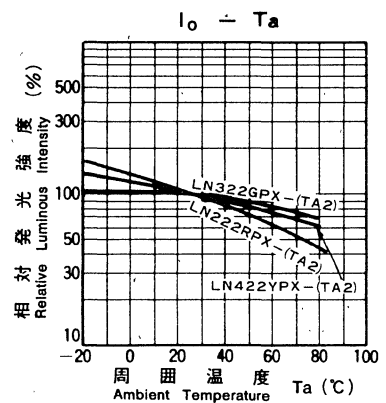
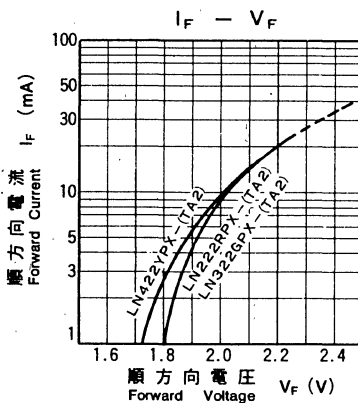
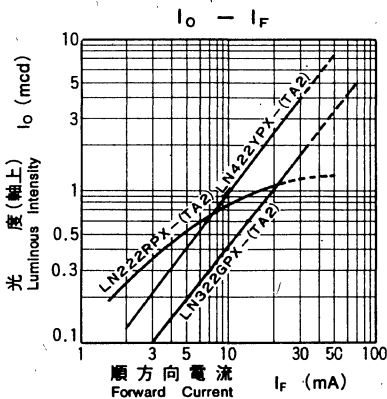
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN222RPX—(TA2)	Red	Red Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN322GPX—(TA2)	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4
LN422YPX—(TA2)	Amber	Amber Diffused	2.5	1.2	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



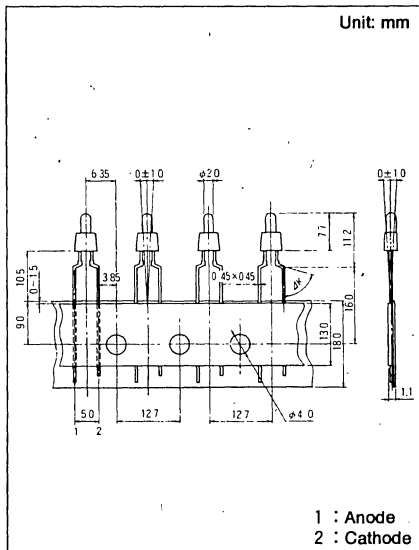
丸形 Round Type
φ 2.0mm Series

Type No. Lighting Color
LN282RPX-(TA)Red
LN382GPX-(TA)Green
LN482YPX-(TA)Amber
LN882RPX-(TA)Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100
Orange	90	30	150	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

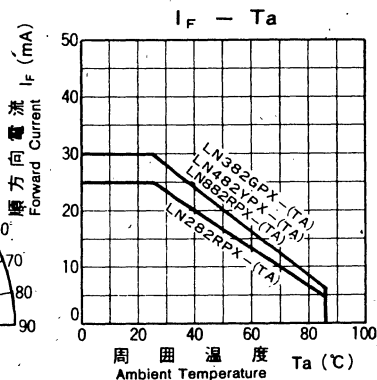
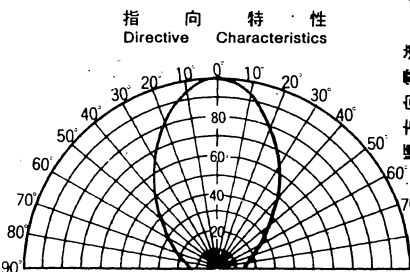
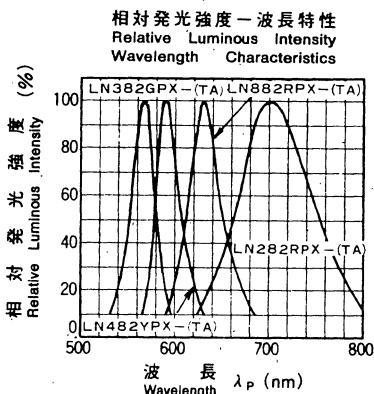
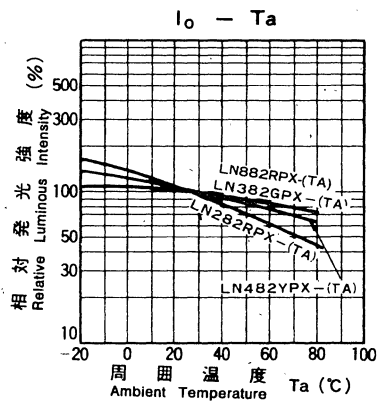
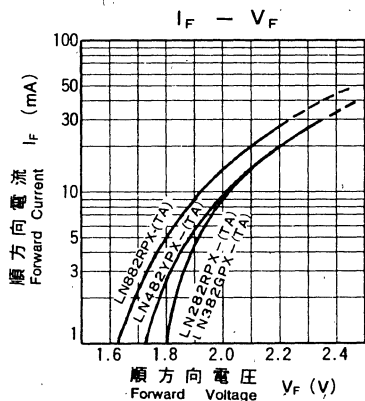
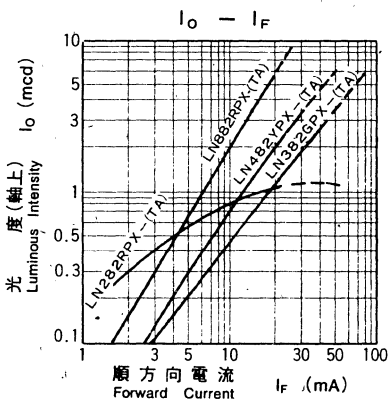


1 : Anode
2 : Cathode

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _O			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN282RPX-(TA)	Red	Red Diffused	1.0	0.5	15	2.2	2.8	700	100	20	5	4
LN382GPX-(TA)	Green	Green Diffused	1.2	0.5	20	2.2	2.8	565	30	20	10	4
LN482YPX-(TA)	Amber	Amber Diffused	2.0	1.0	20	2.2	2.8	590	30	20	10	4
LN882RPX-(TA)	Orange	Red Diffused	6.0	2.5	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

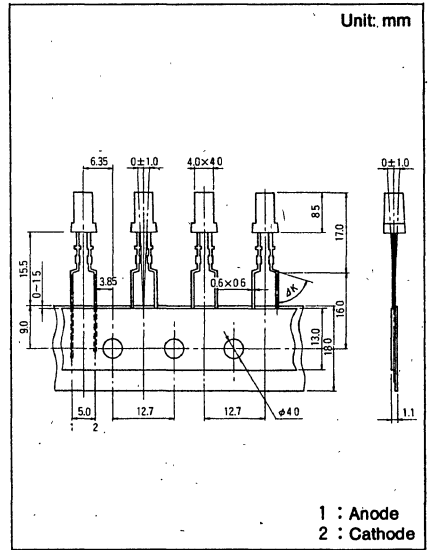
△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

□ 4.0mm×4.0mm Series

Type No. Lighting Color
 LN252RPH-(TA).....Red
 LN352GPH-(TA).....Green
 LN452YPH-(TA).....Amber



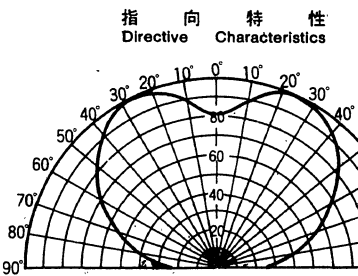
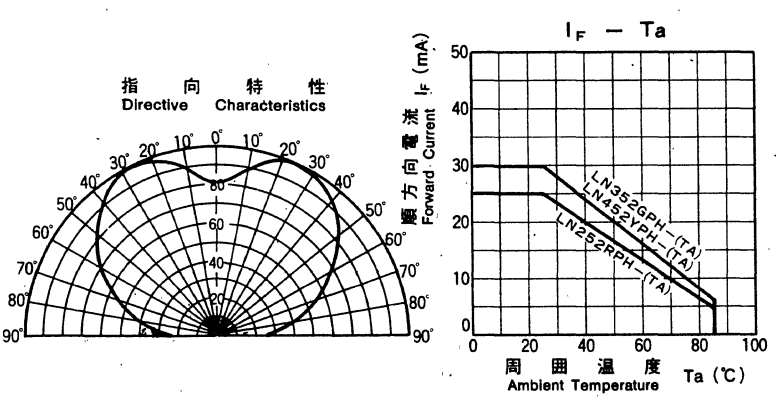
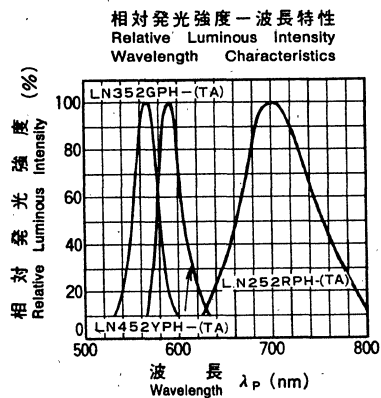
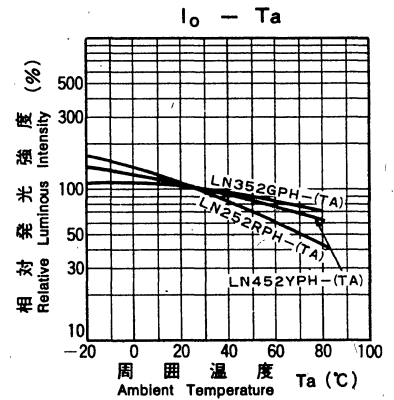
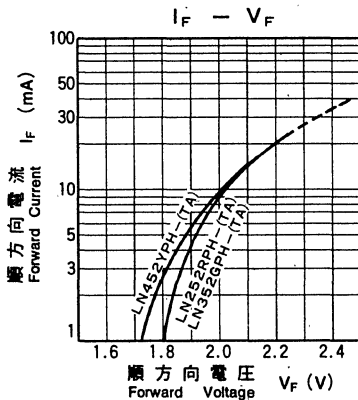
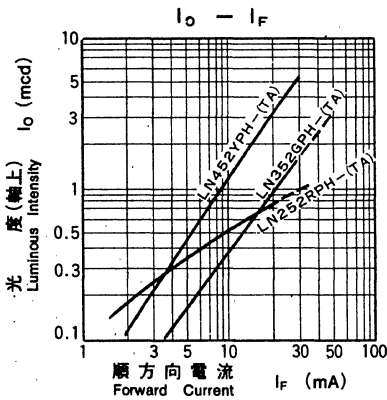
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN252RPH-(TA)	Red	Red Diffused	0.6	0.25	15	2.2	2.8	700	100	20	5	4
LN352GPH-(TA)	Green	Green Diffused	1.0	0.40	20	2.2	2.8	565	30	20	10	4
LN452YPH-(TA)	Amber	Amber Diffused	3.0	1.00	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

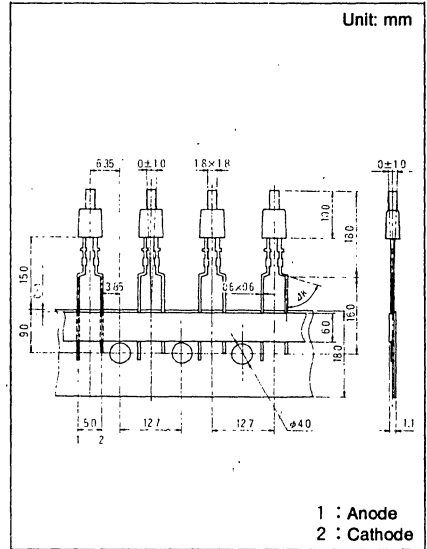
□ 1.8mm×1.8mm Series

Type No. Lighting Color
 LN265RPH-(TT) Red
 LN365GPH-(TT) Green
 LN465YPH-(TT) Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

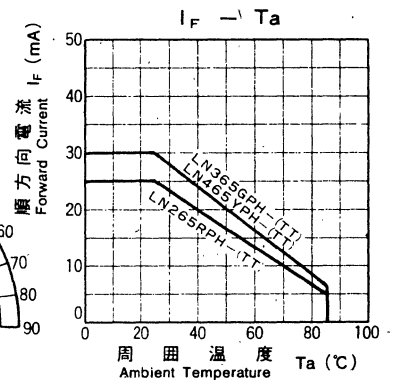
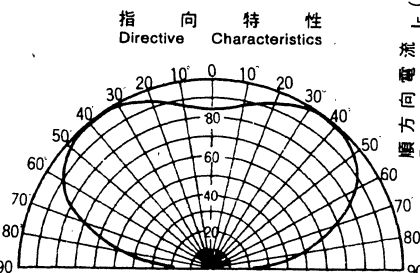
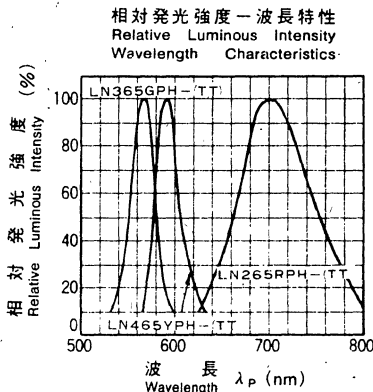
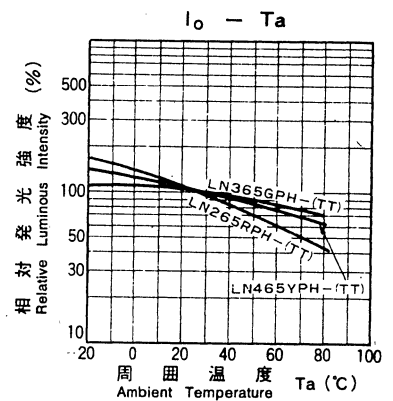
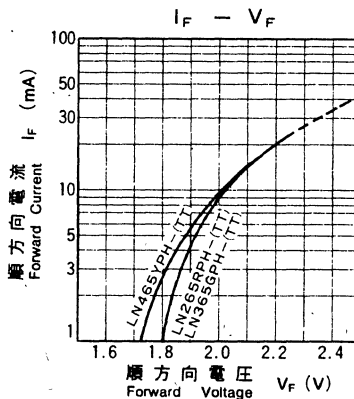
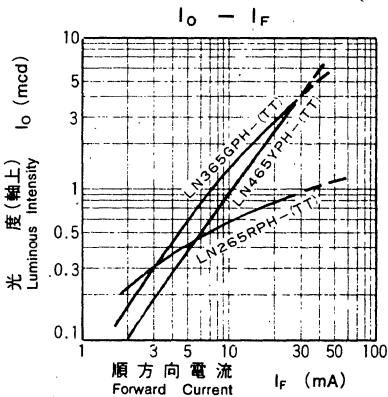
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN265RPH-(TT)	Red	Red Diffused	0.7	0.2	15	2.2	2.8	700	100	20	5	4
LN365GPH-(TT)	Green	Green Diffused	3.0	1.0	20	2.2	2.8	565	30	20	10	4
LN465YPH-(TT)	Amber	Amber Diffused	2.5	0.9	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

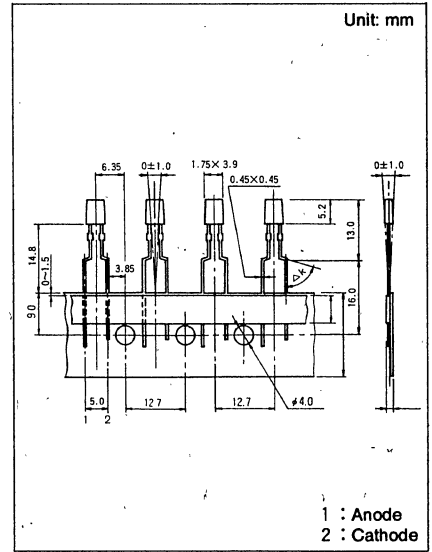
△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

□ 1.75mm×3.9mm Series

Type No. Lighting Color
 LN275RPX-(TT)Red
 LN375GPX-(TT)Green
 LN475YPX-(TT)Amber



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

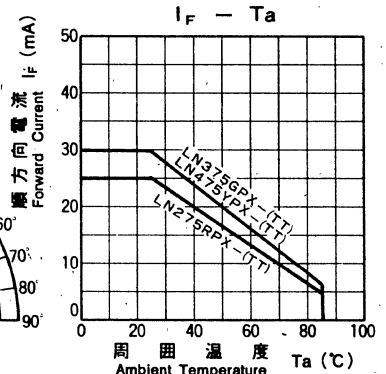
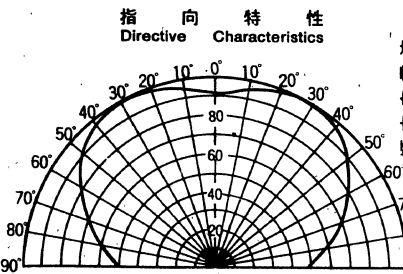
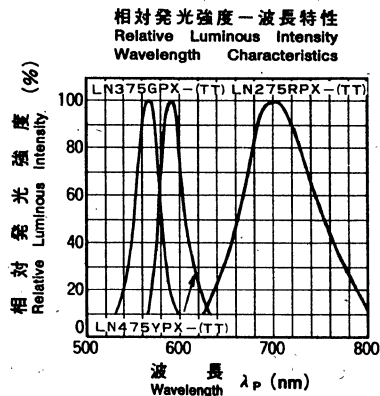
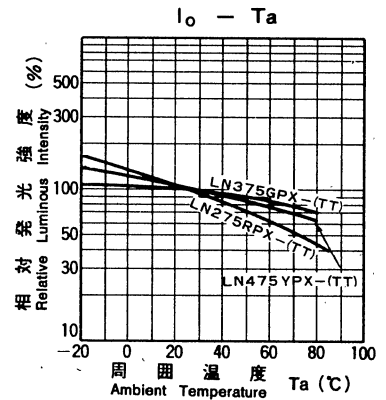
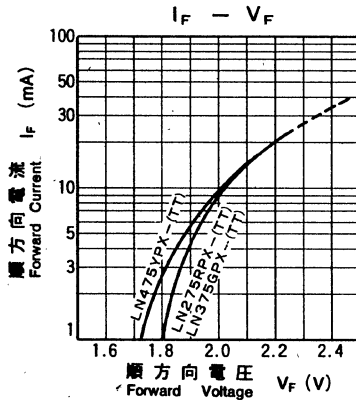
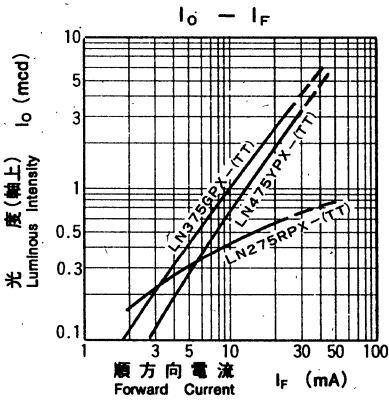
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec.

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN275RPX-(TT)	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN375GPX-(TT)	Green	Green Diffused	2.5	0.9	20	2.2	2.8	565	30	20	10	4
LN475YPX-(TT)	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

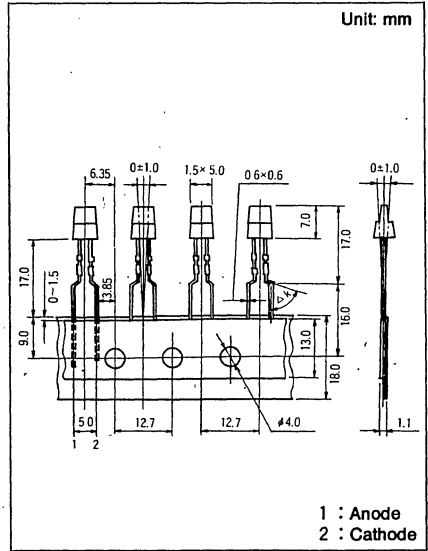
□ 1.5mm×5.0mm Series

Type No. Lighting Color
 LN229RPH-(TA).....Red
 LN329GPH-(TA).....Green
 LN429YPH-(TA).....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

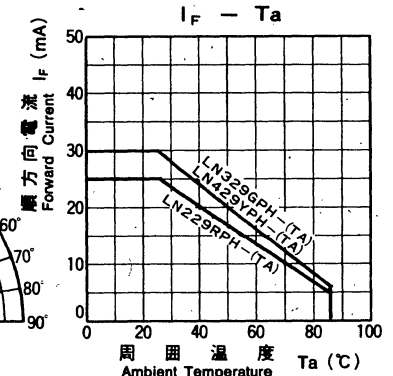
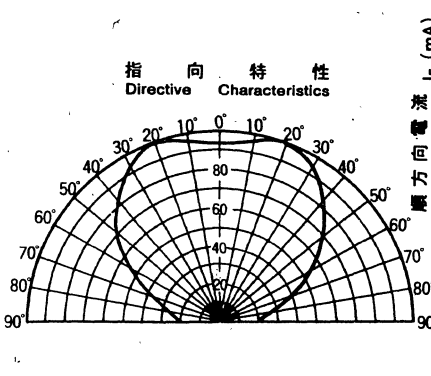
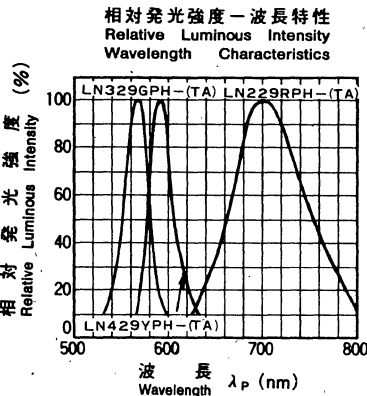
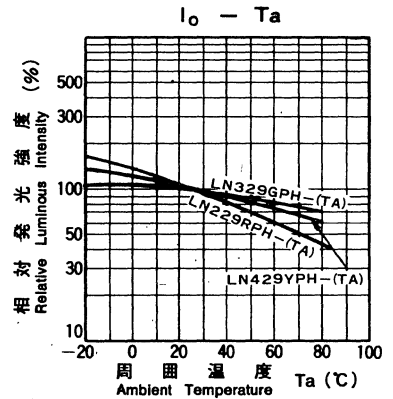
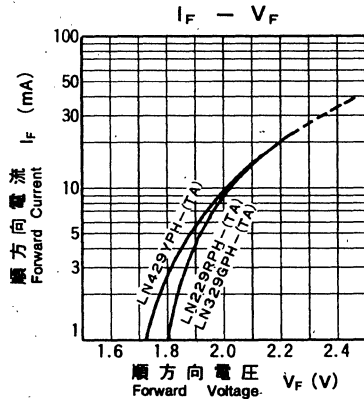
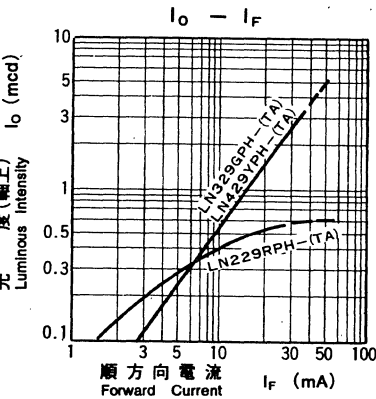
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的・光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	Max.	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN229RPH-(TA)	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN329GPH-(TA)	Green	Green Diffused	1.5	0.5	20	2.2	2.8	565	30	20	10	4
LN429YPH-(TA)	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

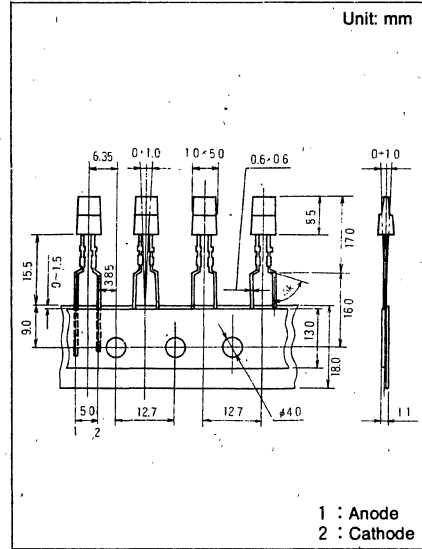
□ 1.0mm×5.0mm Series

Type No. Lighting Color
 LN224RPH-(TA).....Red
 LN324GPH-(TA).....Green
 LN424YPH-(TA).....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

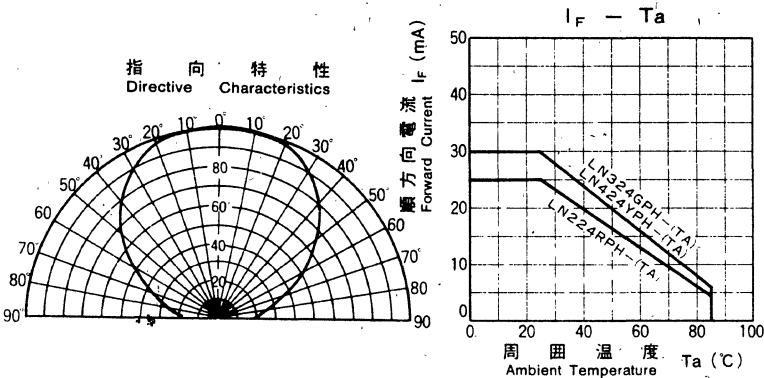
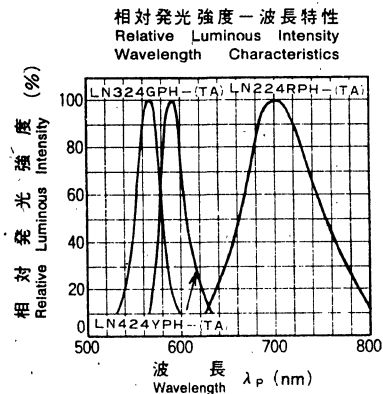
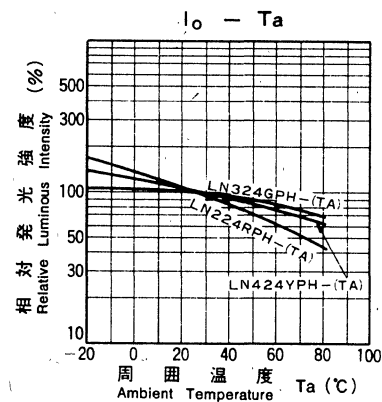
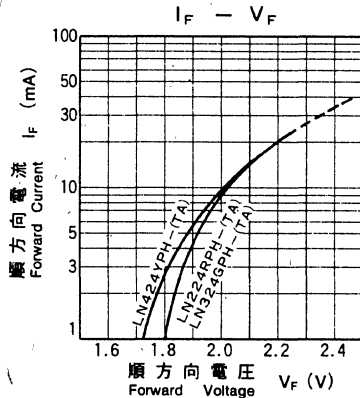
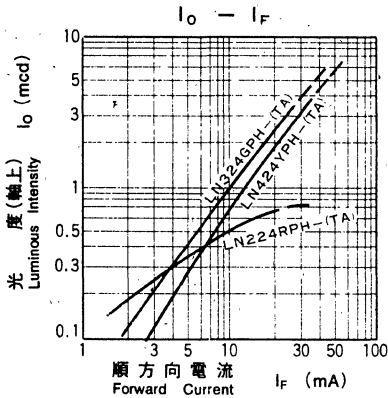
* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN224RPH-(TA)	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN324GPH-(TA)	Green	Green Diffused	2.5	1.0	20	2.2	2.8	565	30	20	10	4
LN424YPH-(TA)	Amber	Amber Diffused	2.0	0.7	20	2.2	2.8	590	30	20	10	4
Unit			mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



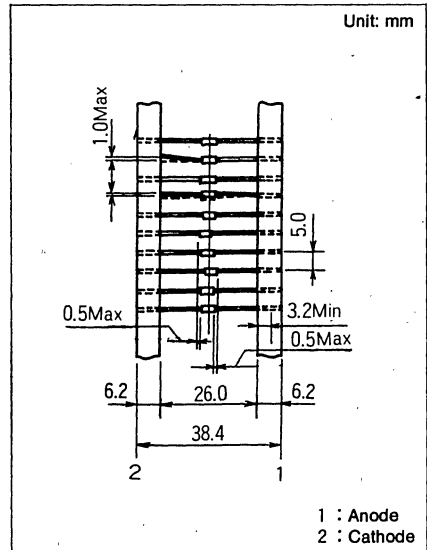
小形 Small Type

Type No.	Lighting Color
LN2G-(TA)	Red
LN3G-(TA)	Green
LN4G-(TA)	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	24	10	60	4	-25~+85	-30~+100
Green	30	10	60	4	-25~+85	-30~+100
Amber	30	10	60	4	-25~+85	-30~+100

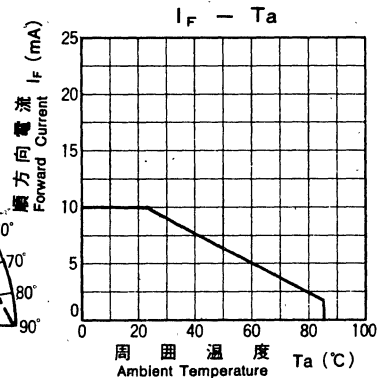
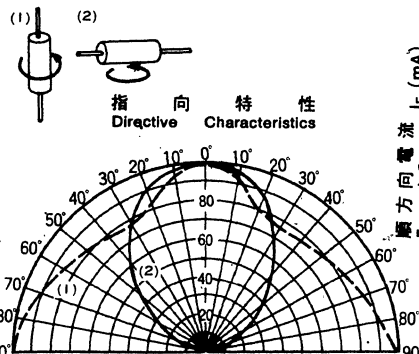
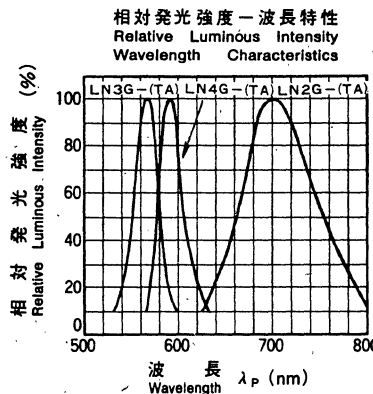
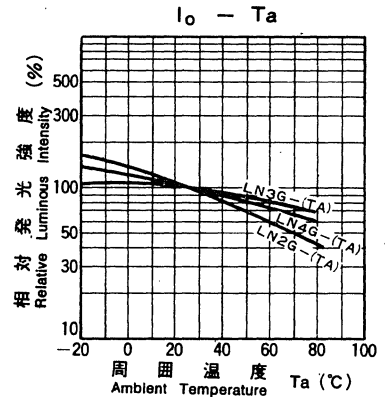
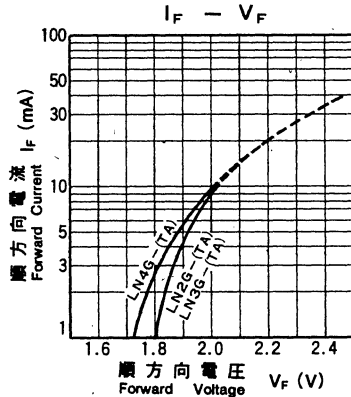
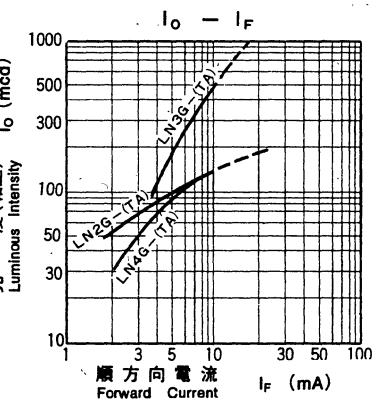
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN2G-(TA)	Red	Clear	100	30	5	2.0	2.4	700	100	10	10	4
LN3G-(TA)	Green	Clear	200	30	5	2.0	2.4	565	30	10	10	4
LN4G-(TA)	Amber	Clear	90	30	5	2.0	2.4	590	30	10	10	4
Unit	—	—	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



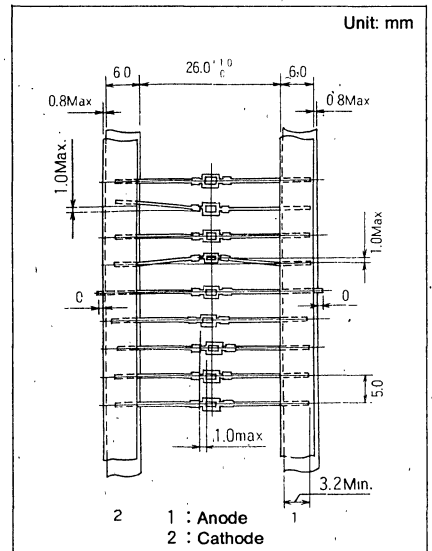
小形 Small Type

Type No. Lighting Color
 LN01201C(Q)-(TA) ... Red
 LN01301C(Q)-(TA) ... Green
 LN01401C(Q)-(TA) ... Amber
 LN01801C(Q)-(TA) ... Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

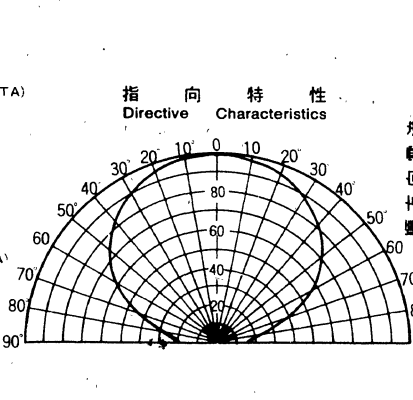
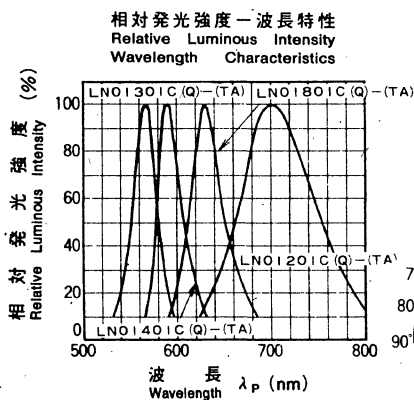
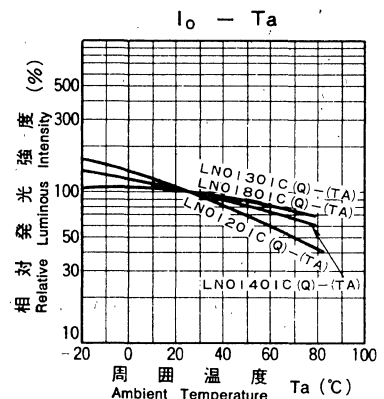
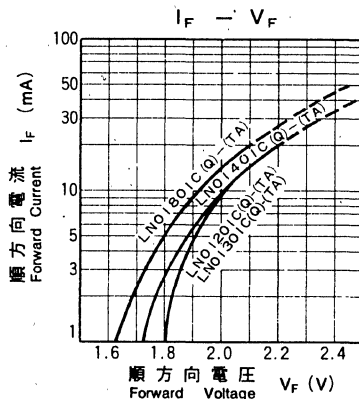
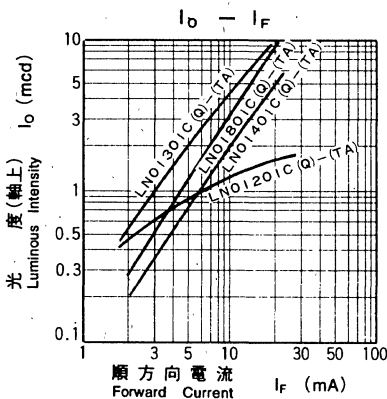
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	4	-25~+85	-30~+100
Green	60	20	100	4	-25~+85	-30~+100
Amber	60	20	100	4	-25~+85	-30~+100
Orange	60	20	100	3	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _R		
			Typ.	Min.	I _F	Typ.	Max.			I _F	Max.	V _R
LN01201C(Q)-(TA)	Red	Clear	1.5	0.65	15	2.2	2.8	700	100	20	10	4
LN01301C(Q)-(TA)	Green	Clear	10.0	3.50	20	2.2	2.8	565	30	20	10	4
LN01401C(Q)-(TA)	Amber	Clear	5.0	1.90	20	2.2	2.8	590	30	20	10	4
LN01801C(Q)-(TA)	Orange	Clear	8.0	3.00	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



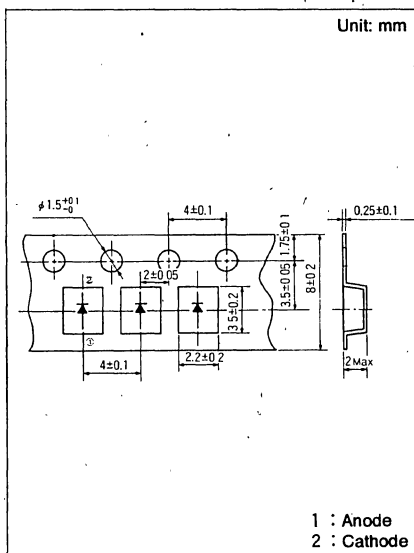
小形 Small Type

Type No. Lighting Color
 LN1251C-(TR) Red
 LN1351C-(TR) Green
 LN1451C-(TR) Amber
 LN1851C-(TR) Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

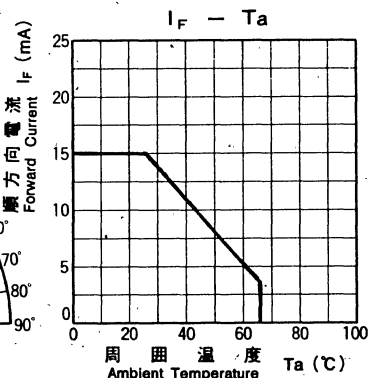
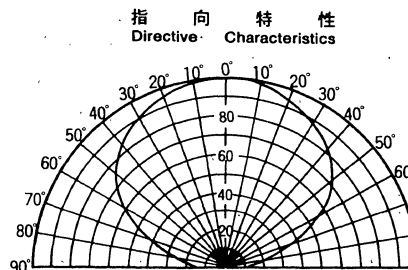
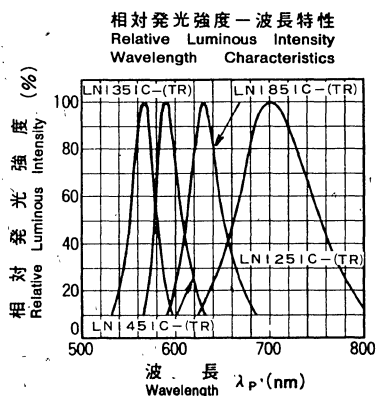
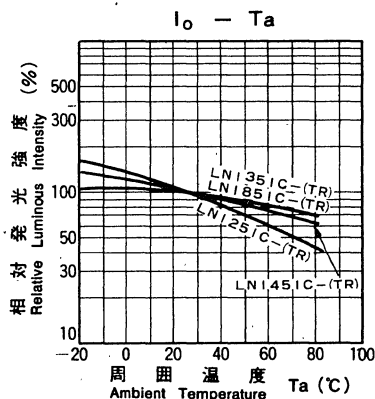
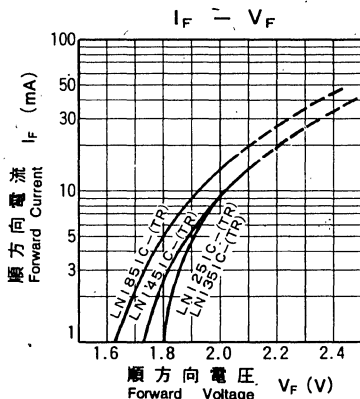
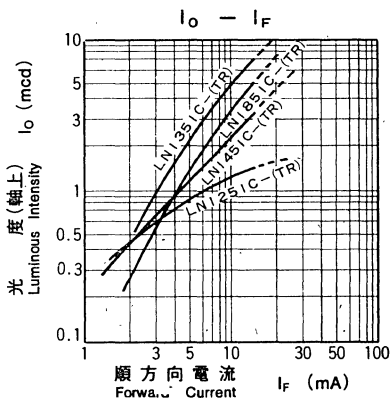
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	45	15	60	4	-25~+65	-30~+75
Green	45	15	60	4	-25~+65	-30~+75
Amber	45	15	60	4	-25~+65	-30~+75
Orange	45	15	60	3	-25~+65	-30~+75

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN1251C-(TR)	Red	Clear	1.2	0.45	10	2.10	2.8	700	100	15	10	4
LN1351C-(TR)	Green	Clear	5.0	1.90	10	2.10	2.8	565	30	15	10	4
LN1451C-(TR)	Amber	Clear	2.2	0.80	10	2.10	2.8	590	30	15	10	4
LN1851C-(TR)	Orange	Clear	3.5	1.30	10	2.05	2.8	630	40	15	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



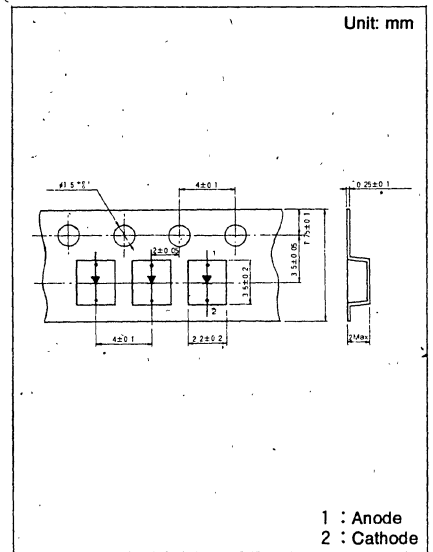
小形 Small Type

Type No. Lighting Color
 LN1251C-(TL).....Red
 LN1351C-(TL).....Green
 LN1451C-(TL).....Amber
 LN1851C-(TL).....Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	45	15	60	4	-25~+65	-30~+75
Green	45	15	60	4	-25~+65	-30~+75
Amber	45	15	60	4	-25~+65	-30~+75
Orange	45	15	60	3	-25~+65	-30~+75

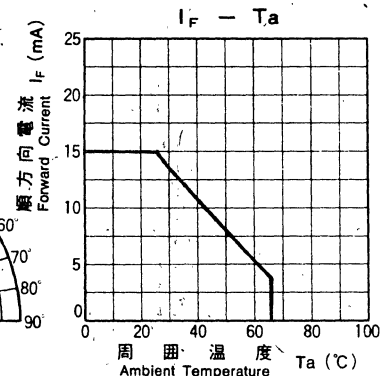
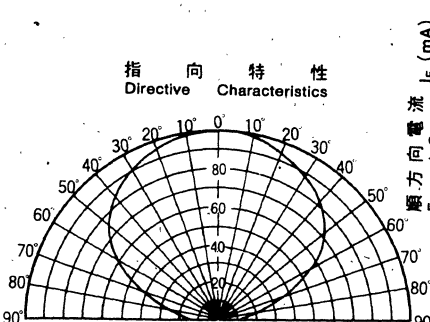
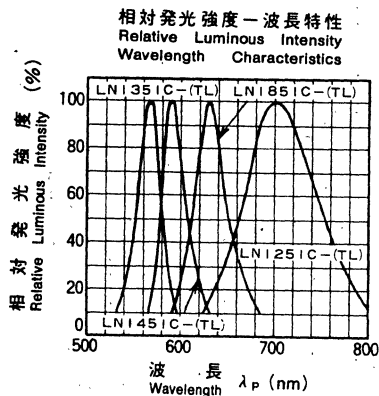
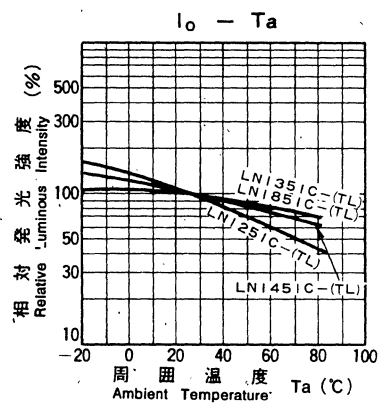
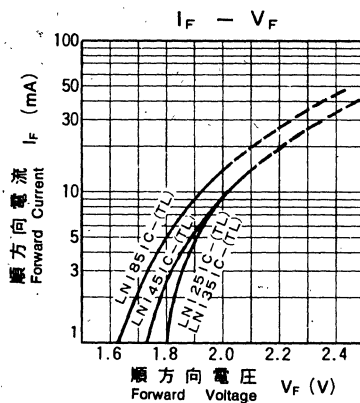
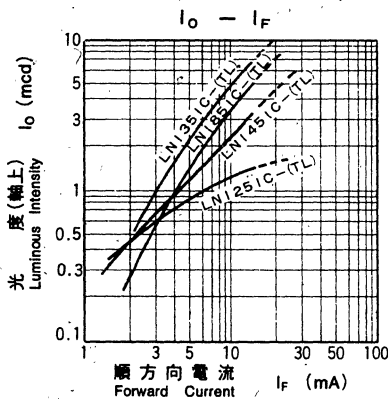
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN1251C-(TL)	Red	Clear	1.2	0.45	10	2.10	2.8	700	100	15	10	4
LN1351C-(TL)	Green	Clear	5.0	1.90	10	2.10	2.8	565	30	15	10	4
LN1451C-(TL)	Amber	Clear	2.2	0.80	10	2.10	2.8	590	30	15	10	4
LN1851C-(TL)	Orange	Clear	3.5	1.30	10	2.05	2.8	630	40	15	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



小形 Small Type

Type No. Lighting Color
 LN1261C-(TR) Red
 LN1361C-(TR) Green
 LN1461C-(TR) Amber
 LN1861C-(TR) Orange

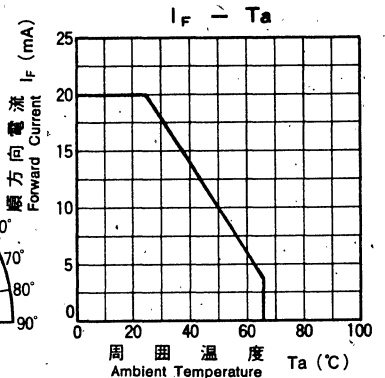
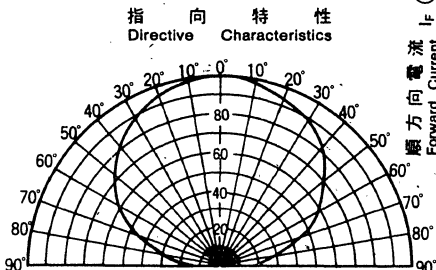
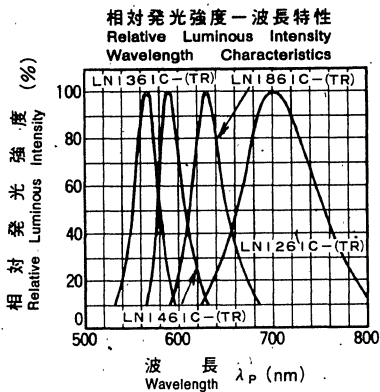
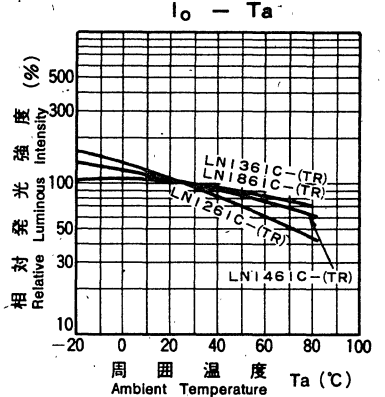
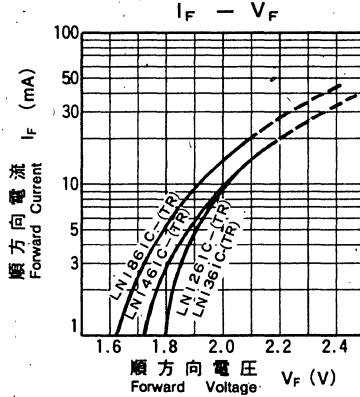
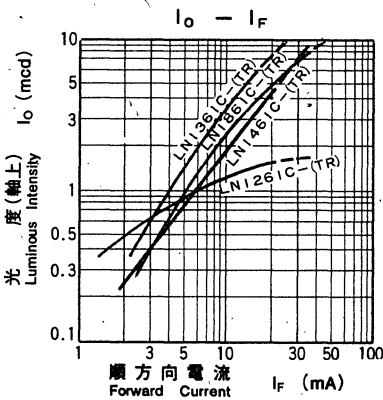
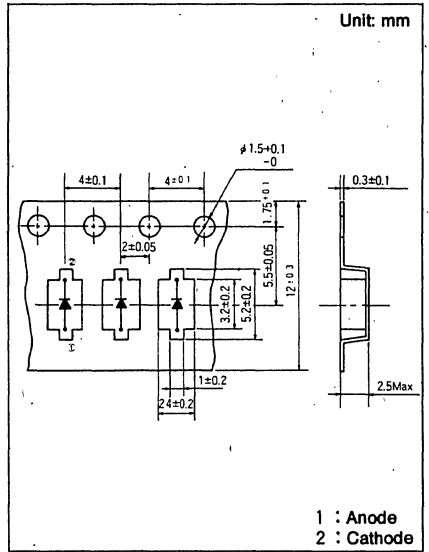
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	60	4	-25~+65	-30~+75
Green	60	20	60	4	-25~+65	-30~+75
Amber	60	20	60	4	-25~+65	-30~+75
Orange	60	20	60	3	-25~+65	-30~+75

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _r	I _h	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN1261C-(TR)	Red	Clear	1.4	0.5	15	2.2	2.8	700	100	20	10	4
LN1361C-(TR)	Green	Clear	7.5	2.8	20	2.2	2.8	565	30	20	10	4
LN1461C-(TR)	Amber	Clear	4.5	1.6	20	2.2	2.8	590	30	20	10	4
LN1861C-(TR)	Orange	Clear	5.0	1.9	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



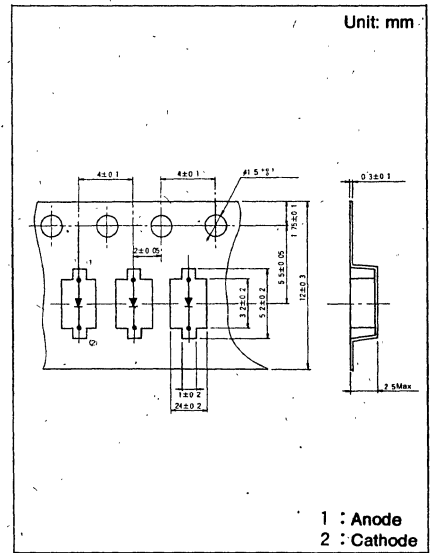
小形 Small Type

- Type No. Lighting Color
 LN1261C-(TL).....Red
 LN1361C-(TL).....Green
 LN1461C-(TL).....Amber
 LN1861C-(TL).....Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	60	4	-25~+65	-30~+75
Green	60	20	60	4	-25~+65	-30~+75
Amber	60	20	60	4	-25~+65	-30~+75
Orange	60	20	60	3	-25~+65	-30~+75

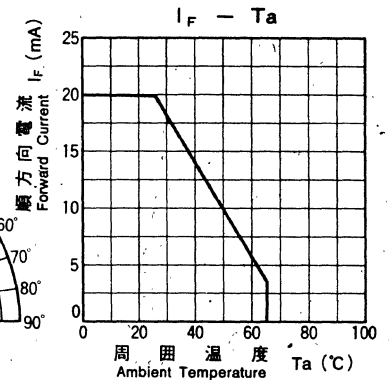
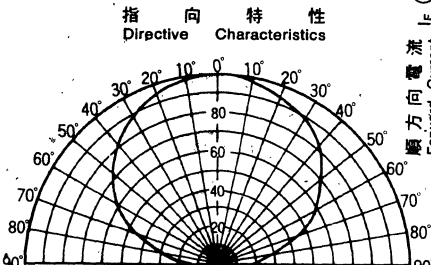
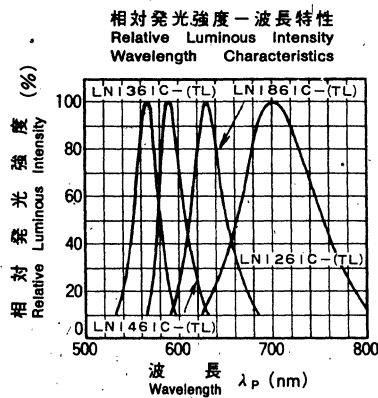
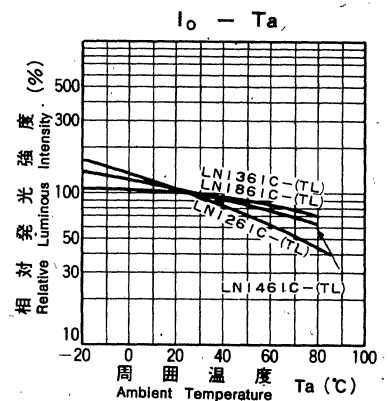
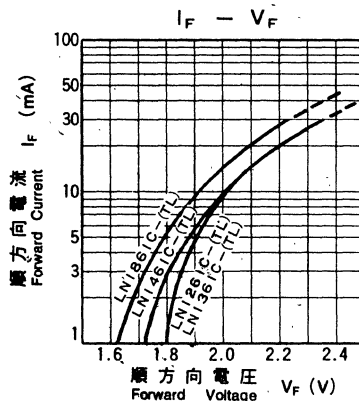
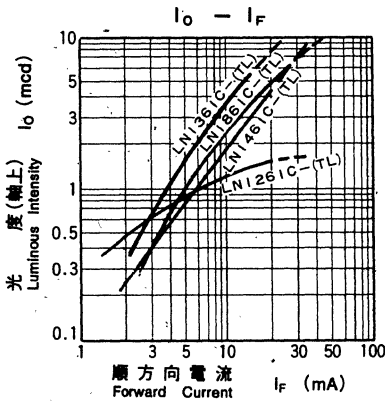
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p		I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN1261C-(TL)	Red	Clear	1.4	0.5	15	2.2	2.8	700	100	20	10	4
LN1361C-(TL)	Green	Clear	7.5	2.8	20	2.2	2.8	565	30	20	10	4
LN1461C-(TL)	Amber	Clear	4.5	1.6	20	2.2	2.8	590	30	20	10	4
LN1861C-(TL)	Orange	Clear	5.0	1.9	20	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



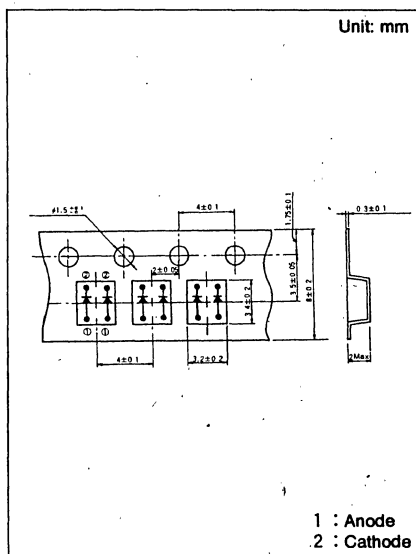
小形 Small Type (二色発光 Two Color Lighting)

Type No. Lighting Color
LN2152C13-(TR) Red, Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

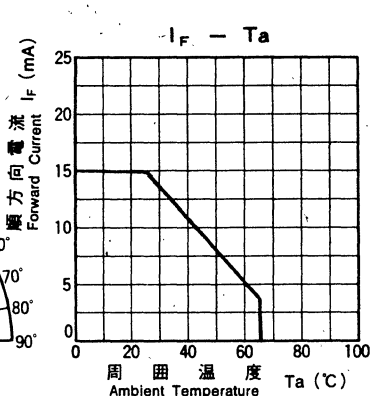
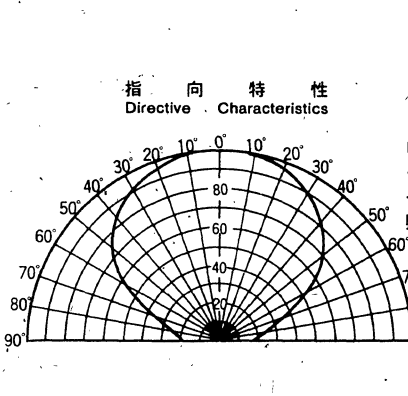
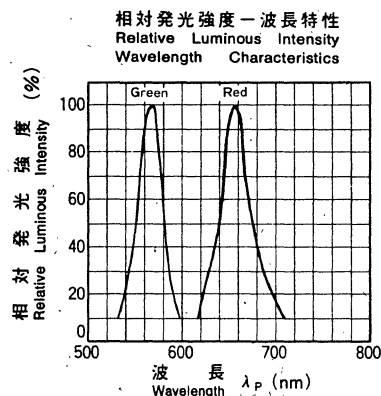
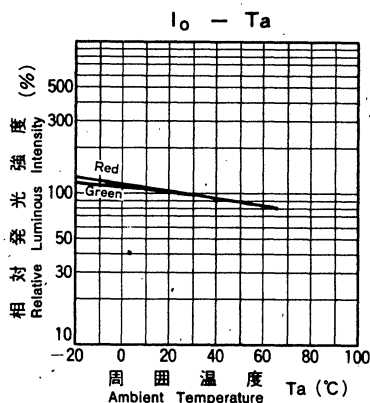
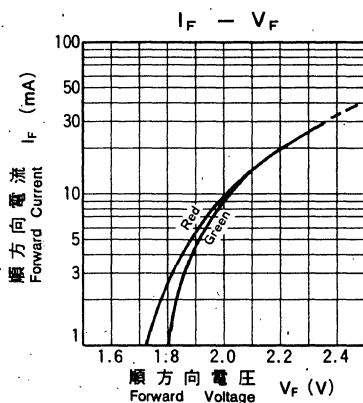
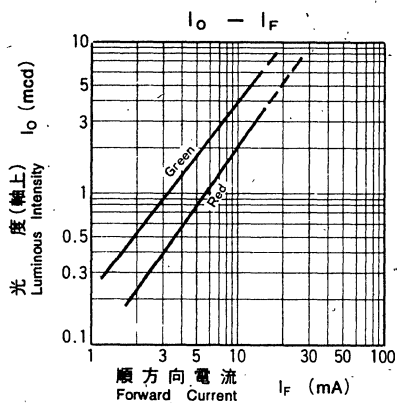
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	45	15	60	3	-25~+65	-30~+75
Green	45	15	60	3	-25~+65	-30~+75

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN2152C13-(TR)	Red	Clear	2.0	0.7	10	2.1	2.8	655	40	15	10	3
	Green		4.0	1.5	10	2.1	2.8	565	30	15	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



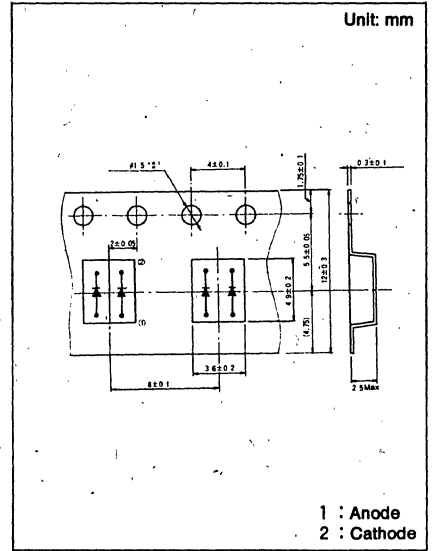
小形 Small Type (二色発光 Two Color Lighting)

Type No. Lighting Color
LN2162C13—(TR).....Red, Green

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

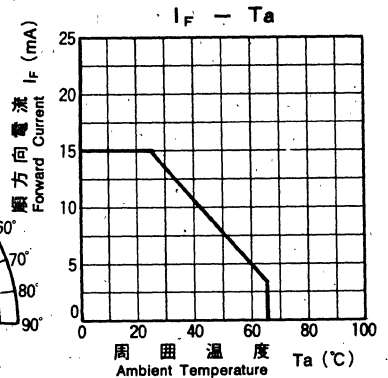
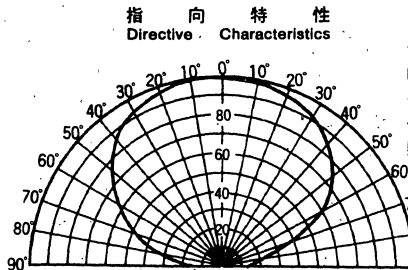
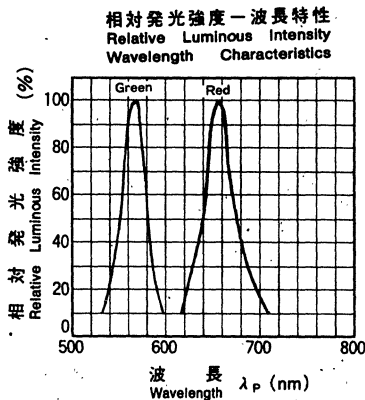
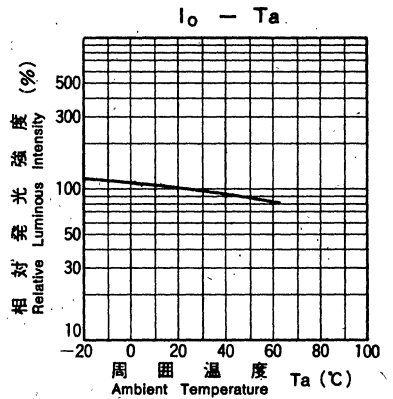
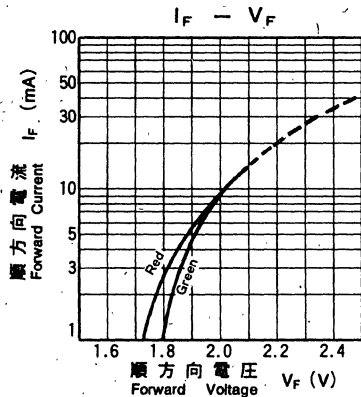
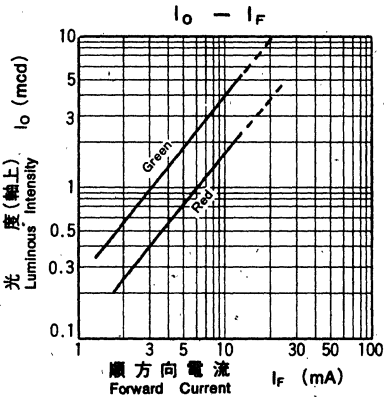
Lighting Color	P ₀ (mW)	I _F (mA)	I _{sp} (mA) [*]	V _F (V)	T _{oper} (°C)	T _{stg} (°C)
Red	45	15	60	3	-25~+65	-30~+75
Green	45	15	60	3	-25~+65	-30~+75

* I_{sp}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{sp} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.					
LN2162C13—(TR)	Red	Clear	1.8	0.65	10'	2.00	2.8	655	40	10	10	3
	Green		4.0	1.50	10	2.05	2.8	565	30	10	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



可視発光ダイオード/VISIBLE LED'S

面 発 光

Surface Lighting



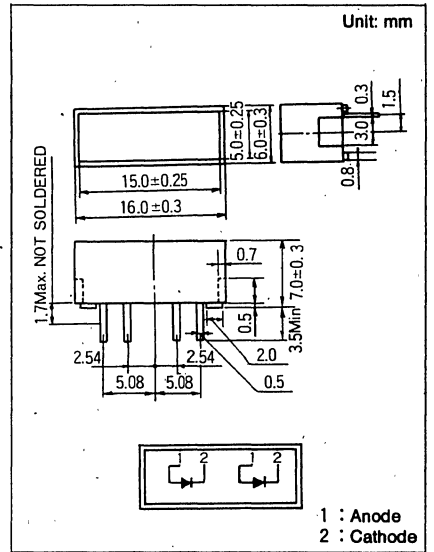
□ 5.0mm×15.0mm Series

Type No. Lighting Color
 LN0202RP2 Red
 LN0202GP3 Green
 LN0202YP4 Amber
 LN0202RP8 Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

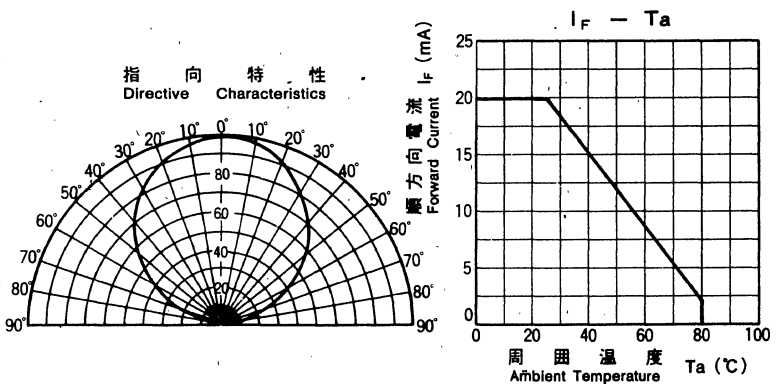
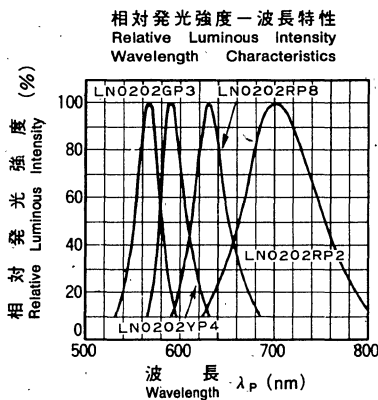
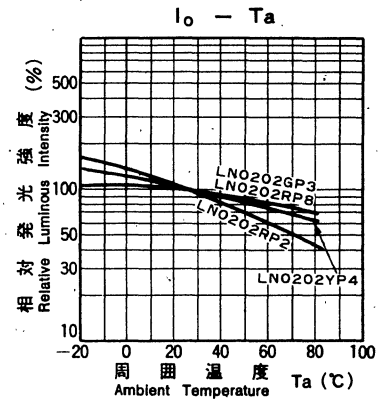
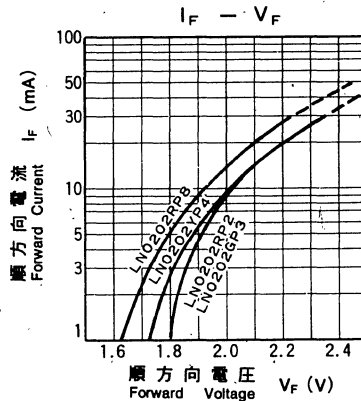
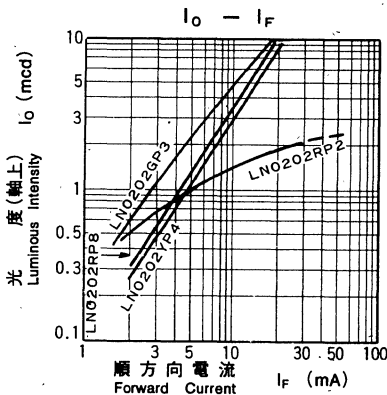
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	4	-25~+80	-30~+85
Green	60	20	100	4	-25~+80	-30~+85
Amber	60	20	100	4	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN0202RP2	Red	Red Diffused	1.5	0.5	10	2.2	2.8	700	100	20	10	4
LN0202GP3	Green	Green Diffused	5.0	2.0	10	2.2	2.8	565	30	20	10	4
LN0202YP4	Amber	Amber Diffused	3.0	1.0	10	2.2	2.8	590	30	20	10	4
LN0202RP8	Orange	Red Diffused	3.5	1.3	10	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



二色発光 Two Color Lighting

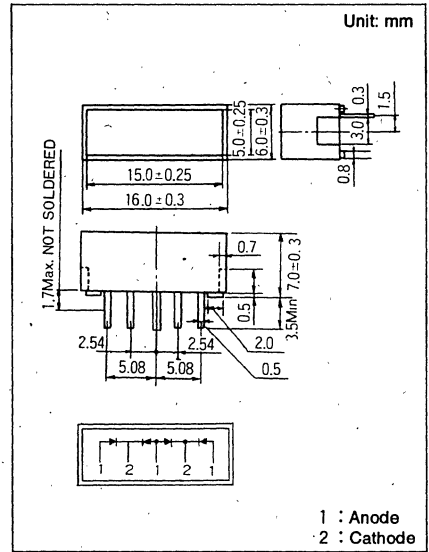
□ 5.0mm×15.0mm Series

Type No. Lighting Color
 LN0402WP38.....Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

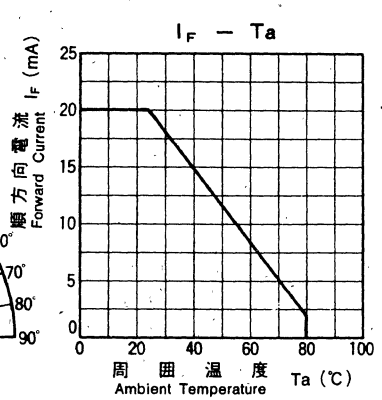
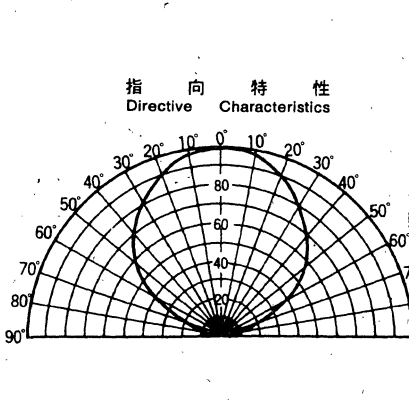
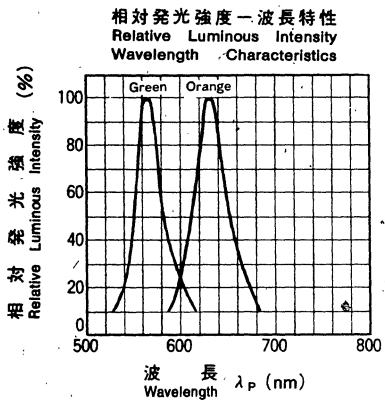
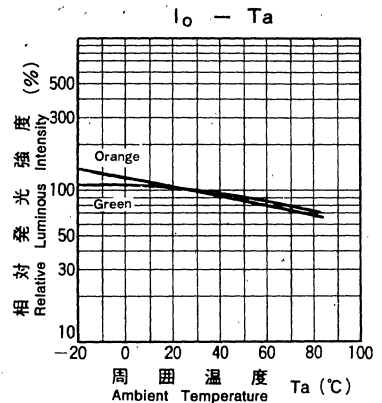
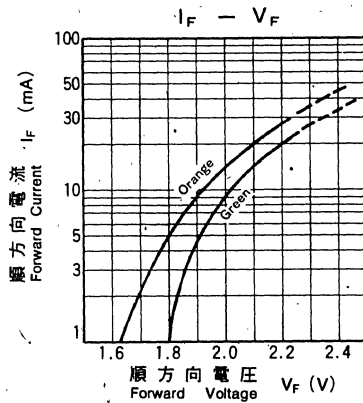
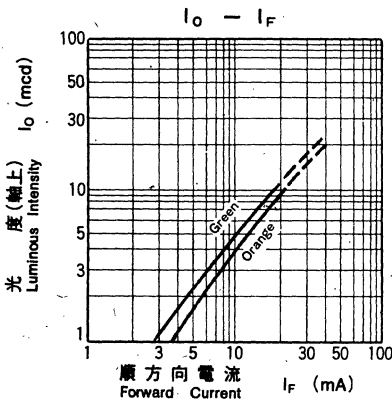
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	60	20	100	4	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN0402WP38	Green	White Diffused	5.0	2.0	10	2.2	2.8	565	30	20	10	4
	Orange		4.0	1.5	10	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



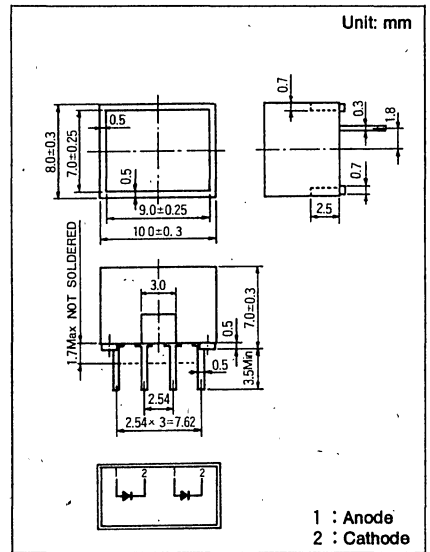
□ 7.0mm×9.0mm Series

Type No. Lighting Color
 LN0204RP2 Red
 LN0204GP3 Green
 LN0204YP4 Amber
 LN0204RP8 Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

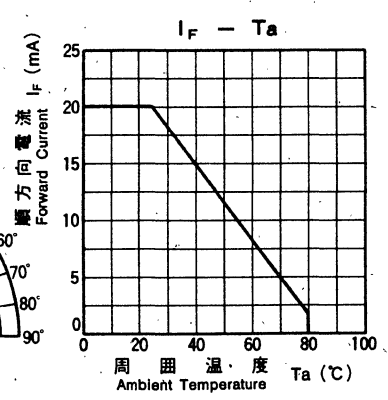
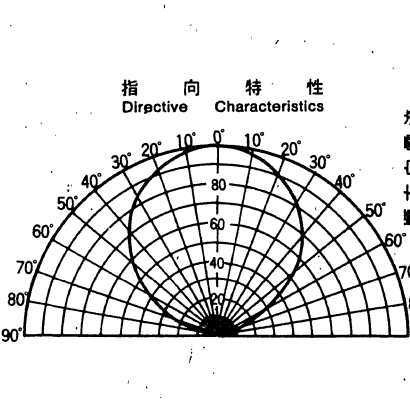
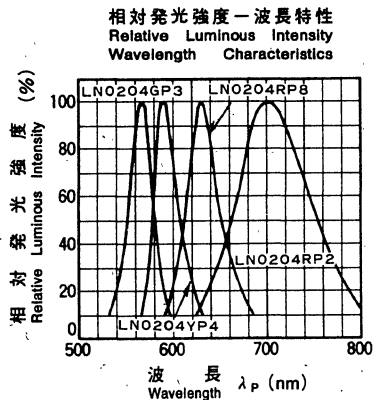
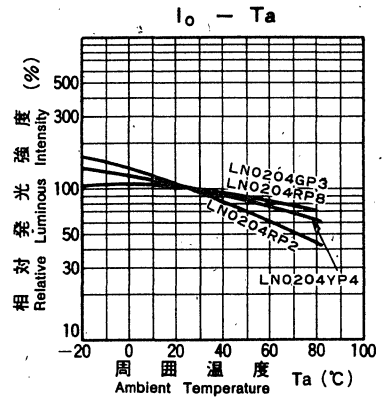
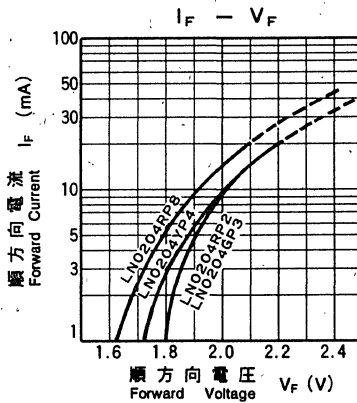
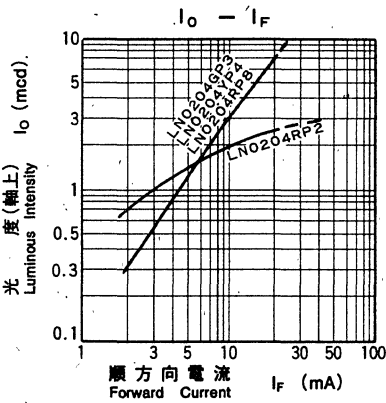
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	4	-25~+80	-30~+85
Green	60	20	100	4	-25~+80	-30~+85
Amber	60	20	100	4	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _r	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN0204RP2	Red	Red Diffused	2.0	0.9	10	2.2	2.8	700	100	20	10	4
LN0204GP3	Green	Green Diffused	3.0	1.7	10	2.2	2.8	565	30	20	10	4
LN0204YP4	Amber	Amber Diffused	3.0	1.8	10	2.2	2.8	590	30	20	10	4
LN0204RP8	Orange	Red Diffused	3.0	1.7	10	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



□ 12.0mm×15.0mm Series

Type No.	Lighting Color
LN0401RP2	Red
LN0401GP3	Green
LN0401YP4	Amber
LN0401RP8	Orange

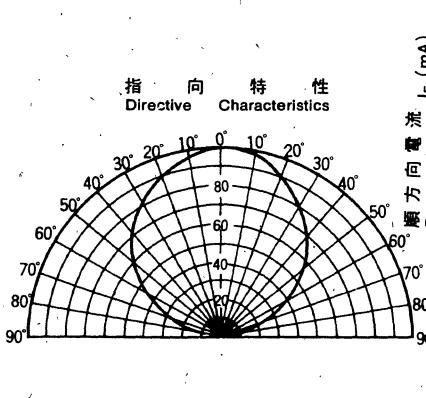
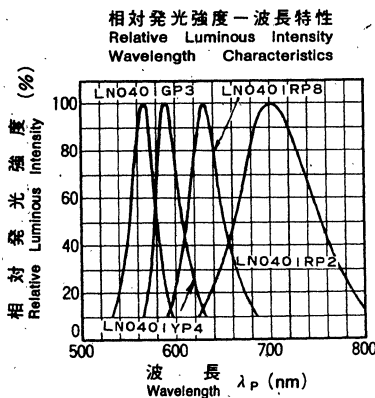
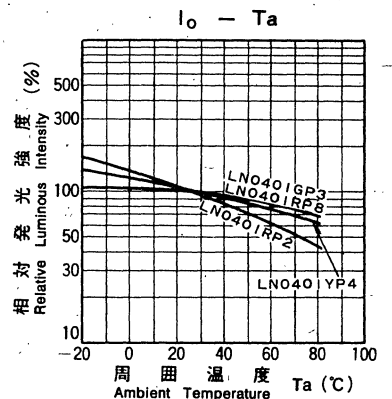
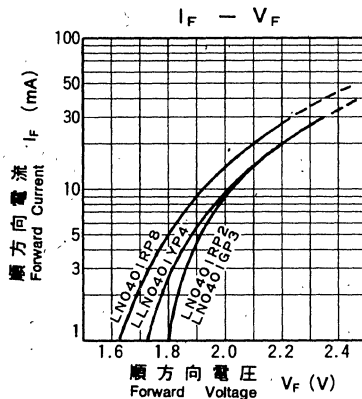
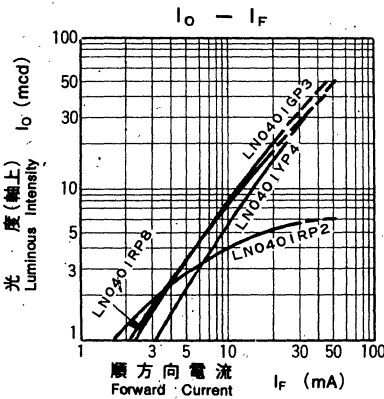
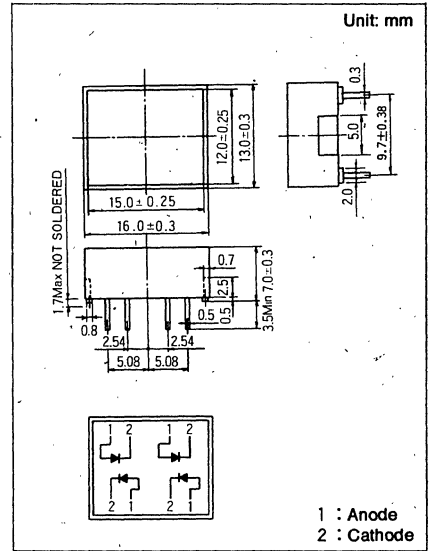
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topt (°C)	Tstg (°C)
Red	60	20	100	4	-25~+80	-30~+85
Green	60	20	100	4	-25~+80	-30~+85
Amber	60	20	100	4	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN0401RP2	Red	Red Diffused	4.0	1.2	10	2.2	2.8	700	100	20	10	4
LN0401GP3	Green	Green Diffused	8.0	2.5	10	2.2	2.8	565	30	20	10	4
LN0401YP4	Amber	Amber Diffused	6.0	2.0	10	2.2	2.8	590	30	20	10	4
LN0401RP8	Orange	Red Diffused	8.0	2.5	10	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



二色発光 Two Color Lighting

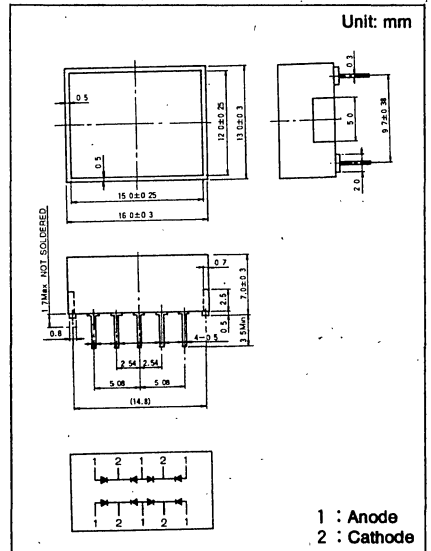
□ 12.0mm×15.0mm Series

Type No. Lighting Color
 LN0801WP23.....Red, Green
 LN0801WP38.....Green, Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

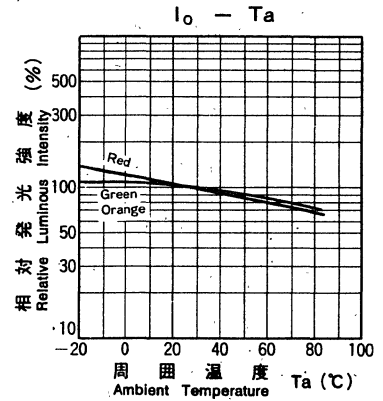
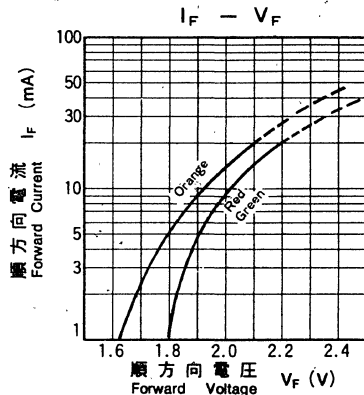
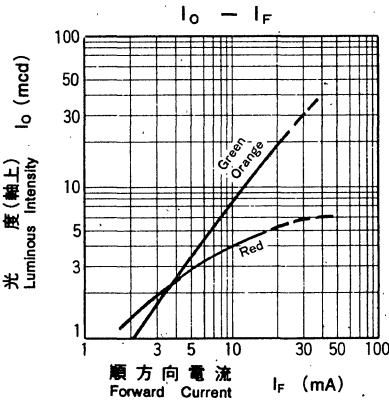
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	4	-25~+80	-30~+85
Green	60	20	100	4	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

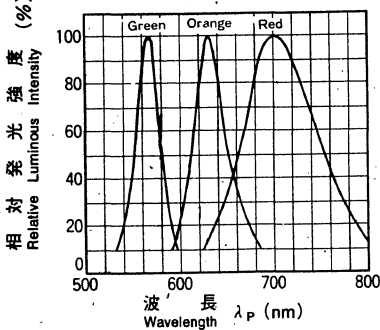


電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

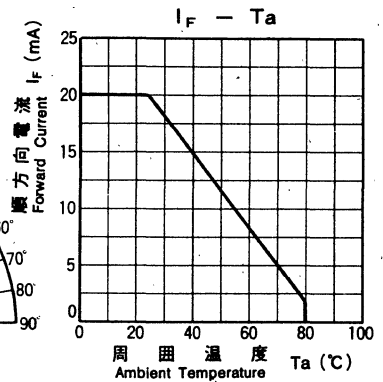
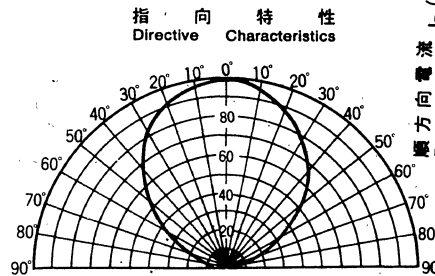
Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _n	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN0801WP23	Red	White Diffused	4.0	1.2	10	2.2	2.8	700	100	20	10	4
	Green		8.0	2.5	10	2.2	2.8	565	30	20	10	4
LN0801WP38	Green	White Diffused	8.0	2.5	10	2.2	2.8	565	30	20	10	4
	Orange		8.0	2.5	10	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



相对発光強度一波長特性
 Relative Luminous Intensity
 Wavelength Characteristics



指向特性
 Directive Characteristics



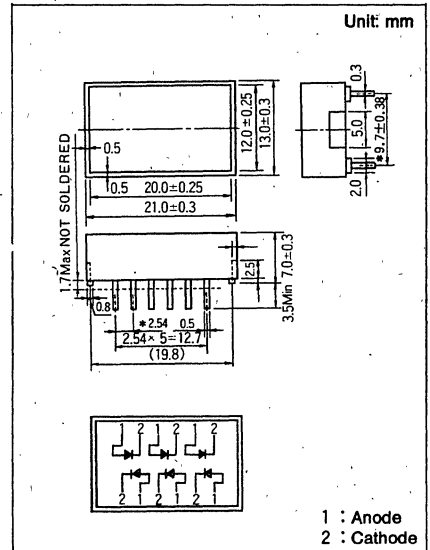
□ 12.0mm×20.0mm Series

Type No.	Lighting Color
LN0603RP2	Red
LN0603GP3	Green
LN0603YP4	Amber
LN0603RP8	Orange

絶対最大定格 Absolute Maximum Ratings. (Ta=25 °C)

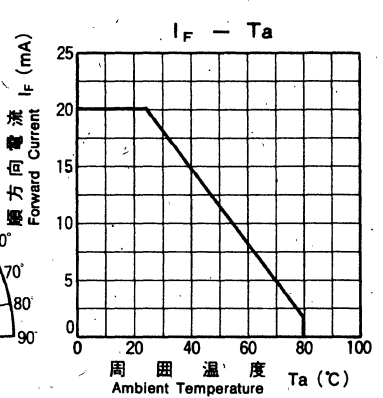
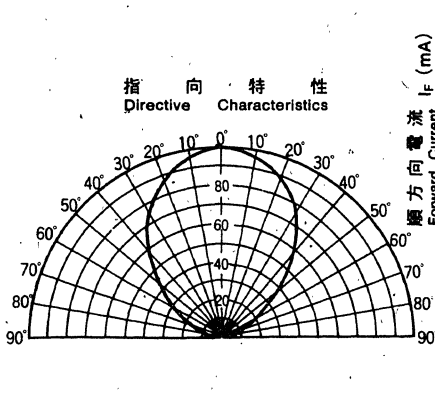
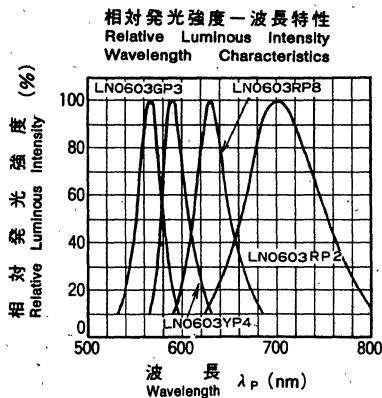
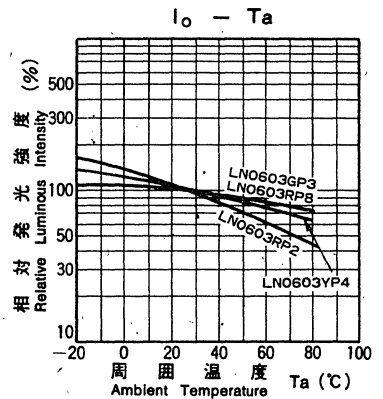
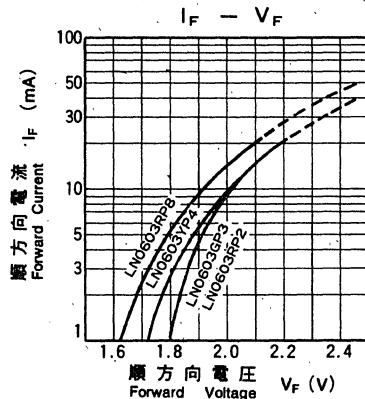
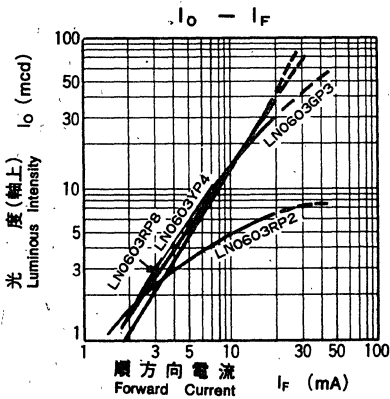
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	4	-25~+80	-30~+85
Green	60	20	100	4	-25~+80	-30~+85
Amber	60	20	100	4	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _r		λ _p		Δλ	I _f	I _n	V _R
			Typ.	Min.	I _f	Typ.	Max.	Typ.	Typ.				
LN0603RP2	Red	Red Diffused	5.0	1.5	10	2.2	2.8	700	100	20	10	4	
LN0603GP3	Green	Green Diffused	15.0	5.0	10	2.2	2.8	565	30	20	10	4	
LN0603YP4	Amber	Amber Diffused	15.0	5.0	10	2.2	2.8	590	30	20	10	4	
LN0603RP8	Orange	Red Diffused	13.0	5.0	10	2.1	2.8	630	30	20	10	3	
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V	



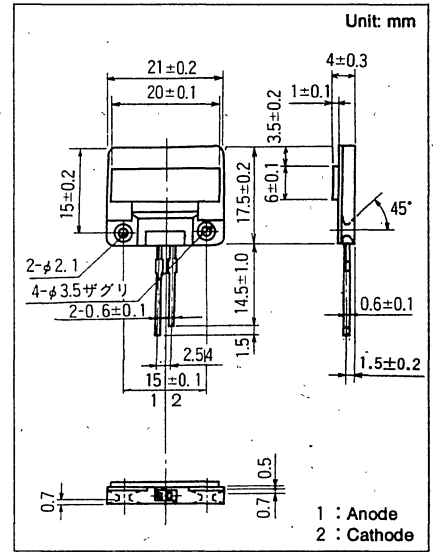
□ 6.0mm×20.0mm Series

Type No. Lighting Color
 LN0105RP2 Red
 LN0105GP3 Green
 LN0105YP4 Amber
 LN0105RP8 Orange

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	100	4	-25~+80	-30~+85
Green	70	25	100	4	-25~+80	-30~+85
Amber	70	25	100	4	-25~+80	-30~+85
Orange	70	25	100	3	-25~+80	-30~+85

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

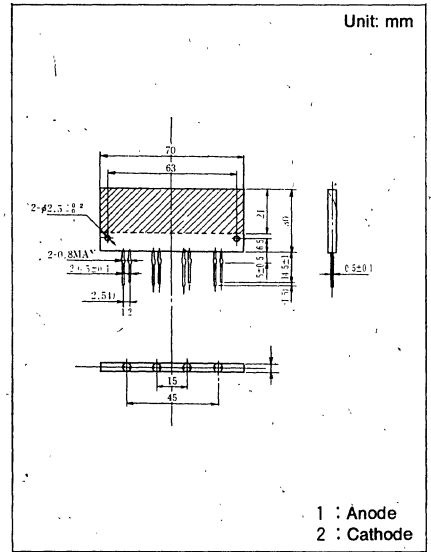


電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _p	Δλ	I _F	I _n	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN0105RP2	Red	Red Diffused	0.3	0.1	10	2.2	2.8	700	100	20	10	4
LN0105GP3	Green	Green Diffused	1.2	0.5	10	2.2	2.8	565	30	20	10	4
LN0105YP4	Amber	Amber Diffused	0.6	0.3	10	2.2	2.8	590	30	20	10	4
LN0105RP8	Orange	Red Diffused	0.8	0.4	10	2.1	2.8	630	40	20	10	3
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

21.0mm×70.0mm Back Lighting

Type No. Lighting Color
LN0410CP3.....Green



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	90	30	150	4	-25~+75	-30~+80

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I _o			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN0410CP3	Green	Clear	25.0	9.5	20	2.2	2.8	565	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

可視発光ダイオード/VISIBLE LED'S

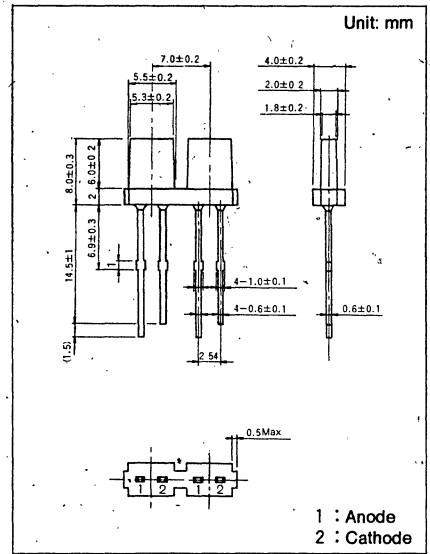
レベルメータ

Level Meters

角形 Square Type

□ 1.8mm×5.3mm 2連 2-Element Array

Type No. Lighting Color
 LN02202P Red
 LN02302P Green
 LN02402P Amber



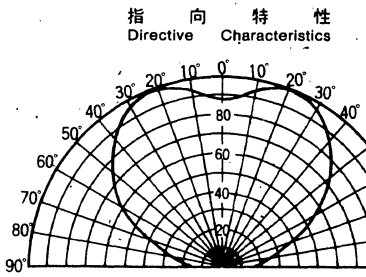
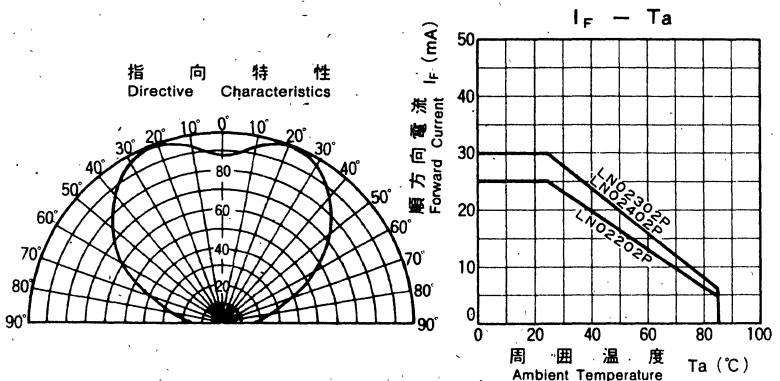
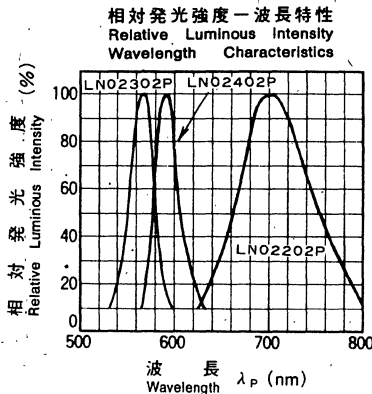
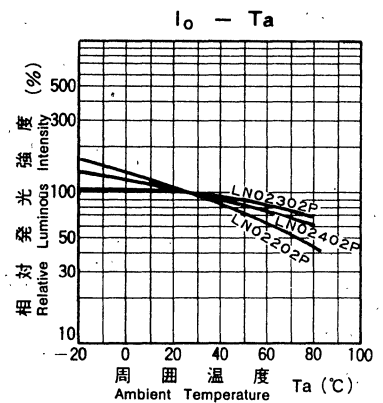
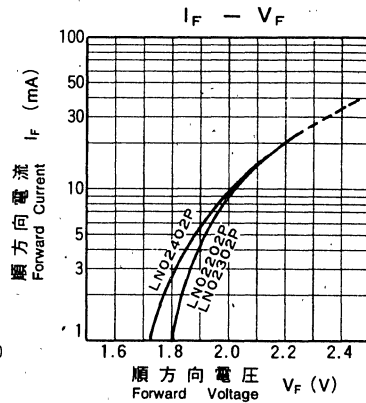
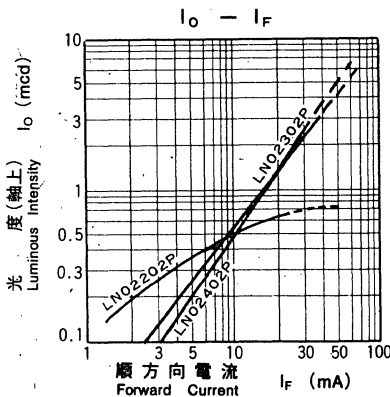
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		Max.	V _R
LN02202P	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN02302P	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN02402P	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

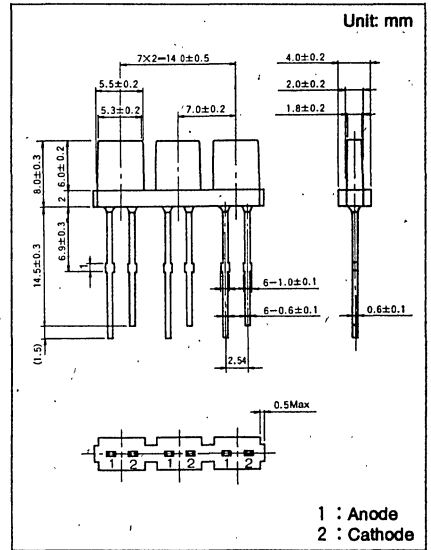
□ 1.8mm×5.3mm 3連 3-Element Array

Type No. Lighting Color
 LN03202P Red
 LN03302P Green
 LN03402P Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

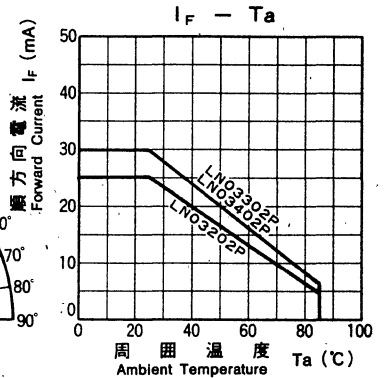
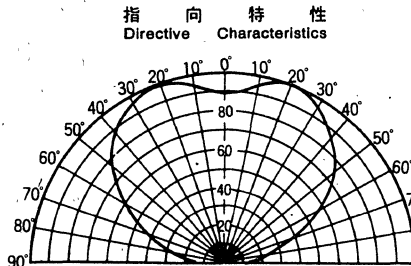
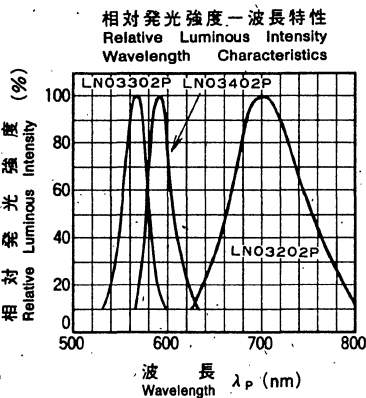
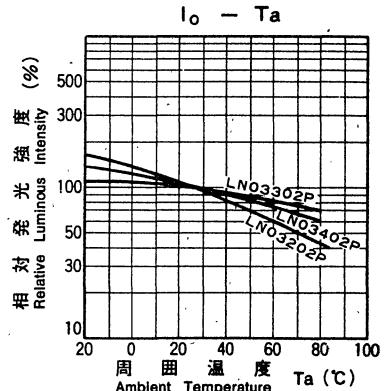
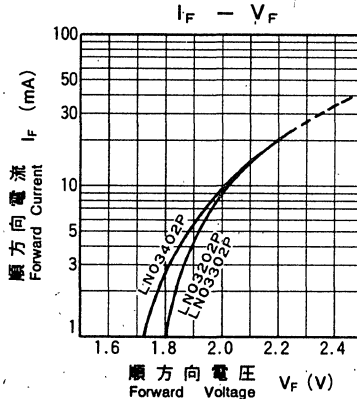
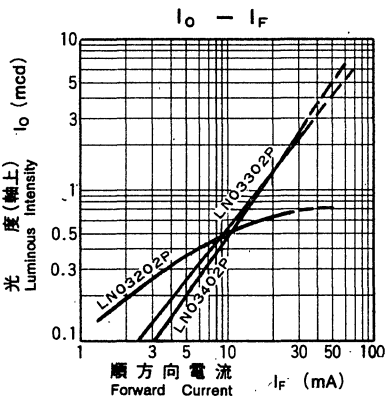
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opp} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN03202P	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN03302P	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN03402P	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

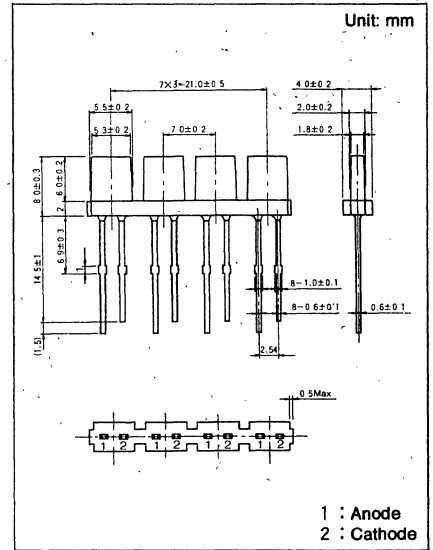
□ 1.8mm×5.3mm 4連 4-Element Array

Type No. Lighting Color
 LN04202P Red
 LN04302P Green
 LN04402P Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

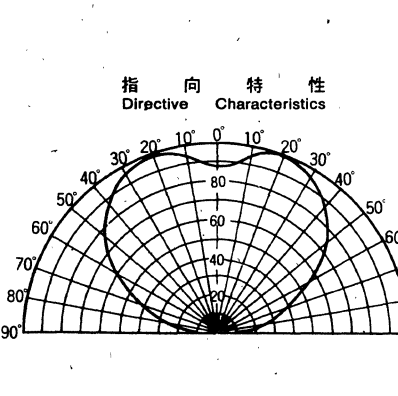
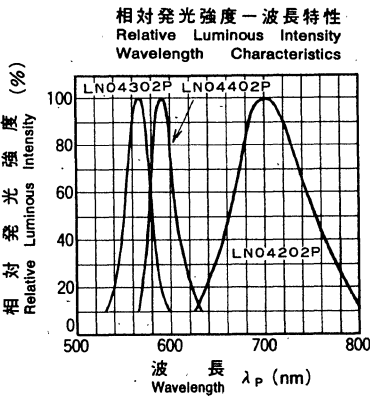
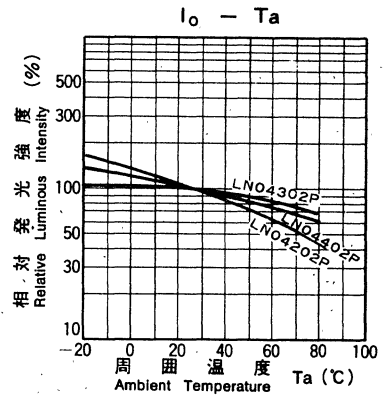
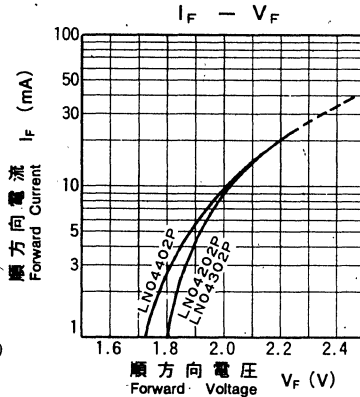
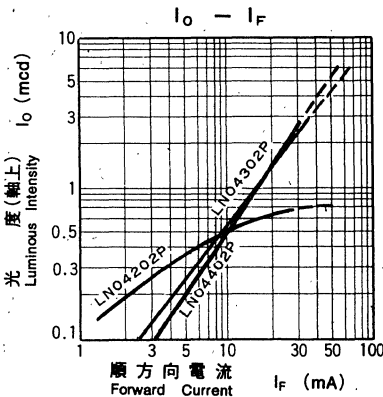
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN04202P	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN04302P	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN04402P	Amber	Amber Diffused	1.5	1.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

□ 1.8mm×5.3mm 5連 5-Element Array

Type No. Lighting Color

LN05202P.....Red

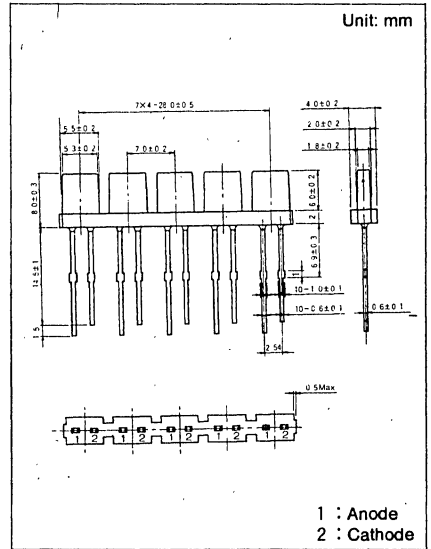
LN05302P.....Green

LN05402P.....Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

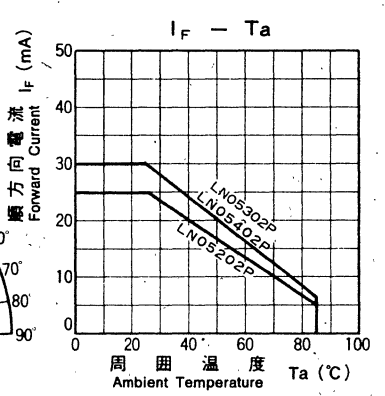
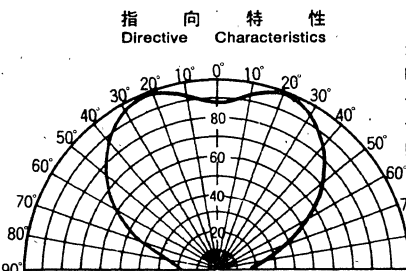
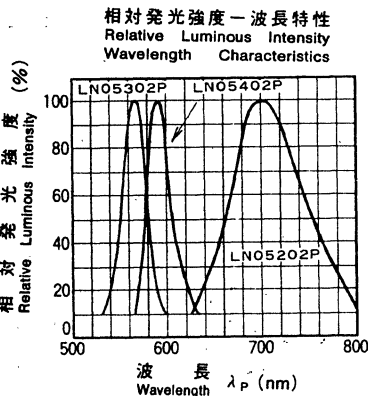
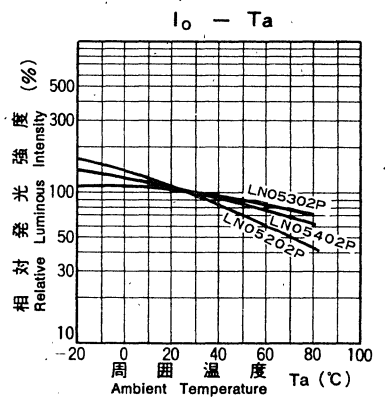
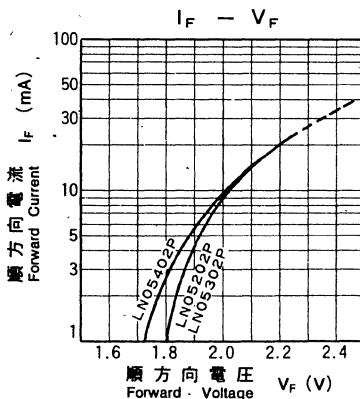
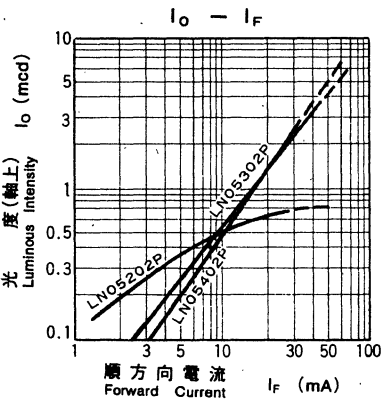
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN05202P	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN05302P	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN05402P	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

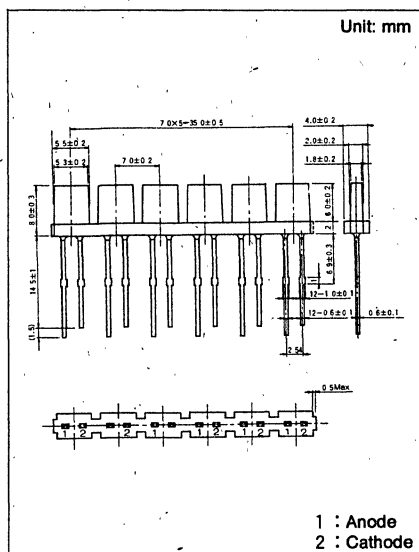
□ 1.8mm×5.3mm 6連 6-Element Array

- Type No. Lighting Color
- LN06202P Red
- LN06302P Green
- LN06402P Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

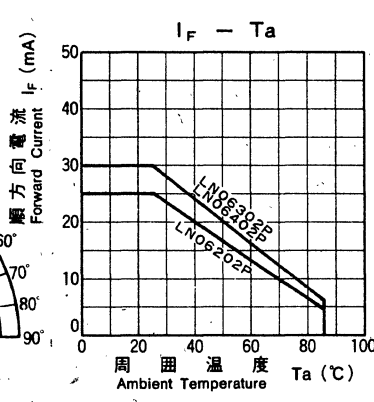
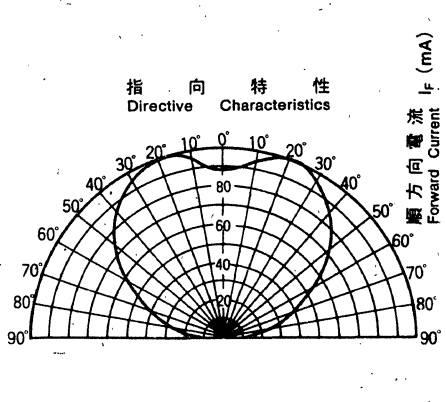
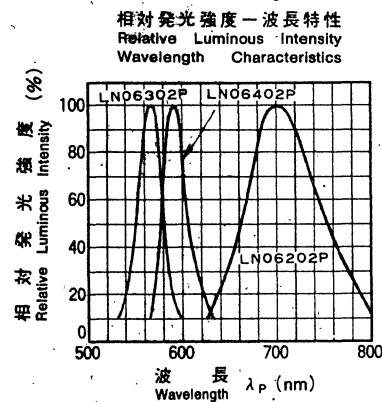
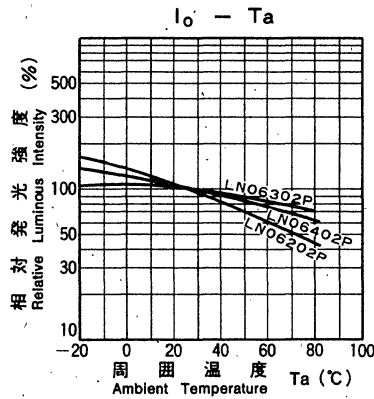
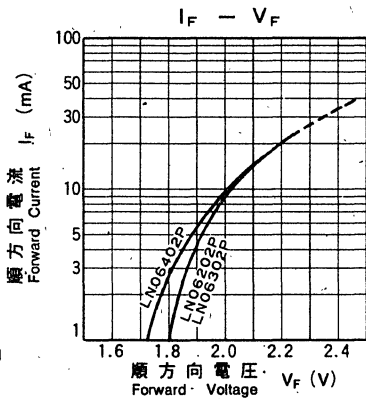
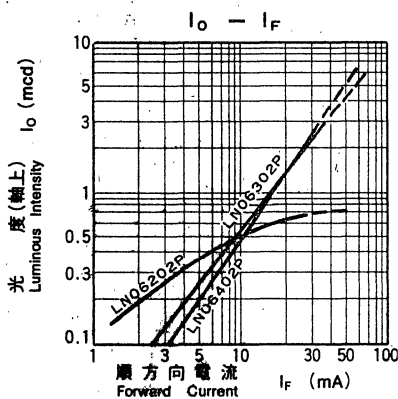
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀		I _F	V _F		λ _P	Δλ	I _F	I _n	V _R
			Typ.	Min.		Typ.	Max.	Typ.	Typ.			
LN06202P	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN06302P	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN06402P	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

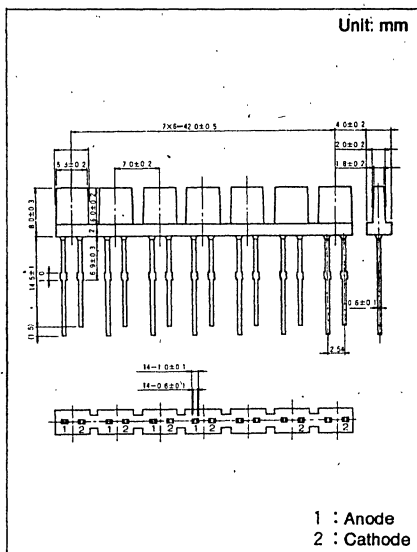
□ 1.8mm×5.3mm 7連 7-Element Array

Type No.	Lighting Color
LN07202P	Red
LN07302P	Green
LN07402P	Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

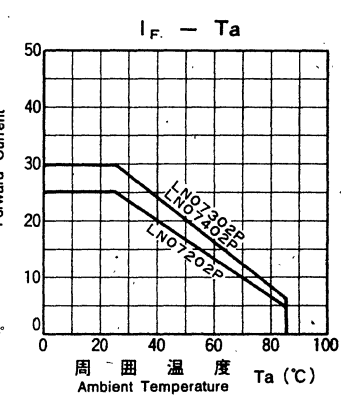
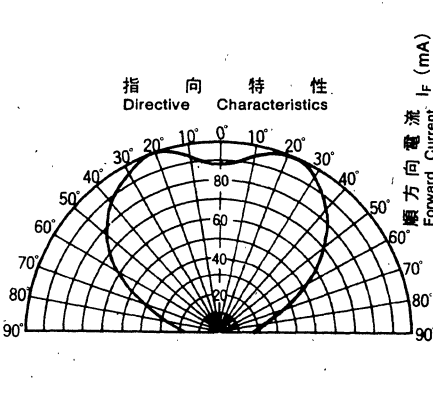
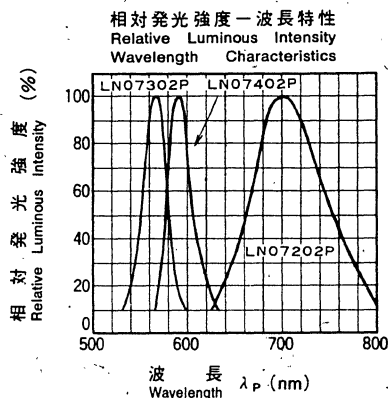
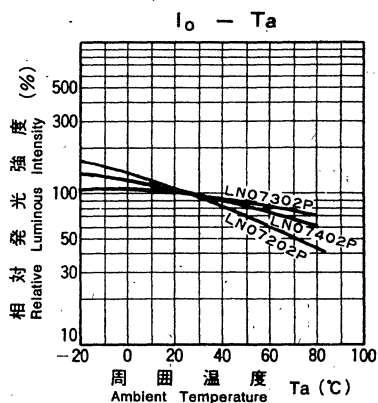
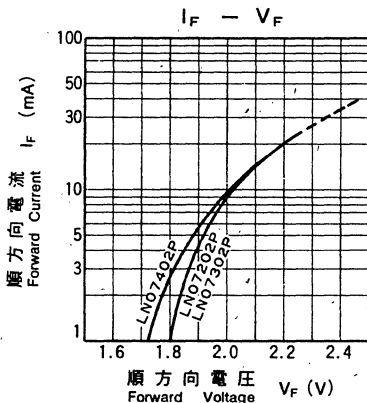
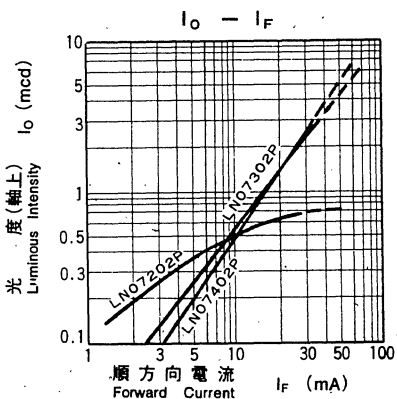
Lighting Color	PD (mW)	IF (mA)	IFP (mA)*	VR (V)	Topt (°C)	Tstg (°C)
Red	70	25	150	4	-25~+85	-30~+100
Green	90	30	150	4	-25~+85	-30~+100
Amber	90	30	150	4	-25~+85	-30~+100

* IFPの条件は、duty 10%, Pulse width 1 msec. The condition of IFP is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

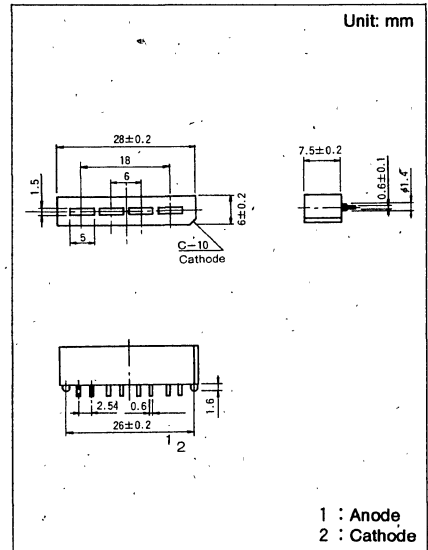
Type No.	Lighting Color	Lens Color	Io			VF		λP	Δλ	IR		
			Typ.	Min.	IF	Typ.	Max.			IF	Max.	VR
LN07202P	Red	Red Diffused	0.6	0.3	15	2.2	2.8	700	100	20	5	4
LN07302P	Green	Green Diffused	1.5	0.4	20	2.2	2.8	565	30	20	10	4
LN07402P	Amber	Amber Diffused	1.5	0.6	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



角形 Square Type

□ 1.5mm×5.0mm 4連 4-Element Array

Type No. Lighting Color
 LN04220PRed
 LN04320PGreen
 LN04420PAmber



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

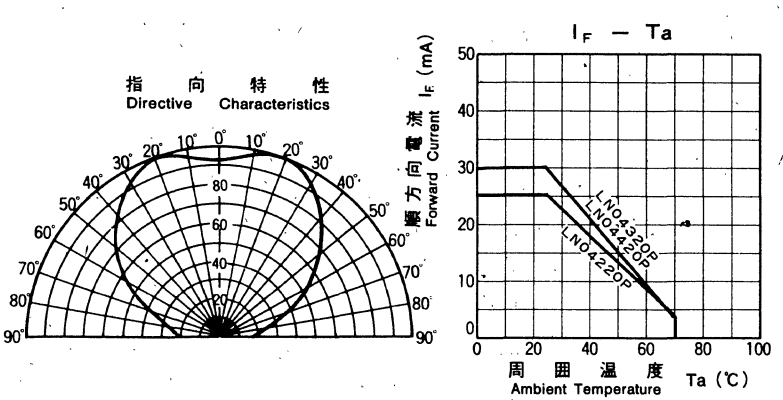
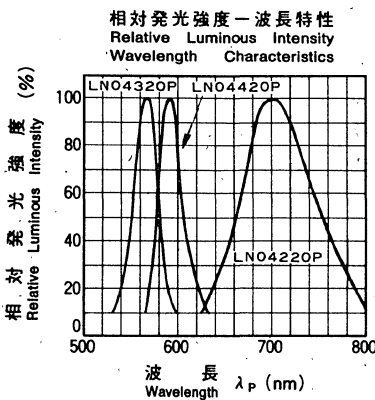
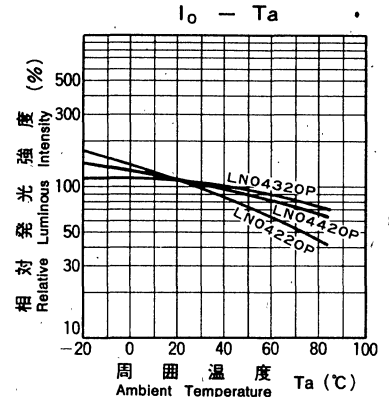
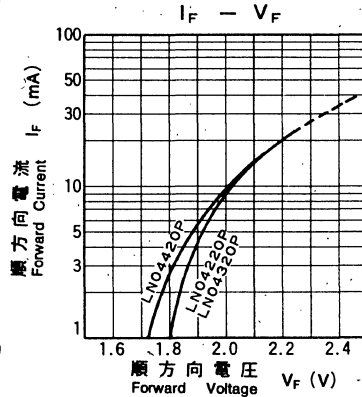
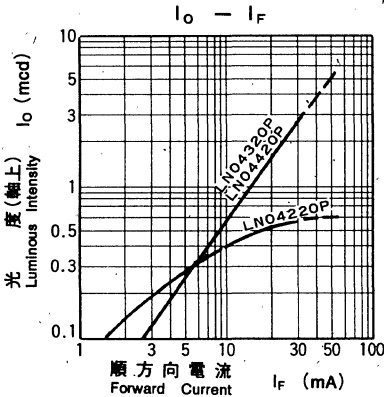
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+70	-30~+75
Green	90	30	150	4	-25~+70	-30~+75
Amber	90	30	150	4	-25~+70	-30~+75

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN04220P	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN04320P	Green	Green Diffused	1.5	0.5	20	2.2	2.8	565	30	20	10	4
LN04420P	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

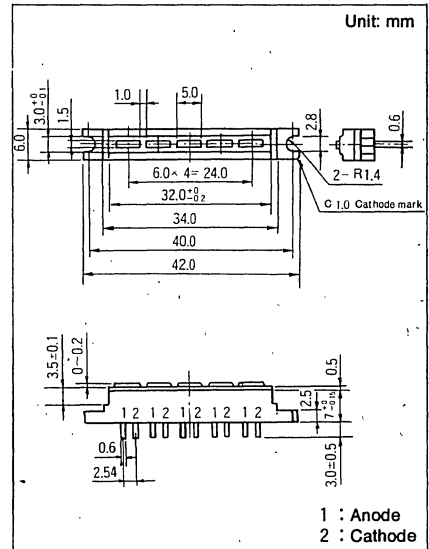
□ 1.5mm×5.0mm 5連 5-Element Array

Type No. Lighting Color
 LN05203PRed
 LN05303PGreen
 LN05403PAmber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+70	-30~+75
Green	90	30	150	4	-25~+70	-30~+75
Amber	90	30	150	4	-25~+70	-30~+75

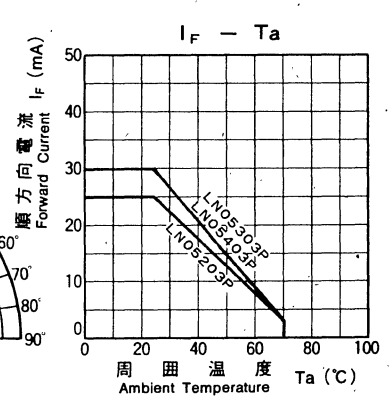
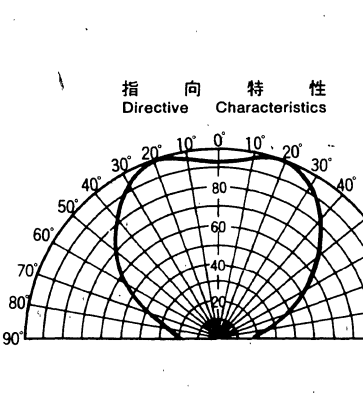
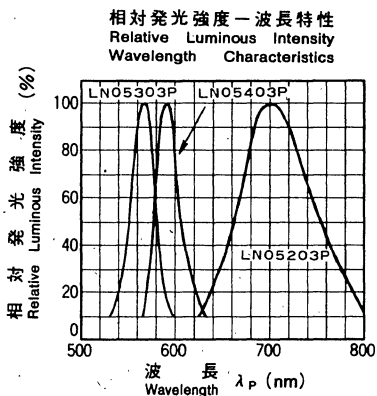
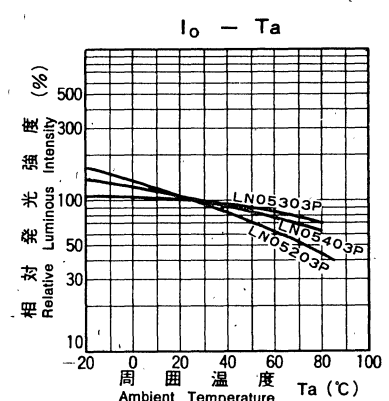
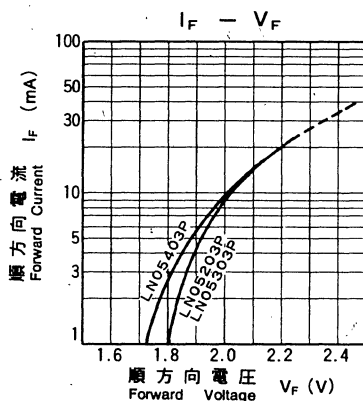
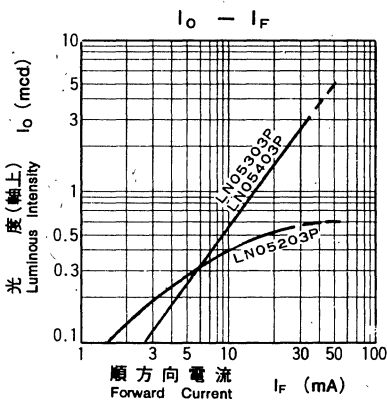
* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	V _R
			Typ.	Min.	I _F	Typ.	Max.	Typ.	Typ.			
LN05203P	Red	Red Diffused	0.5	0.2	15	2.2	2.8	700	100	20	5	4
LN05303P	Green	Green Diffused	1.5	0.5	20	2.2	2.8	565	30	20	10	4
LN05403P	Amber	Amber Diffused	1.5	0.5	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



角形 Square Type

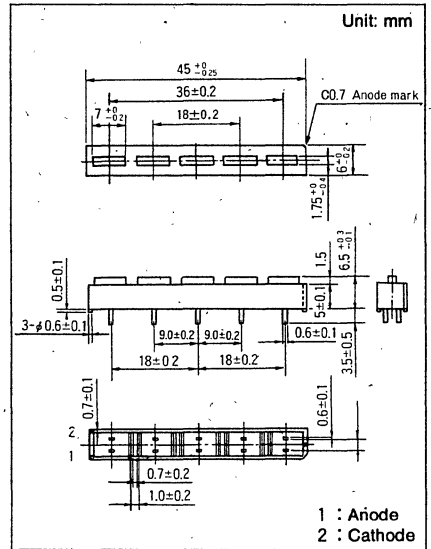
□ 1.75mm×7.0mm 5連 5-Element Array

Type No. Lighting Color
 LN05201P Red
 LN05301P Green
 LN05401P Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

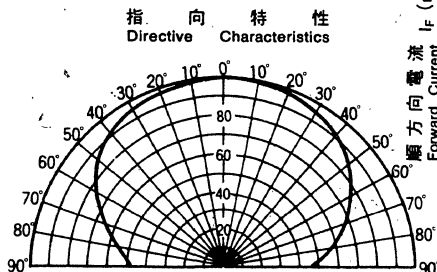
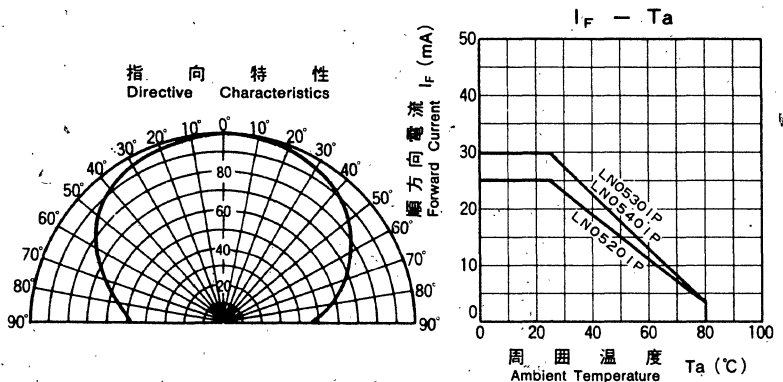
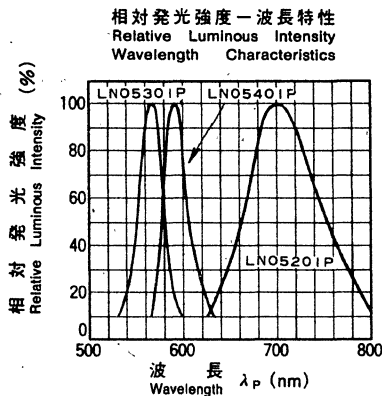
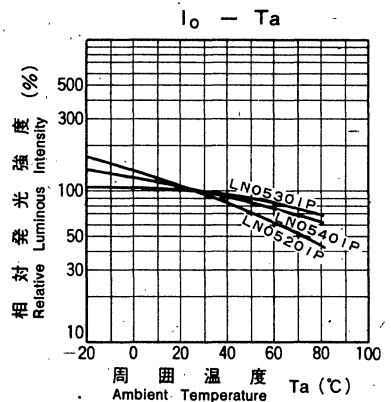
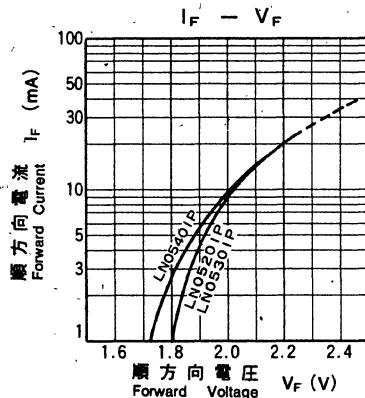
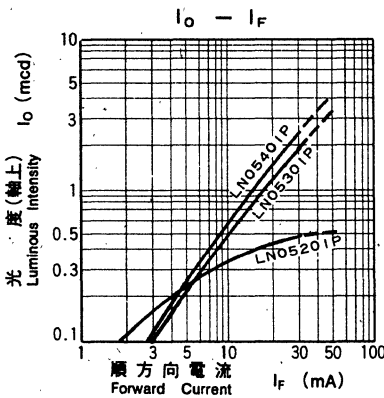
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+80	-30~+85
Green	90	30	150	4	-25~+80	-30~+85
Amber	90	30	150	4	-25~+80	-30~+85

* I_{FP} の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN05201P	Red	Red Diffused	0.4	0.15	15	2.2	2.8	700	100	20	5	4
LN05301P	Green	Green Diffused	1.2	0.50	20	2.2	2.8	565	30	20	10	4
LN05401P	Amber	Amber Diffused	1.5	0.50	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V



双頭形 Two Head Type

2-□ 1.9mm×1.9mm 5連 5-Element Array

Type No. Lighting Color

LN05263PRed

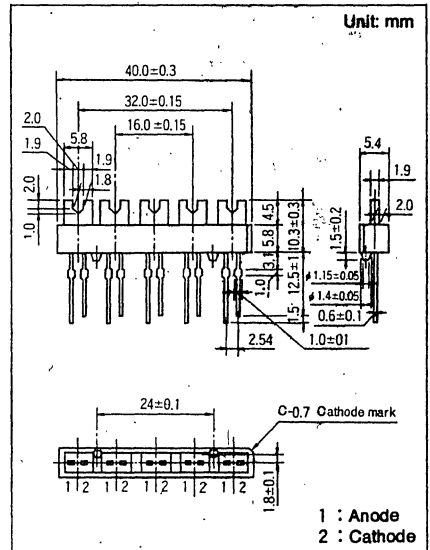
LN05363PGreen

LN05463PAmber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	70	25	150	4	-25~+75	-30~+80
Green	90	30	150	4	-25~+75	-30~+80
Amber	90	30	150	4	-25~+75	-30~+80

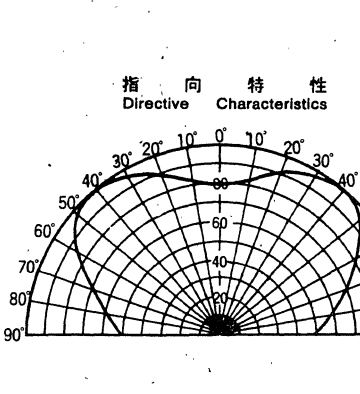
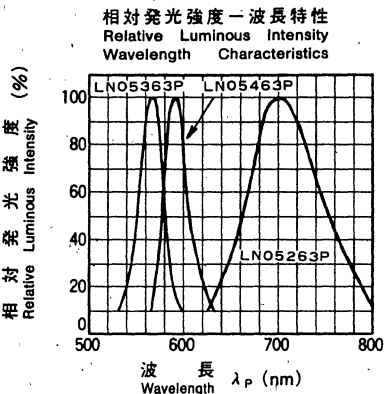
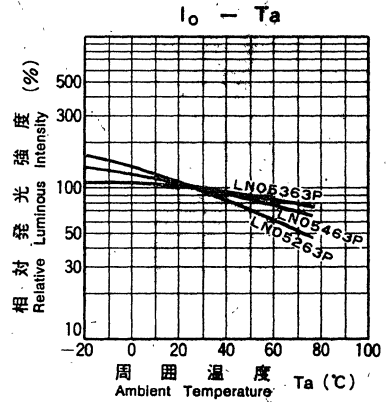
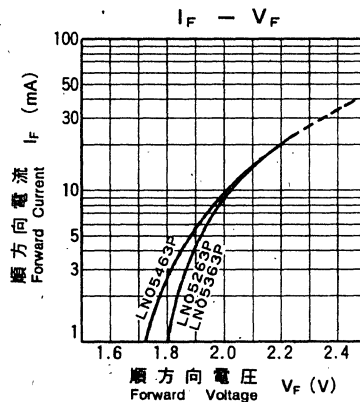
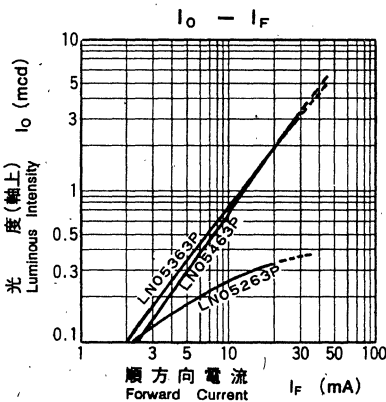
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ _p	Δλ	I _F	I _a	
			Typ.	Min.	I _F	Typ.	Max.				I _F	Max.
LN05263P	Red	Red Diffused	0.3	0.1	15	2.2	2.8	700	100	100	5	4
LN05363P	Green	Green Diffused	2.0	0.8	20	2.2	2.8	565	30	30	10	4
LN05463P	Amber	Amber Diffused	2.0	0.8	20	2.2	2.8	590	30	30	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification



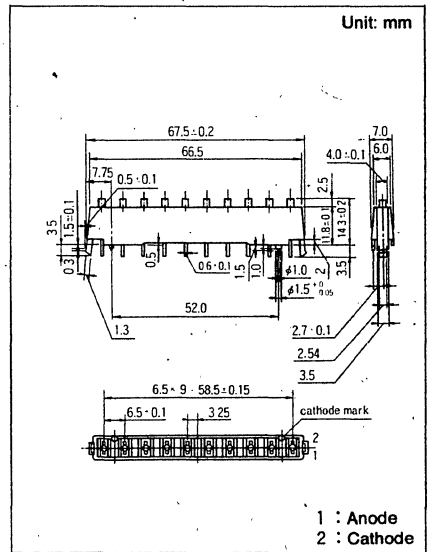
角形 Round Type
 ϕ 2.0mm 10連 10-Element Array

Type No. Lighting Color
 LN10204P Red
 LN10304P Green
 LN10404P Amber

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	70	25	150	4	-25~+70	-30~+75
Green	90	30	150	4	-25~+70	-30~+75
Amber	90	30	150	4	-25~+70	-30~+75

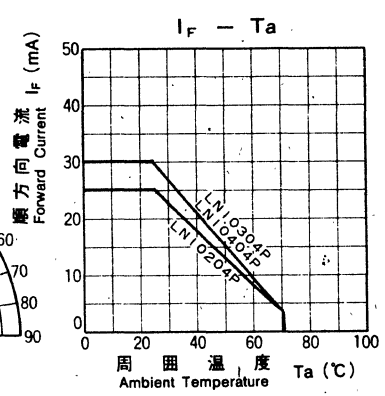
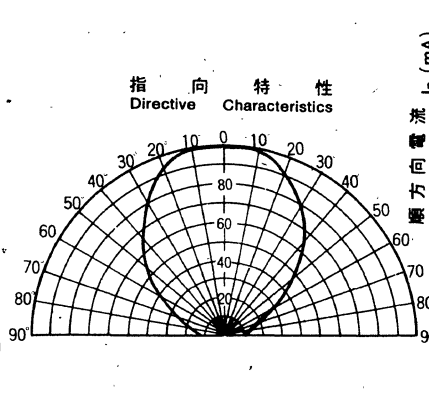
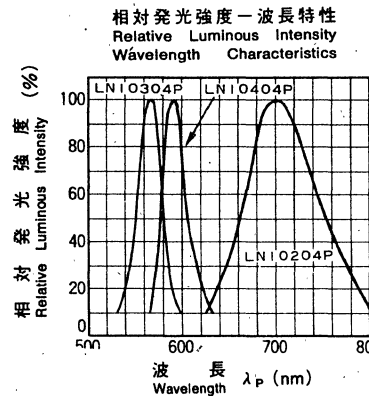
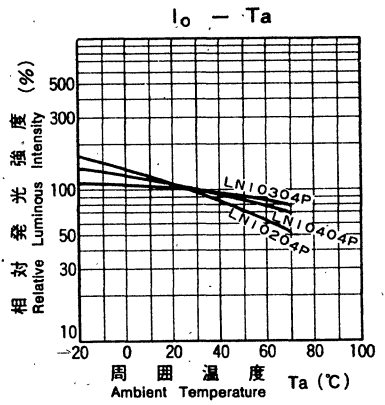
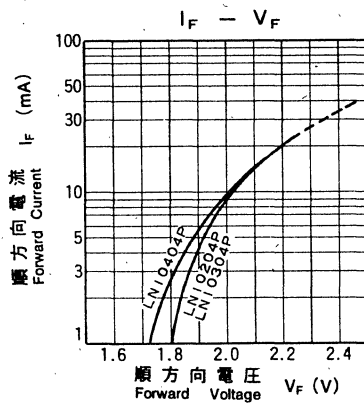
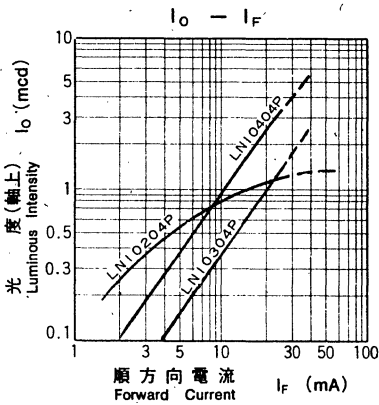
* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec



電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	Lens Color	I ₀			V _F		λ_p	$\Delta \lambda$	I _F	I _R	
			Typ.	Min.	I _F	Typ.	Max.				Max.	V _R
LN10204P	Red	Red Diffused	1.0	0.4	15	2.2	2.8	700	100	20	5	4
LN10304P	Green	Green Diffused	1.0	0.4	20	2.2	2.8	565	30	20	10	4
LN10404P	Amber	Amber Diffused	2.5	1.2	20	2.2	2.8	590	30	20	10	4
Unit	—	—	mcd	mcd	mA	V	V	nm	nm	mA	μ A	V

△印は暫定規格を示す。△ Tentative Specification



可視発光ダイオード／VISIBLE LED'S

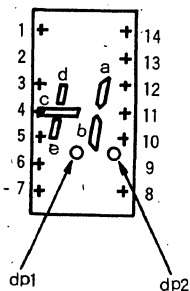
数 字 表 示

Numeric Displays

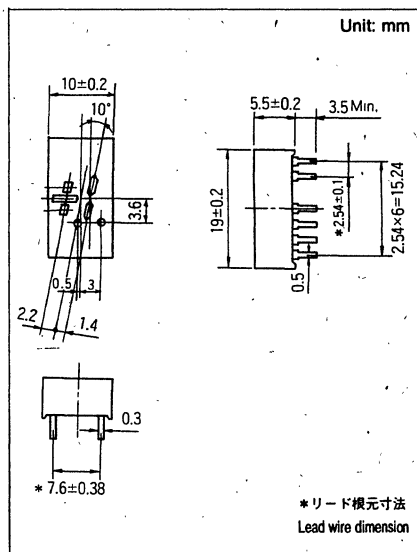
#1 0.3inch Series

Type No.	Lighting Color
LN503R	Red
LN503G	Green
LN503Y	Amber

端子接続 Terminal Connection



Pin No.	Assignment
1	Anode d
2	—
3	Cathode d
4	Cathode c
5	Cathode e
6	Anode e
7	Anode c
8	Anode dp1 dp2
9	—
10	Cathode dp1 dp2
11	Cathode b
12	Cathode a
13	Anode a
14	Anode b



*リード模元寸法
Lead wire dimension

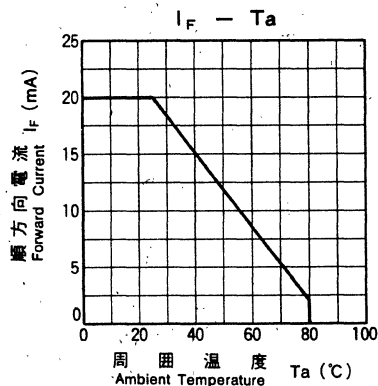
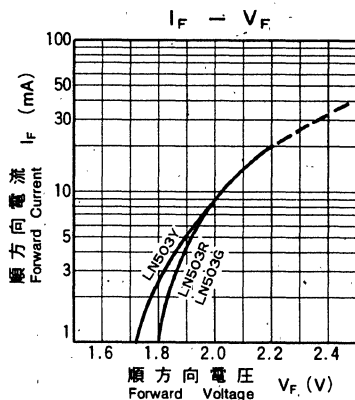
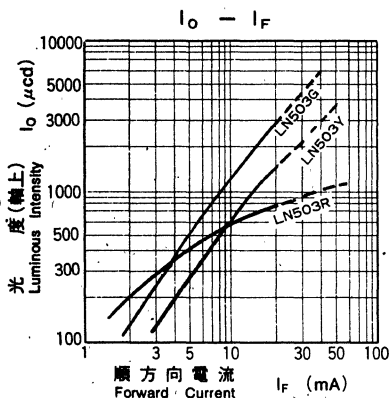
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topi (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85
Amber	60	20	100	5	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

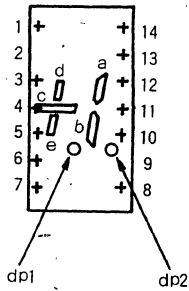
Type No.	Lighting Color	COMMON	I ₀ /seg				I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Max.	V _R
LN503R	Red	—	400	150	150	5	2.2	2.8	700	100	20	10	5	
LN503G	Green	—	1200	400	400	10	2.2	2.8	565	30	20	10	5	
LN503Y	Amber	—	600	200	200	10	2.2	2.8	590	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



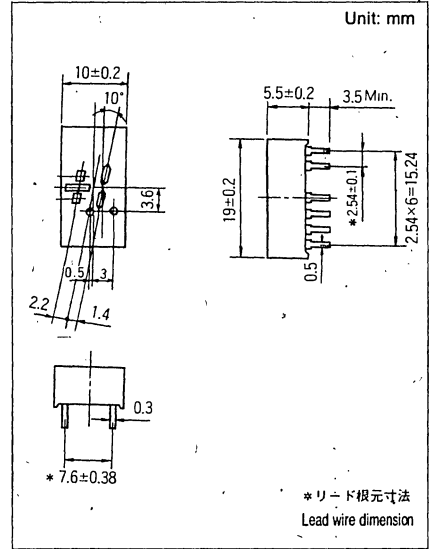
0.3inch Series

Type No.	Lighting Color
LN503RR	Red
LN503GR	Green
LN503YR	Amber

端子接続 Terminal Connection



Pin No.	Assignment
1	Anode d
2	—
3	Cathode d
4	Cathode c
5	Cathode e
6	Anode e
7	Anode c
8	Anode dp2
9	—
10	Cathode dp2
11	Cathode b
12	Cathode a
13	Anode a
14	Anode b



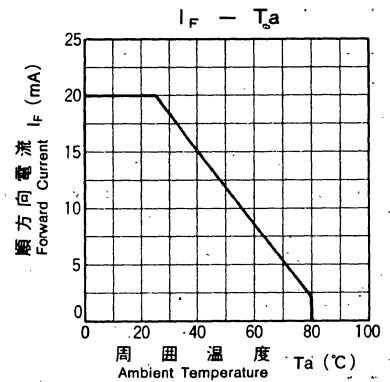
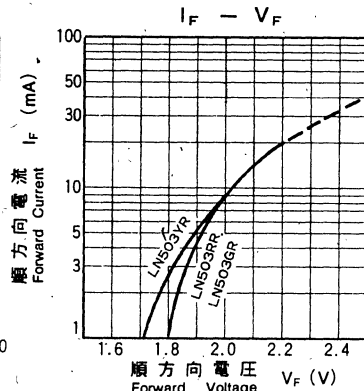
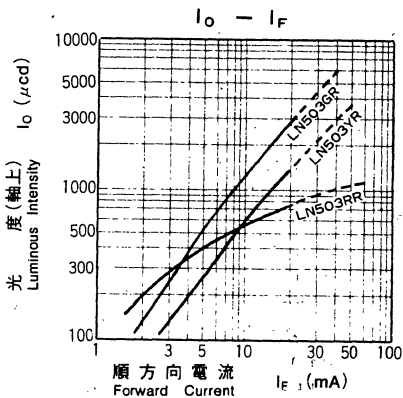
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85
Amber	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec.

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

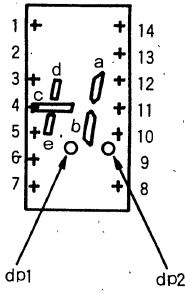
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F	Typ.	Max.	Typ.	Typ.		I _F	Max.
LN503RR	Red	—	400	150	150	5	2.2	2.8	700	100	20	10	5
LN503GR	Green	—	1200	400	400	10	2.2	2.8	565	30	20	10	5
LN503YR	Amber	—	600	200	200	10	2.2	2.8	590	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



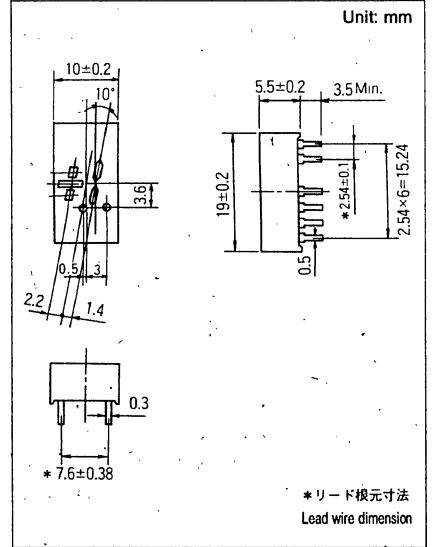
0.3inch Series

Type No.	Lighting Color
LN503RL	Red
LN503GL	Green
LN503YL	Amber

端子接続 Terminal Connection



Pin No.	Assignment
1	Anode d
2	
3	Cathode d
4	Cathode c
5	Cathode e
6	Anode e
7	Anode c
8	Anode dp1
9	
10	Cathode dp1
11	Cathode b
12	Cathode a
13	Anode a
14	Anode b



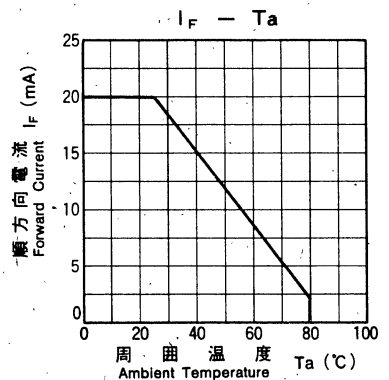
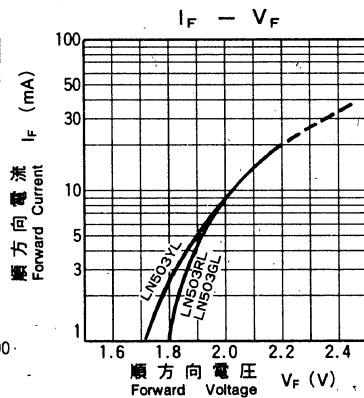
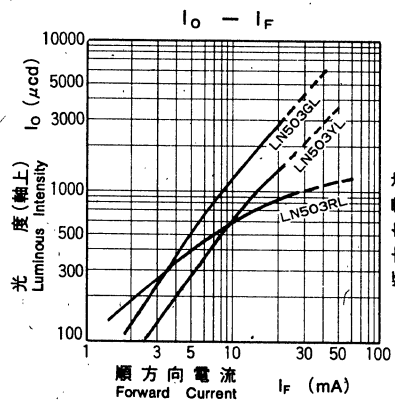
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85
Amber	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

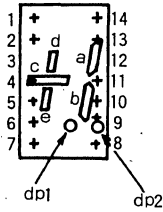
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p	I _F	V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	Typ.		Typ.	Max.				Typ.	Max.
LN503RL	Red	—	400	150	150	5	2.2	2.8	700	100	20	10	5
LN503GL	Green	—	1200	400	400	10	2.2	2.8	565	30	20	10	5
LN503YL	Amber	—	600	200	200	10	2.2	2.8	590	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



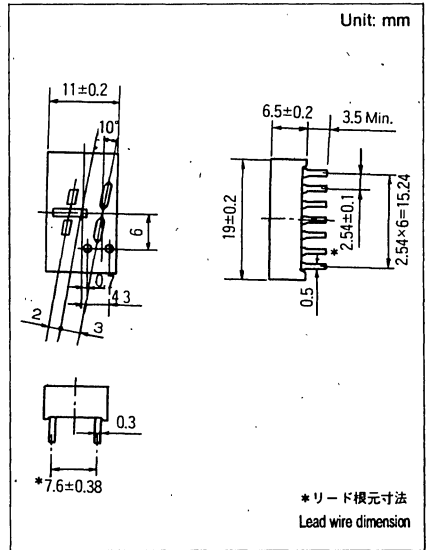
#1 0.4inch Series

Type No.	Lighting Color
LN504R	Red
LN504G	Green
LN504Y	Amber

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode d
2	Anode d
3	—
4	Cathode c
5	Cathode e
6	Anode e
7	Anode c
8	Anode dp1 dp2
9	Cathode dp1 dp2
10	Cathode b
11	Cathode a
12	—
13	Anode a
14	Anode b



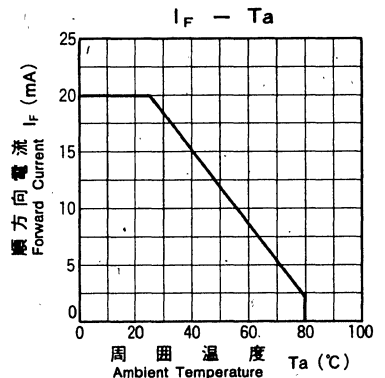
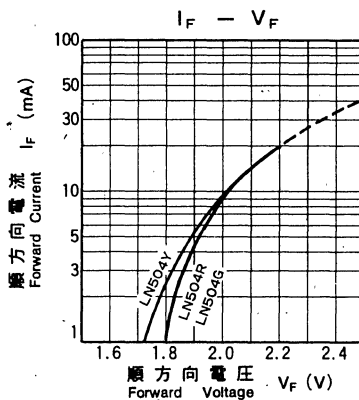
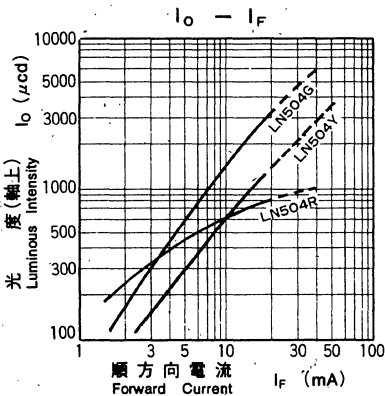
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85
Amber	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec.

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

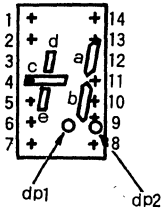
Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _p	Δλ	I _F	I _R		
			Typ.	Min.		Typ.	Max.				Max.	V _R	
LN504R	Red	—	450	150	150	5	2.2	2.8	700	100	20	10	5
LN504G	Green	—	1500	500	500	10	2.2	2.8	565	30	20	10	5
LN504Y	Amber	—	600	200	200	10	2.2	2.8	590	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



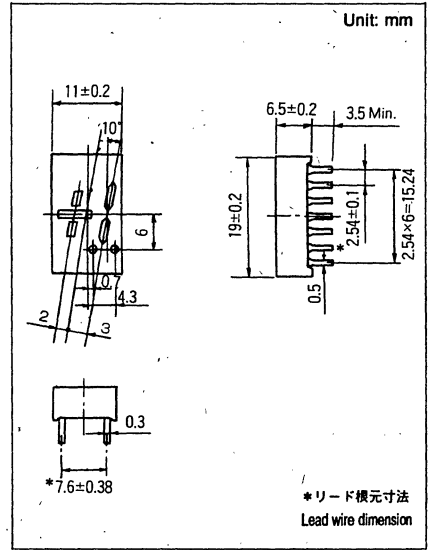
0.4inch Series

Type No. Lighting Color
 LN504RR Red
 LN504GR Green
 LN504YR Amber

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode d
2	Anode d
3	—
4	Cathode c
5	Cathode e
6	Anode e
7	Anode c
8	Anode dp2
9	Cathode dp2
10	Cathode b
11	Cathode a
12	—
13	Anode a
14	Anode b



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

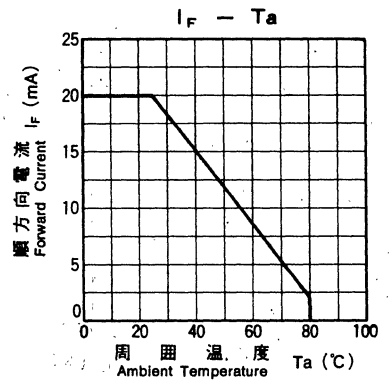
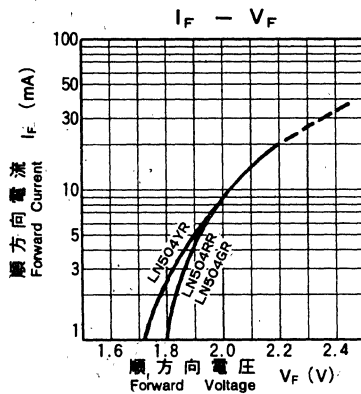
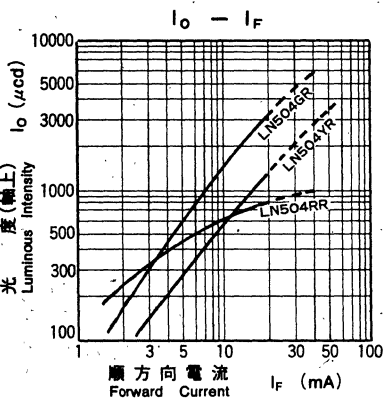
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85
Amber	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I _o /seg		I _o /d.p.		I _F	V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Typ.	Max.
LN504RR	Red	—	450	150	150	5	2.2	2.8	700	100	20	10	5	
LN504GR	Green	—	1500	500	500	10	2.2	2.8	565	30	20	10	5	
LN504YR	Amber	—	600	200	200	10	2.2	2.8	590	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	

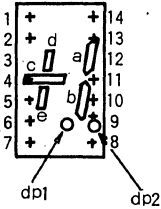
△印は暫定規格を示す。△ Tentative Specification



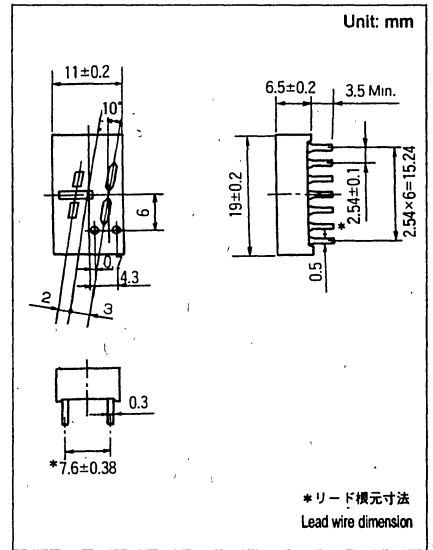
#! 0.4inch Series

Type No.	Lighting Color
LN504RL	Red
LN504GL	Green
LN504YL	Amber

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode d
2	Anode d
3	
4	Cathode c
5	Cathode e
6	Anode e
7	Anode c
8	Anode dp1
9	Cathode dp1
10	Cathode b
11	Cathode a
12	
13	Anode a
14	Anode b



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

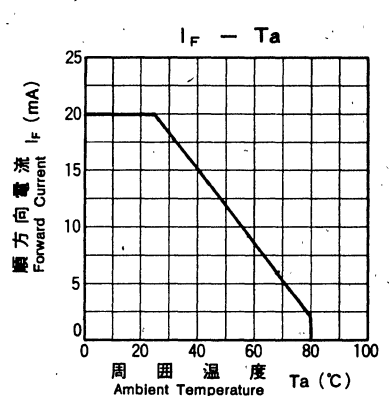
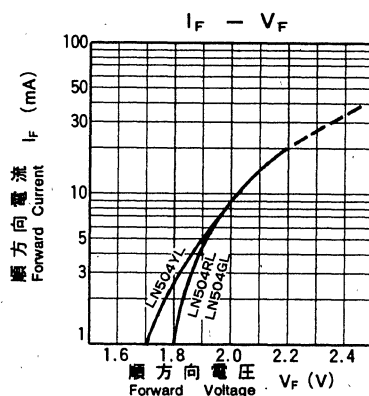
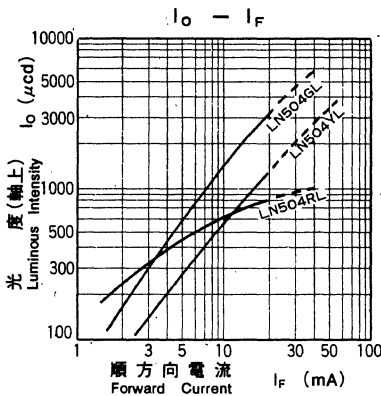
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85
Amber	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _F	Δλ	I _n	
			Typ.	Min.	Typ.	I _F		Typ.	Max.			I _F	Max.
LN504RL	Red	—	450	150	150	5	2.2	2.8	700	100	20	10	5
LN504GL	Green	—	1500	500	500	10	2.2	2.8	565	30	20	10	5
LN504YL	Amber	—	600	200	200	10	2.2	2.8	590	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

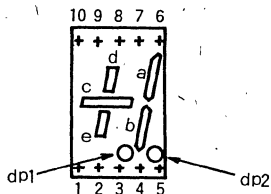
△印は暫定規格を示す。△ Tentative Specification



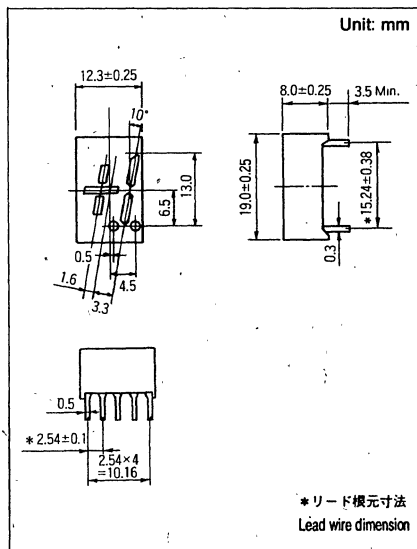
#1 0.6inch Series

Type No.	Lighting Color
LN506RA	Red
LN506RK	Red
LN506GA	Green
LN506GK	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Common Anode c,d,e	Common Cathode c,d,e
3	Cathode b	Anode b
4	Common Anode a,b,dp1,dp2	Common Cathode a,b,dp1,dp2
5	Cathode dp1,dp2	Anode dp1,dp2
6	Cathode a	Anode a
7	Common Anode a,b,dp1,dp2	Common Cathode a,b,dp1,dp2
8	Common Anode c,d,e	Common Cathode c,d,e
9	Cathode d	Anode d
10	Cathode c	Anode c



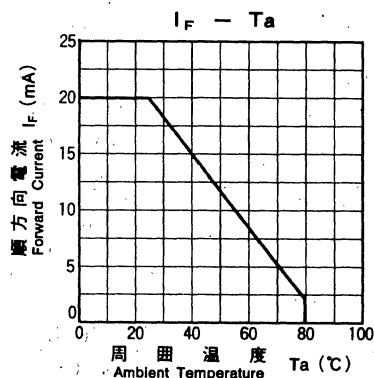
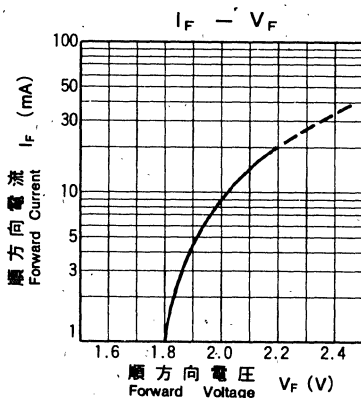
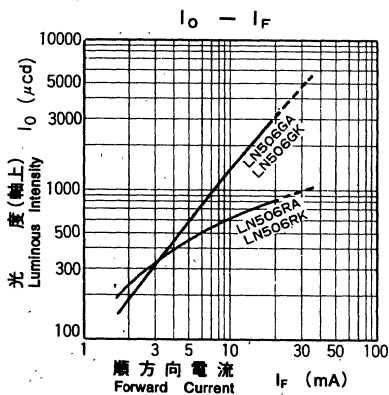
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

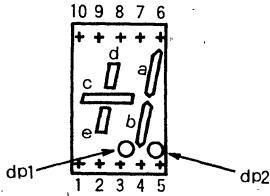
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _F	Δλ	I _n		
			Typ.	Min.	Typ.	I _F		Typ.	Max.			Typ.*	Typ.	I _F
LN506RA	Red	Anode	450	150	150	5	2.2	2.8	700	100	20	10	5	
LN506RK	Red	Cathode	450	150	150	5	2.2	2.8	700	100	20	10	5	
LN506GA	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5	
LN506GK	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



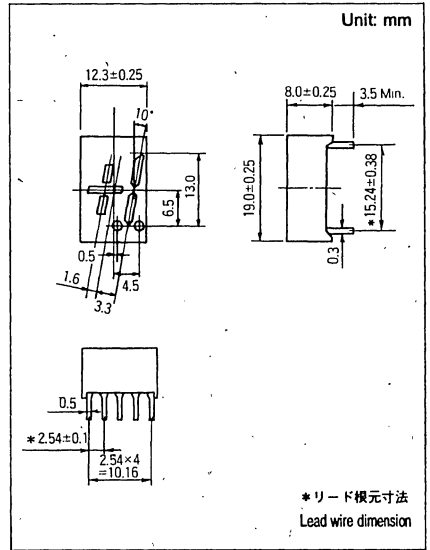
0.6inch Series

Type No.	Lighting Color
LN506YA	Amber
LN506YK	Amber
LN506OA	Orange
LN506OK	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Common Anode c,d,e	Common Cathode c,d,e
3	Cathode b	Anode b
4	Common Anode a,b,dp1,dp2	Common Cathode a,b,dp1,dp2
5	Cathode dp1,dp2	Anode dp1,dp2
6	Cathode a	Anode a
7	Common Anode a,b,dp1,dp2	Common Cathode a,b,dp1,dp2
8	Common Anode c,d,e	Common Cathode c,d,e
9	Cathode d	Anode d
10	Cathode c	Anode c



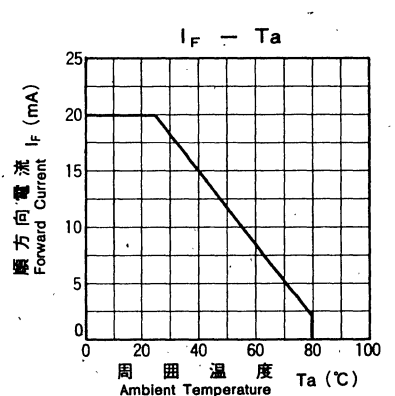
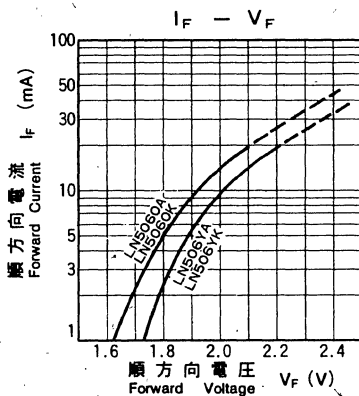
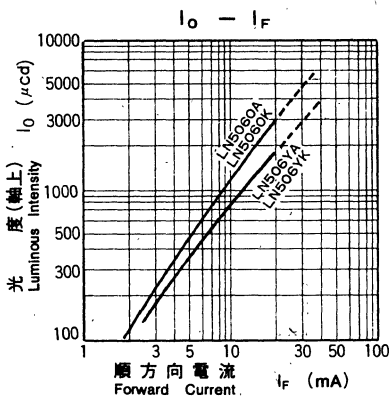
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

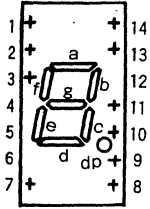
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Typ.	Max.
LN506YA	Amber	Anode	800	300	300	10	2.2	2.8	590	30	20	10	5	
LN506YK	Amber	Cathode	800	300	300	10	2.2	2.8	590	30	20	10	5	
LN506OA	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	3	
LN506OK	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	3	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



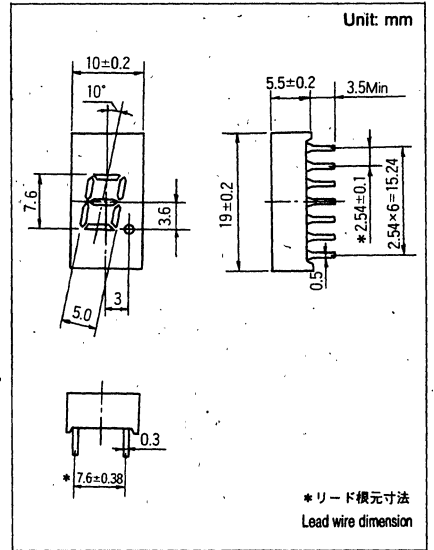
1 Digit 0.3inch Series

Type No.	Lighting Color
LN513RA	Red
LN513RK	Red
LN513GA	Green
LN513GK	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Common Anode	Common Cathode
4		
5		
6		
7	Cathode e	Anode e
8	Cathode d	Anode d
9	Cathode dp	Anode dp
10	Cathode c	Anode c
11	Cathode g	Anode g
12		
13	Cathode b	Anode b
14	Common Anode	Common Cathode



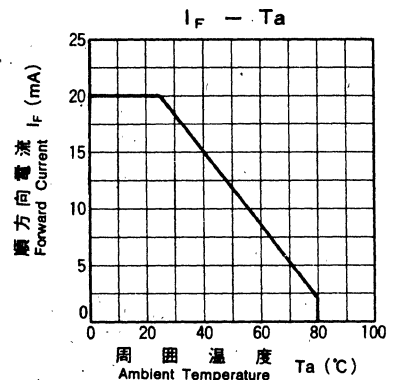
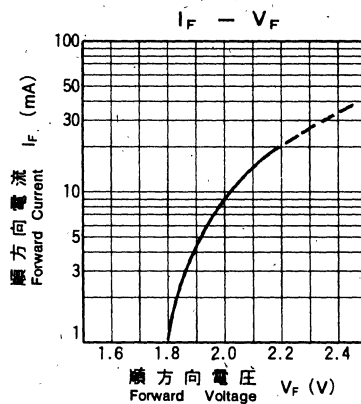
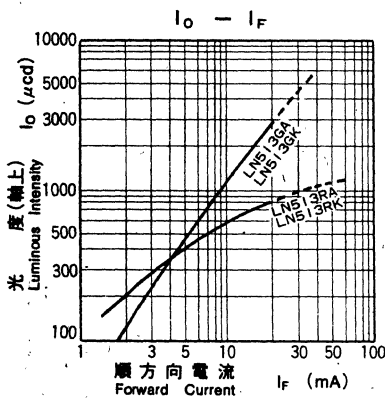
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

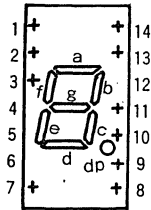
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _R		
			Typ.	Min.	Typ.	I _F		Typ.	Max.			Typ.	Max.	V _R
LN513RA	Red	Anode	400	150	150	5	2.2	2.8	700	100	20	10	5	
LN513RK	Red	Cathode	400	150	150	5	2.2	2.8	700	100	20	10	5	
LN513GA	Green	Anode	1200	400	400	10	2.2	2.8	565	30	20	10	5	
LN513GK	Green	Cathode	1200	400	400	10	2.2	2.8	565	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



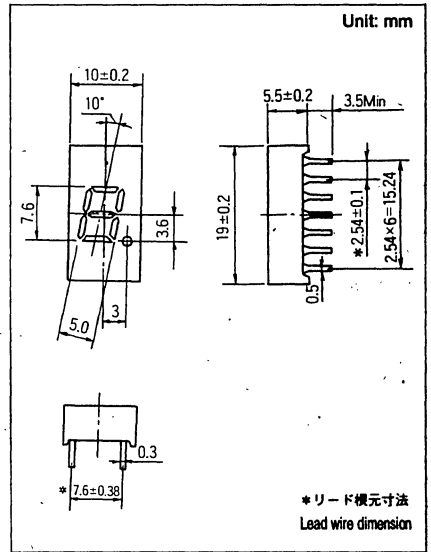
1 Digit 0.3inch Series

- Type No. Lighting Color
- LN513YA Amber
 - LN513YK Amber
 - LN513OA Orange
 - LN513OK Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Common Anode	Common Cathode
4		
5		
6		
7	Cathode e	Anode e
8	Cathode d	Anode d
9	Cathode dp	Anode dp
10	Cathode c	Anode c
11	Cathode g	Anode g
12		
13	Cathode b	Anode b
14	Common Anode	Common Cathode



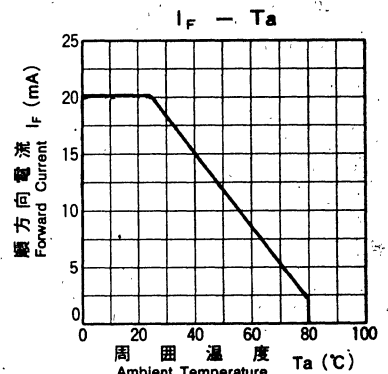
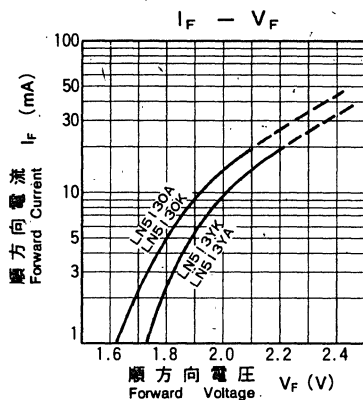
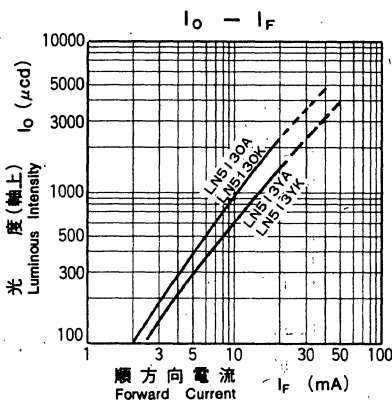
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tavg (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

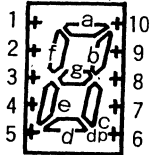
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p	I _F	V _F		λ _p	Δλ	I _F	I ₀	
			Typ.	Min.			Typ.	Typ.				Max.	Typ.
LN513YA	Amber	Anode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN513YK	Amber	Cathode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN513OA	Orange	Anode	1000	300	400	10	2.1	2.8	630	40	20	10	3
LN513OK	Orange	Cathode	1000	300	400	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



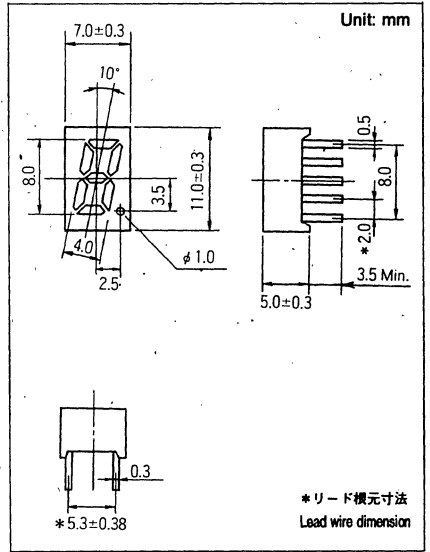
1 Digit 0.3inch Series

Type No.	Lighting Color
LN513RAM	Red
LN513RKM	Red
LN513GAM	Green
LN513GKM	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Cathode g	Anode g
4	Cathode e	Anode e
5	Cathode d	Anode d
6	Cathode dp	Cathode dp
7	Anode dp	Anode dp
8	Cathode c	Anode c
9	Common Anode	Common Cathode
10	Cathode b	Anode b



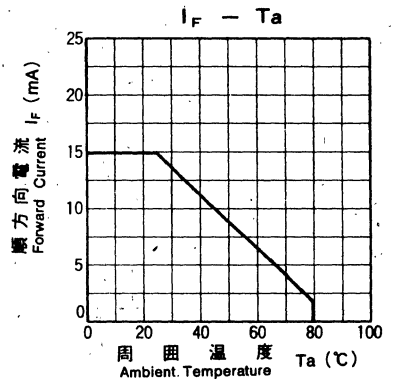
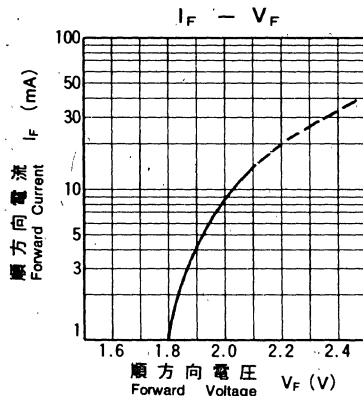
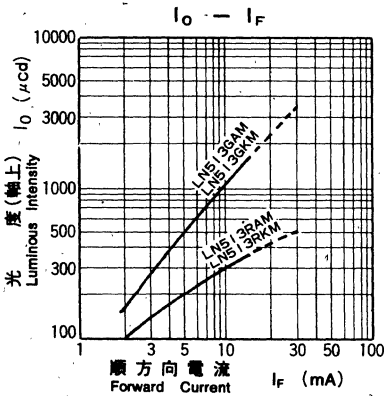
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	40	15	80	5	-25~+80	-30~+85
Green	40	15	80	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

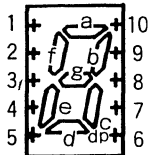
Type No.	Lighting Color	COMMON	I _O /seg		I _O /d.p	I _F	V _F		λ _p	Δλ	I _F	I _n	
			Typ.	Min.			Typ.	Typ.				Max.	Max.
LN513RAM	Red	Anode	200	70	70	5	2.1	2.8	700	100	10	10	5
LN513RKM	Red	Cathode	200	70	70	5	2.1	2.8	700	100	10	10	5
LN513GAM	Green	Anode	1000	300	300	10	2.1	2.8	565	30	10	10	5
LN513GKM	Green	Cathode	1000	300	300	10	2.1	2.8	565	30	10	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



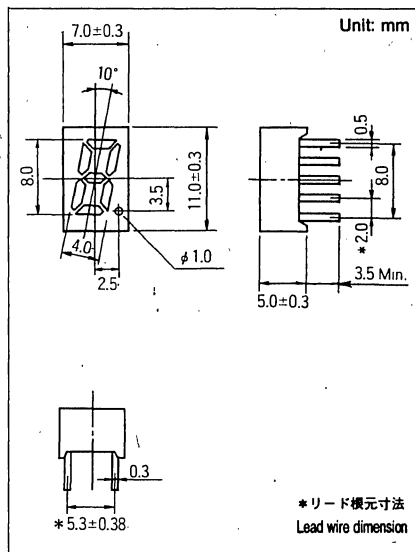
1 Digit 0.3inch Series

Type No. Lighting Color
 LN513YAM..... Amber
 LN513YKM..... Amber

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Cathode g	Anode g
4	Cathode e	Anode e
5	Cathode d	Anode d
6	Cathode dp	Cathode dp
7	Anode dp	Anode dp
8	Cathode c	Anode c
9	Common Anode	Common Cathode
10	Cathode b	Anode b



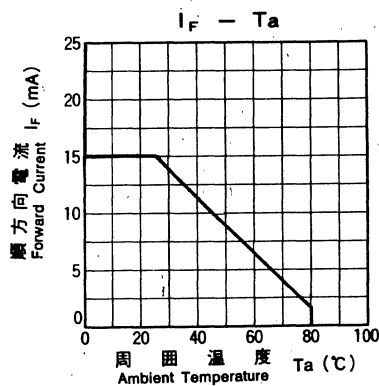
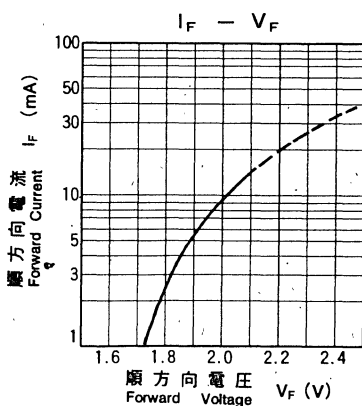
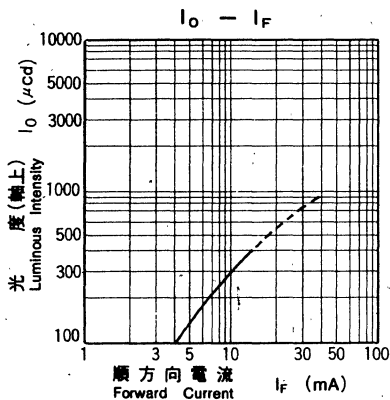
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	40	15	80	5	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

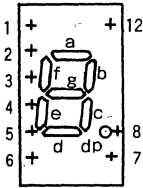
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _F	Δλ	I _F	I _n	V _R
			Typ.	Min.	Typ.	I _F		Typ.	Max.					
LN513YAM	Amber	Anode	300	100	100	10	2.0	2.8	590	30	10	10	5	
LN513YKM	Amber	Cathode	300	100	100	10	2.0	2.8	590	30	10	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



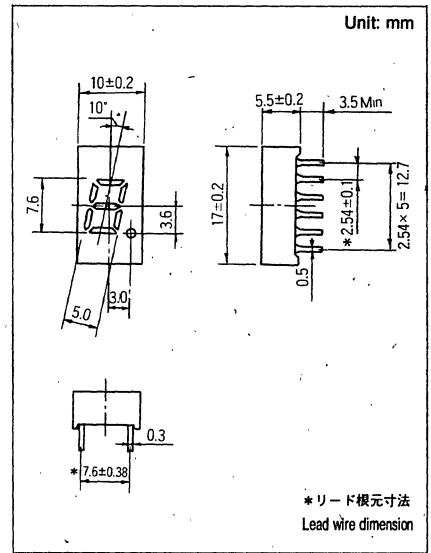
1 Digit 0.3inch Series

Type No.	Lighting Color
LN513RAS	Red
LN513RKS	Red
LN513GAS	Green
LN513GKS	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode b	Anode b
2	Cathode a	Anode a
3	Cathode f	Anode f
4	Cathode e	Anode e
5	Cathode d	Anode d
6	Cathode c	Anode c
7	Cathode dp	Anode dp
8	Common Anode	Common Cathode
9		
10		
11		
12	Cathode g	Anode g



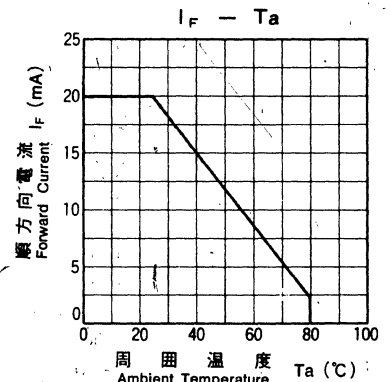
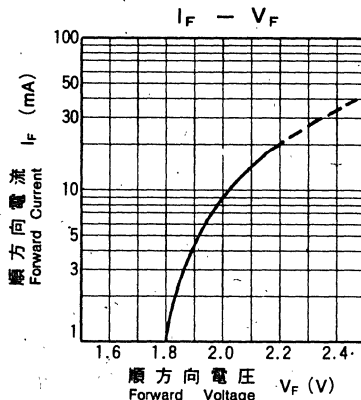
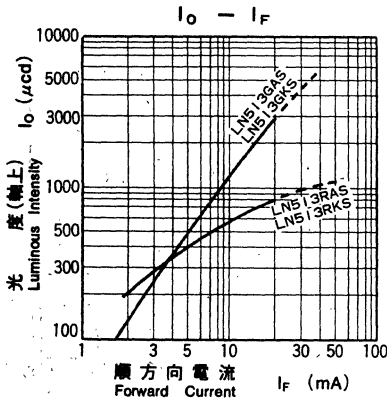
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

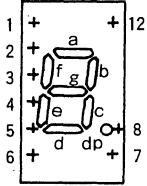
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p	I _F	V _F		λ _F	Δλ	I _F	I _n	
			Typ.	Min.			Typ.	Max.				Typ.	Max.
LN513RAS	Red	Anode	400	150	150	5	2.2	2.8	700	100	20	10	5
LN513RKS	Red	Cathode	400	150	150	5	2.2	2.8	700	100	20	10	5
LN513GAS	Green	Anode	1200	400	400	10	2.2	2.8	565	30	20	10	5
LN513GKS	Green	Cathode	1200	400	400	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



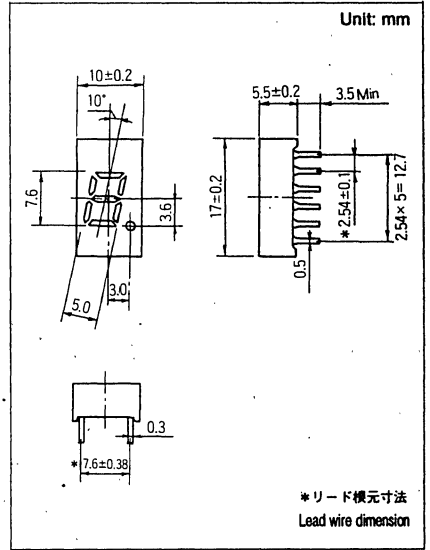
1 Digit 0.3inch Series

Type No.	Lighting Color
LN513YAS.....	Amber
LN513YKS.....	Amber
LN513OAS.....	Orange
LN513OKS.....	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode b	Anode b
2	Cathode a	Anode a
3	Cathode f	Anode f
4	Cathode e	Anode e
5	Cathode d	Anode d
6	Cathode c	Anode c
7	Cathode dp	Anode dp
8	Common Anode	Common Cathode
9		
10		
11		
12	Cathode g	Anode g



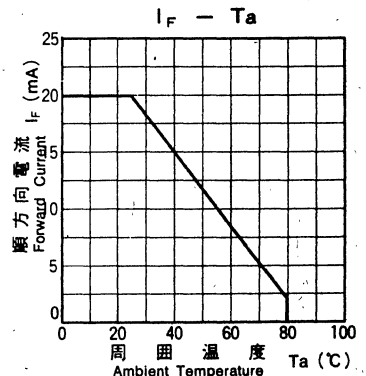
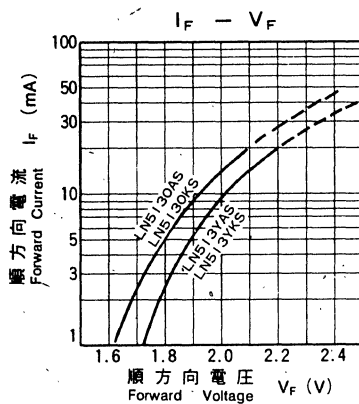
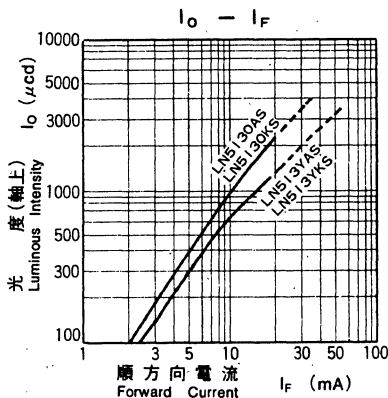
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

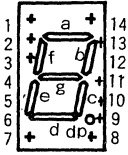
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Typ.	Max.
LN513YAS	Amber	Anode	600	200	200	10	2.2	2.8	590	30	20	10	5	
LN513YKS	Amber	Cathode	600	200	200	10	2.2	2.8	590	30	20	10	5	
LN513OAS	Orange	Anode	1000	300	400	10	2.1	2.8	630	40	20	10	3	
LN513OKS	Orange	Cathode	1000	300	400	10	2.1	2.8	630	40	20	10	3	
Unit			μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



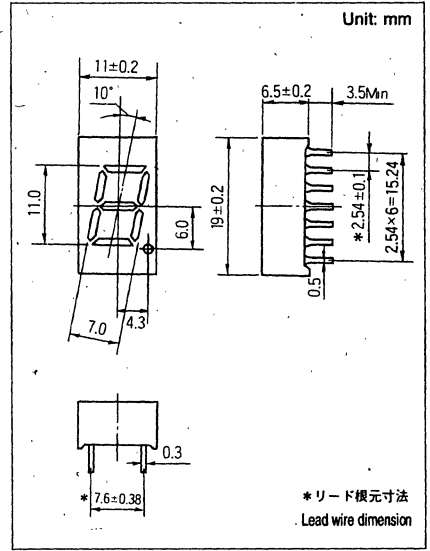
1 Digit 0.4inch Series

Type No.	Lighting Color
LN514RA	Red
LN514RK	Red
LN514GA	Green
LN514GK	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Common Anode	Common Cathode
4	_____	_____
5	_____	_____
6	_____	_____
7	Cathode e	Anode e
8	Cath. e d	Anode d
9	Cathode dp	Anode dp
10	Cathode c	Anode c
11	Cathode g	Anode g
12	_____	_____
13	Cathode b	Anode b
14	Common Anode	Common Cathode



*リード線寸法
Lead wire dimension

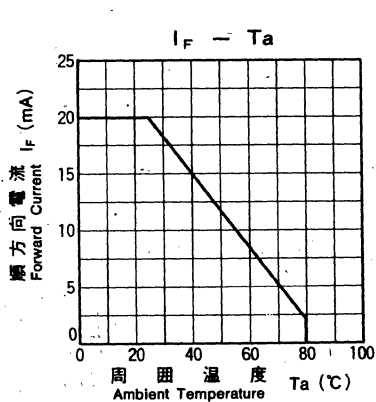
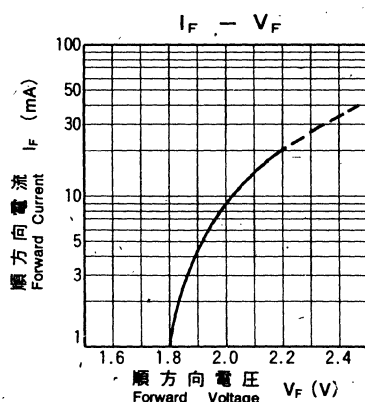
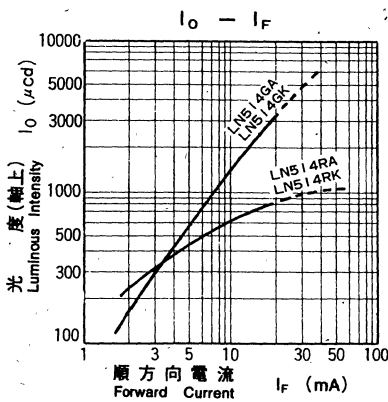
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

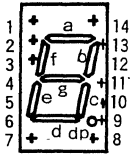
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p.	I _F	V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.			Typ.	Typ.				Max.	Typ.
LN514RA	Red	Anode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN514RK	Red	Cathode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN514GA	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5
LN514GK	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



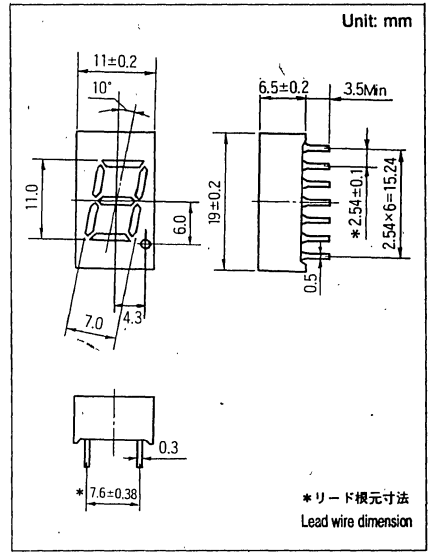
1 Digit 0.4inch Series

Type No.	Lighting Color
LN514YA	Amber
LN514YK	Amber
LN514OA	Orange
LN514OK	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Common Anode	Common Cathode
4	—	—
5	—	—
6	—	—
7	Cathode e	Anode e
8	Cathode d	Anode d
9	Cathode dp	Anode dp
10	Cathode c	Anode c
11	Cathode g	Anode g
12	—	—
13	Cathode b	Anode b
14	Common Anode	Common Cathode



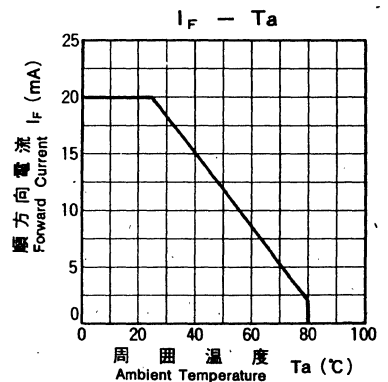
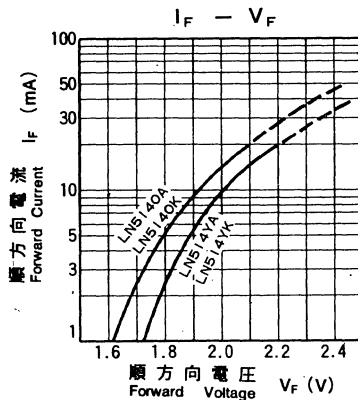
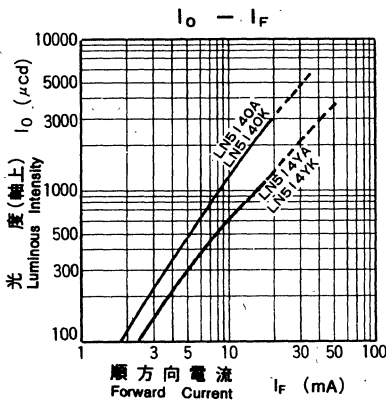
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP} の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec.

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

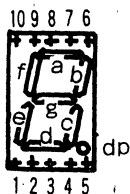
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p	I _F	V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.			Typ.	Typ.				Max.	Max.
LN514YA	Amber	Anode	600	200	200	10	2.2	2.8	590	30	20	10'	5
LN514YK	Amber	Cathode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN514OA	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	3
LN514OK	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



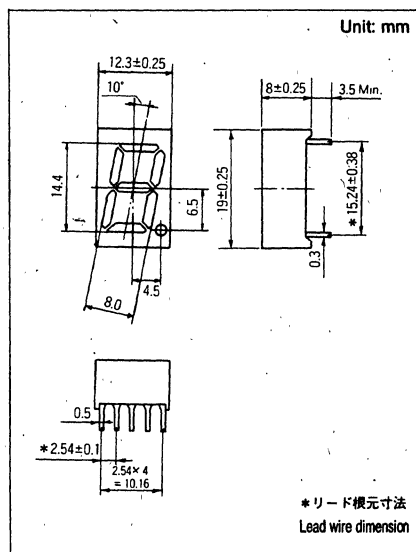
1 Digit 0.6inch Series

Type No. Lighting Color
 LN516RA Red
 LN516RK Red
 LN516GA Green
 LN516GK Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Cathode d	Anode d
3	Common Anode	Common Cathode
4	Cathode c	Anode c
5	Cathode dp	Anode dp
6	Cathode b	Anode b
7	Cathode a	Anode a
8	Common Anode	Common Cathode
9	Cathode f	Anode f
10	Cathode g	Anode g



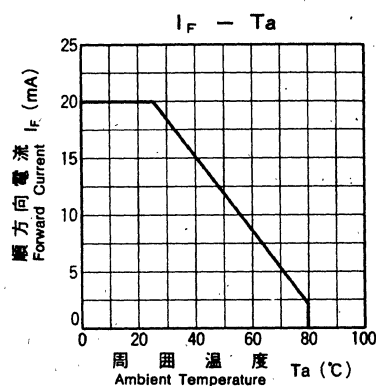
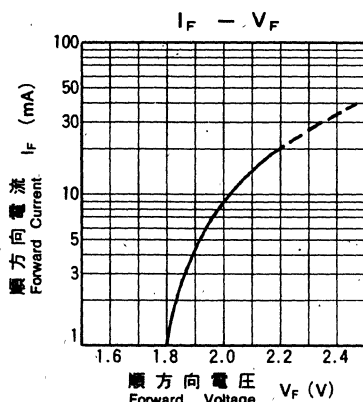
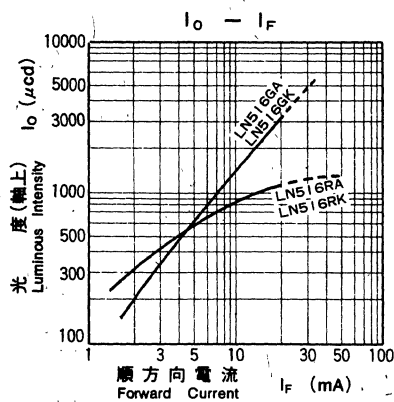
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _A (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%、Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p.	I _F	V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.			Typ.	Typ.				Max.	Max.
LN516RA	Red	Anode	600	250	250	5	2.2	2.8	700	100	20	10	5
LN516RK	Red	Cathode	600	250	250	5	2.2	2.8	700	100	20	10	5
LN516GA	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5
LN516GK	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

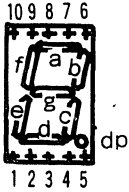


1 Digit 0.6inch Series

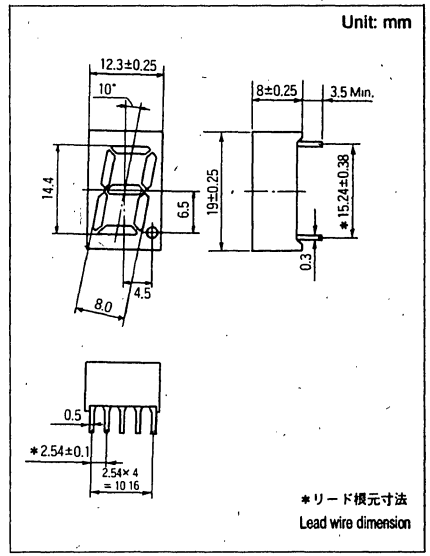
Type No. Lighting Color

- LN516YA Amber
- LN516YK Amber
- LN516OA Orange
- LN516OK Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Cathode d	Anode d
3	Common Anode	Common Cathode
4	Cathode c	Anode c
5	Cathode dp	Anode dp
6	Cathode b	Anode b
7	Cathode a	Anode a
8	Common Anode	Common Cathode
9	Cathode f	Anode f
10	Cathode g	Anode g



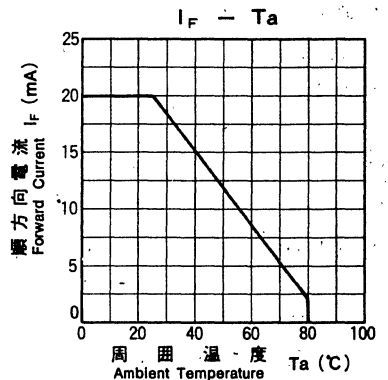
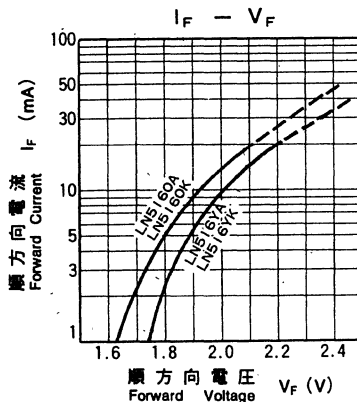
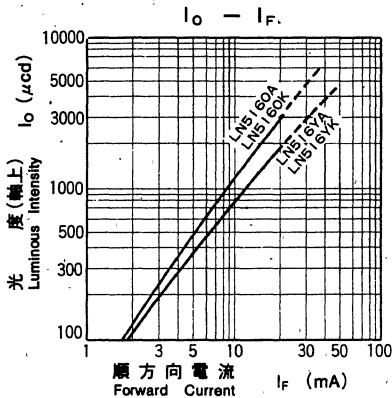
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

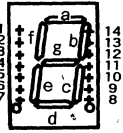
Type No	Lighting Color	COMMON	I _o /seg				I _F	V _F		λ _P	Δλ	I _F	I _o	V _F
			Typ.	Min.	Typ.	I _F		Typ.	Max.					
LN516YA	Amber	Anode	800	300	300	10	2.2	2.8	590	30	20	10	5	
LN516YK	Amber	Cathode	800	300	300	10	2.2	2.8	590	30	20	10	5	
LN516OA	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	3	
LN516OK	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	3	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



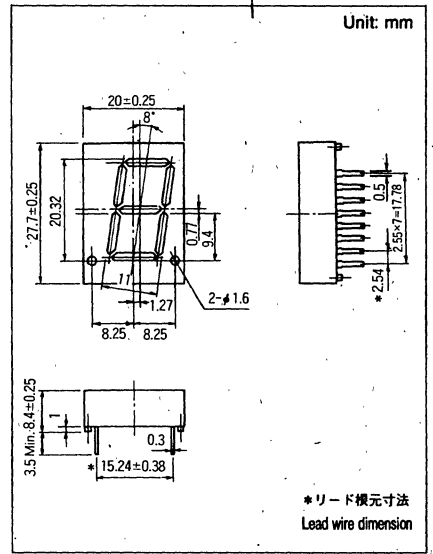
1 Digit 0.8inch Series

Type No.	Lighting Color
LN518RA	Red
LN518RK	Red
LN518GA	Green
LN518GK	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Common Anode	Common Cathode
4	Cathode e	Anode e
5	Common Anode	Common Cathode
6	Cathode dp1	Anode dp1
7	Common Anode	Common Cathode
8	Cathode dp2	Anode dp2
9	Cathode d	Anode d
10	Common Anode	Common Cathode
11	Cathode c	Anode c
12	Cathode g	Anode g
13	Cathode b	Anode b
14	Common Anode	Common Cathode



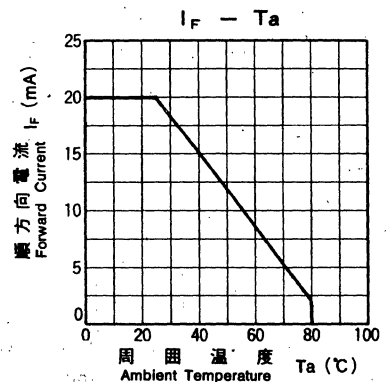
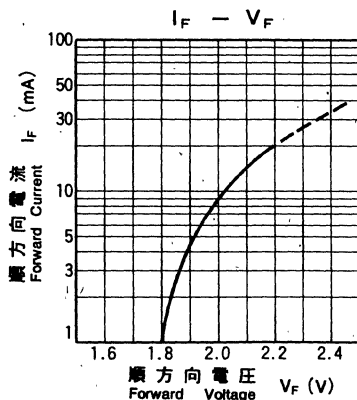
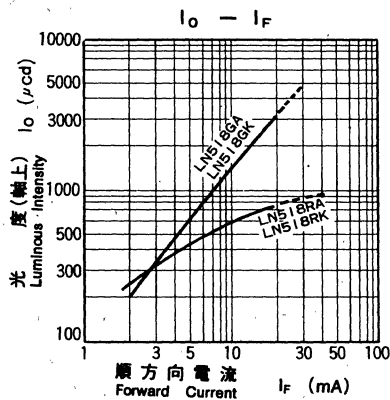
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _p (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

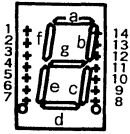
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		Δλ	I _F	I _n	V _R
			Typ.	Min.	Typ.	Typ.		Typ.	Max.				
LN518RA	Red	Anode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN518RK	Red	Cathode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN518GA	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5
LN518GK	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



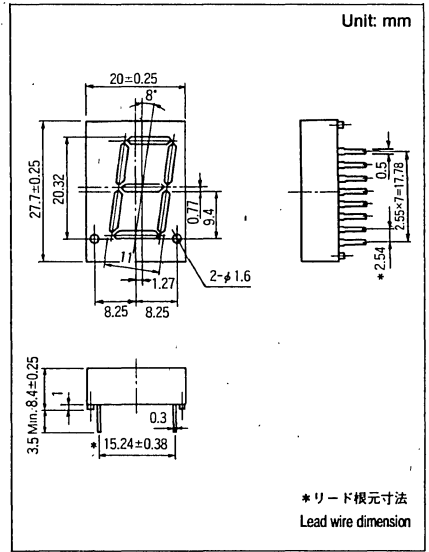
1 Digit 0.8inch Series

Type No.	Lighting Color
LN518YA	Amber
LN518YK	Amber
LN518OA	Orange
LN518OK	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode a	Anode a
2	Cathode f	Anode f
3	Common Anode	Common Cathode
4	Cathode e	Anode e
5	Common Anode	Common Cathode
6	Cathode dp1	Anode dp1
7	Common Anode	Common Cathode
8	Cathode dp2	Anode dp2
9	Cathode d	Anode d
10	Common Anode	Common Cathode
11	Cathode c	Anode c
12	Cathode g	Anode g
13	Cathode b	Anode b
14	Common Anode	Common Cathode



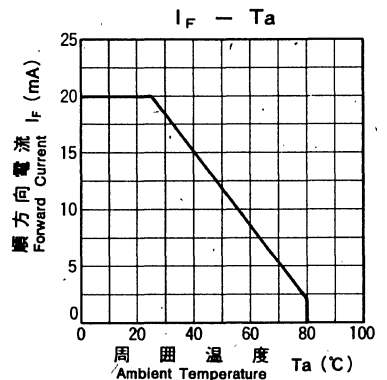
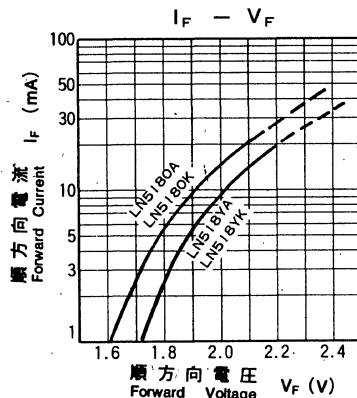
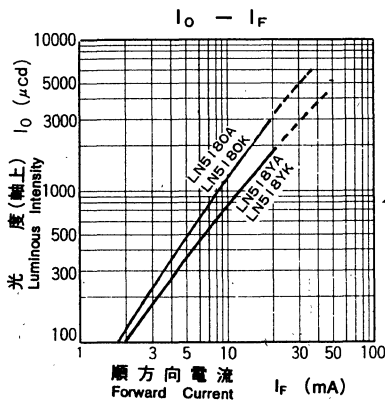
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

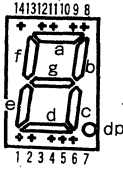
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p	I _F	V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.			Typ.	Typ.				Typ.	Max.
LN518YA	Amber	Anode	800	300	300	10	2.2	2.8	590	30	20	10	5
LN518YK	Amber	Cathode	800	300	300	10	2.2	2.8	590	30	20	10	5
LN518OA	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	3
LN518OK	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



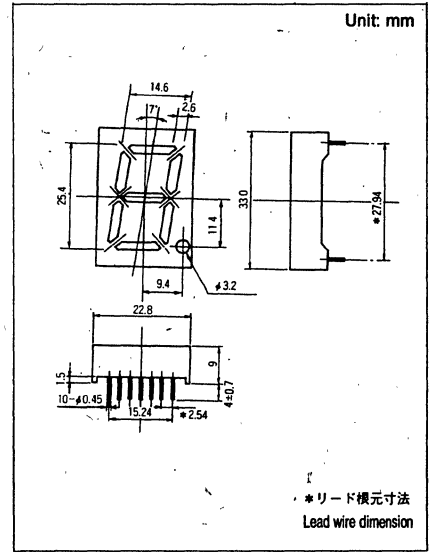
1 Digit 1.0inch Series

Type No.	Lighting Color
LN5110GAMW	Green
LN5110GKMW	Green
LN5110OAMW	Orange
LN5110OKMW	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Cathode d	Anode d
3	Common Anode	Common Cathode
4	Common Anode	Common Cathode
5	Cathode c	Anode c
6	Cathode dp	Anode dp
7	Common Anode	Common Cathode
8	Cathode b	Anode b
9	Cathode a	Anode a
10	Common Anode	Common Cathode
11	Common Anode	Common Cathode
12	Cathode f	Anode f
13	Common Anode	Common Cathode
14	Cathode g	Anode g



*リード線寸法
Lead wire dimension

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

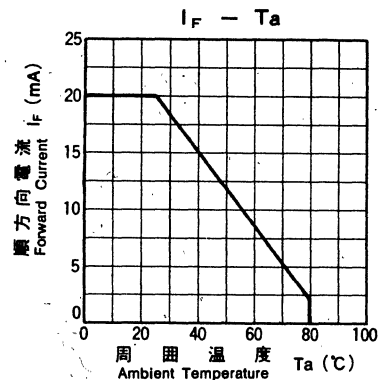
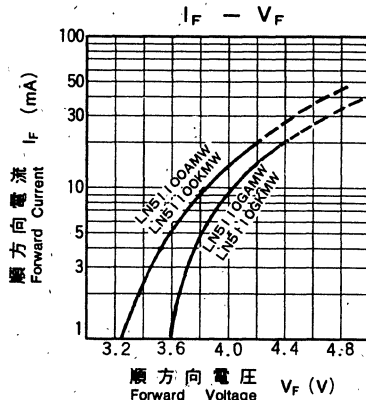
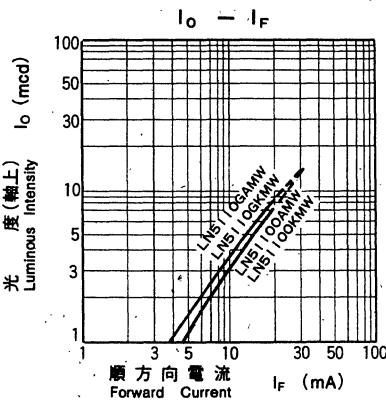
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	T _{opr} (°C)	T _{stg} (°C)
Green	110	20	100	5	-25~+80	-30~+85
Orange	110	20	100	3	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p.	I _F	V _F		λ _P	Δλ	I _F	I _F	
			Typ.	Min.			Typ.	Typ.				Max.	Max.
△ LN5110GAMW	Green	Anode	3.5	1.4	1.2	10	4.4	5.6	565	30	20	10	10
△ LN5110GKMW	Green	Cathode	3.5	1.4	1.2	10	4.4	5.6	565	30	20	10	10
△ LN5110OAMW	Orange	Anode	3.0	1.2	1.0	10	4.2	5.6	630	40	20	10	6
△ LN5110OKMW	Orange	Cathode	3.0	1.2	1.0	10	4.2	5.6	630	40	20	10	6
Unit	—	—	mcd	mcd	mcd	mA	V	V	nm	nm	mA	μA	V

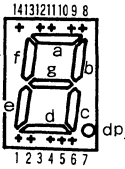
△印は暫定規格を示す。△ Tentative Specification



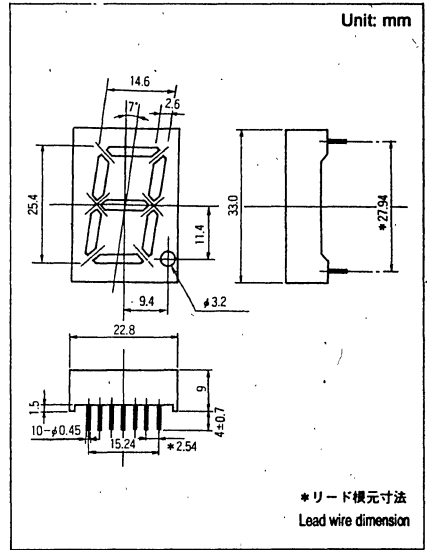
1 Digit 1.0inch Series

Type No. Lighting Color
 LN5110ALAMW Red
 LN5110ALKMW Red

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Cathode d	Anode d
3		
4	Common Anode	Common Cathode
5	Cathode c	Anode c
6	Cathode dp	Anode dp
7		
8	Cathode b	Anode b
9	Cathode a	Anode a
10		
11	Common Anode	Common Cathode
12	Cathode f	Anode f
13		
14	Cathode g	Anode g



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

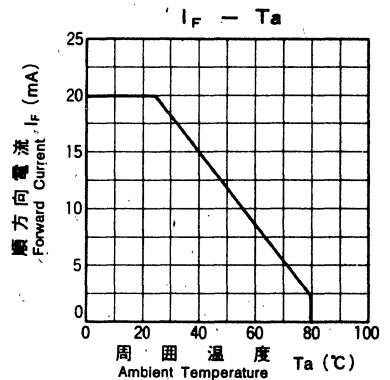
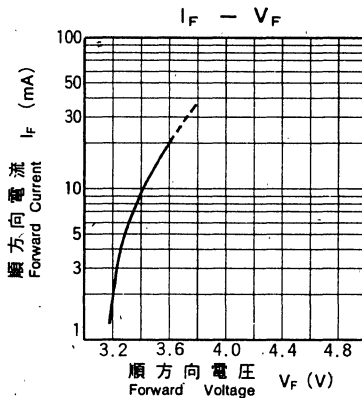
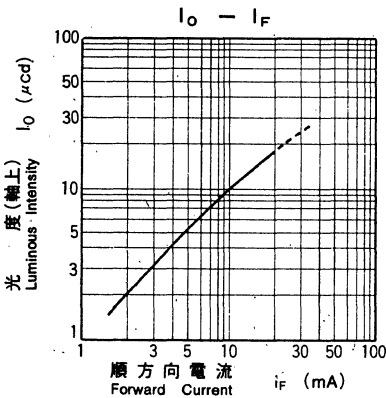
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	100	20	100	6	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P		I _F	I _R	
			Typ.	Min.	Typ.			Typ.	Max.	Typ.	Typ.		Max.	V _R
LN5110ALAMW	Red	Anode	10.0	3.0	3.0	10	3.6	5.2	660	20	20	100	6	6
LN5110ALKMW	Red	Cathode	10.0	3.0	3.0	10	3.6	5.2	660	20	20	100	6	6
Unit	—	—	mcd	mcd	mcd	mA	V	V	nm	nm	mA	μA	V	V

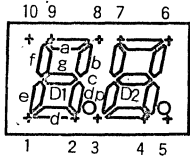
△印は暫定規格を示す。△ Tentative Specification



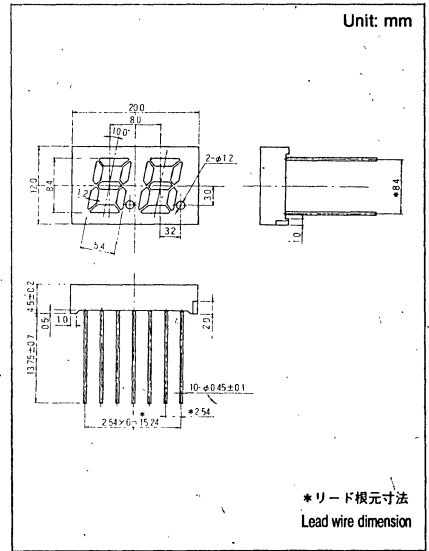
2 Digit 0.3inch Series

Type No. Lighting Color
 LN523RAMR Red
 LN523RKMR Red
 LN523GAMG Green
 LN523GKMG Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode c	Anode c
2	Cathode dp	Anode dp
3	Common Anode D2	Common Cathode D2
4	Cathode e	Anode e
5	Cathode d	Anode d
6	Cathode f	Anode f
7	Cathode g	Anode g
8	Common Anode D1	Common Cathode D1
9	Cathode b	Anode b
10	Cathode a	Anode a



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

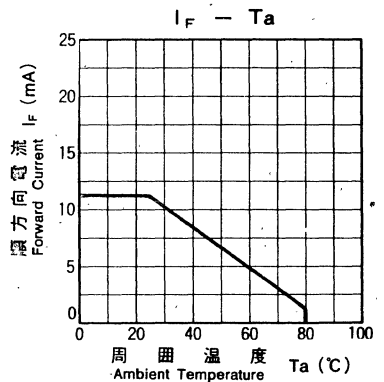
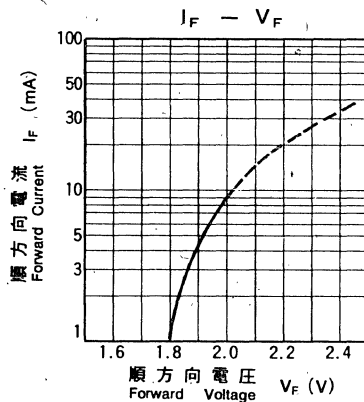
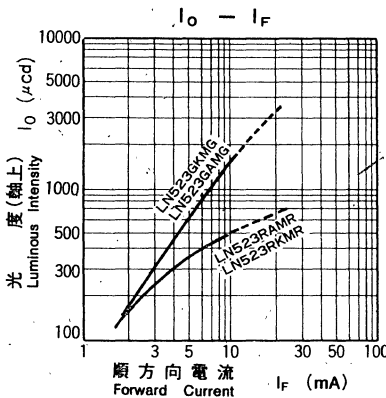
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _n (V)	Topr (°C)	Tstg (°C)
Red	32	11	60	5	-25~+80	-30~+85
Green	32	11	60	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p.	I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.			Typ.	Typ.				Max.	I _F
LN523RAMR	Red	Anode	500	200	200	10	2.03	2.8	700	100	10	10	5
LN523RKMR	Red	Cathode	500	200	200	10	2.03	2.8	700	100	10	10	5
LN523GAMG	Green	Anode	1600	600	500	10	2.03	2.8	565	30	10	10	5
LN523GKMG	Green	Cathode	1600	600	500	10	2.03	2.8	565	30	10	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

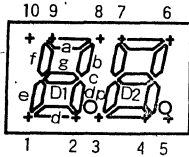
△印は暫定規格を示す。△ Tentative Specification



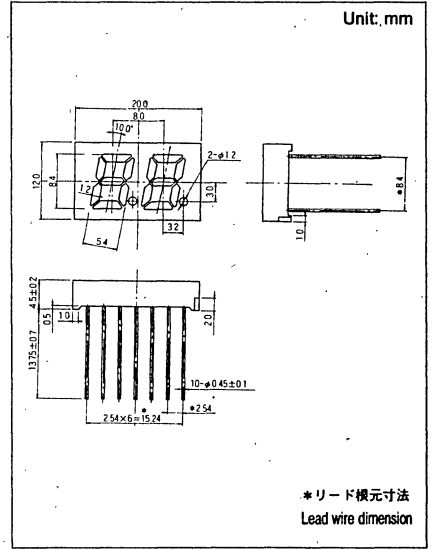
2 Digit 0.3inch Series

Type No. Lighting Color
 LN523YAMY..... Amber
 LN523YKMY..... Amber

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode c	Anode c
2	Cathode dp	Anode dp
3	Common Anode D2	Common Cathode D2
4	Cathode e	Anode e
5	Cathode d	Anode d
6	Cathode f	Anode f
7	Cathode g	Anode g
8	Common Anode D1	Common Cathode D1
9	Cathode b	Anode b
10	Cathode a	Anode a



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

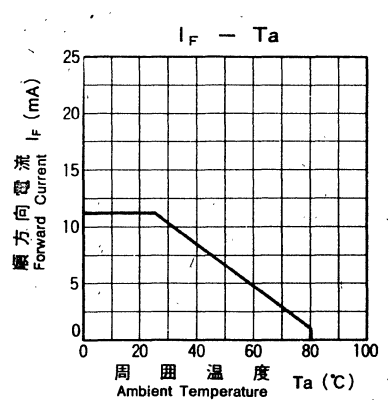
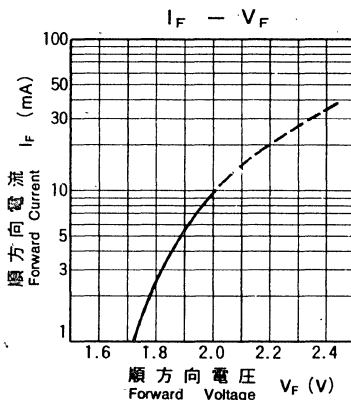
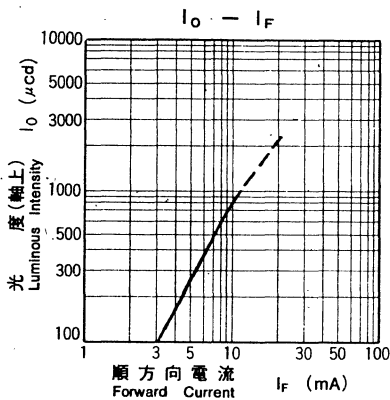
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	32	11	60	5	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I _O /seg				V _F				I _R		
			Typ.	Min.	Typ.	I _F	Typ.	Max.	Typ.	I _F	Max.	V _R	
△ LN523YAMY	Amber	Anode	800	300	300	10	2.0	2.8	590	30	10	10	5
△ LN523YKMY	Amber	Cathode	800	300	300	10	2.0	2.8	590	30	10	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

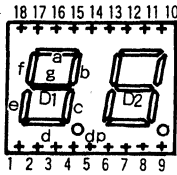
△印は暫定規格を示す。△ Tentative Specification



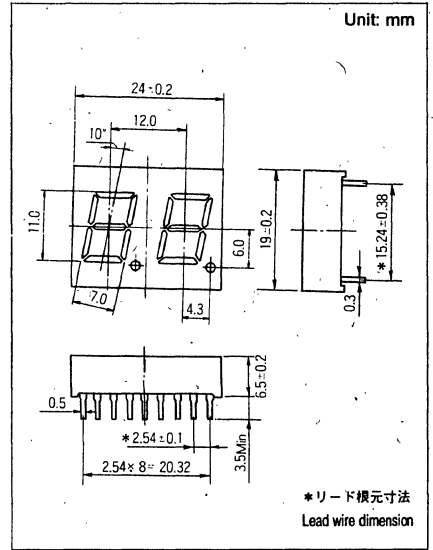
2 Digit 0.4inch Series

- Type No. Lighting Color
- LN524RA Red
- LN524RK Red
- LN524GA Green
- LN524GK Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Cathode c1	Anode c1
4	Cathode dp1	Anode dp1
5	Cathode e2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode c2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16	Cathode a1	Anode a1
17	Cathode g1	Anode g1
18	Cathode f1	Anode f1



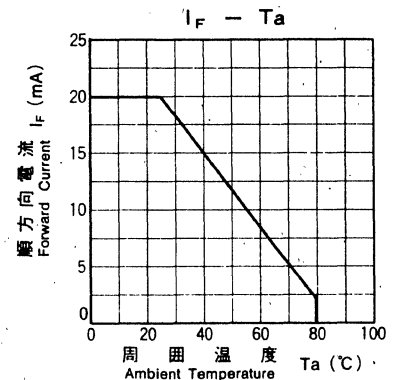
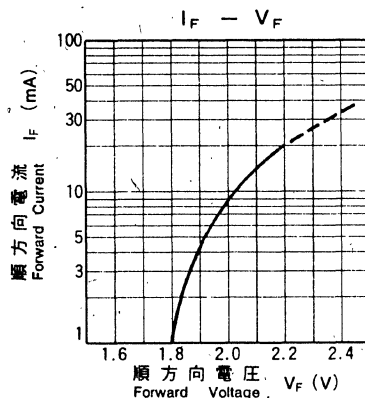
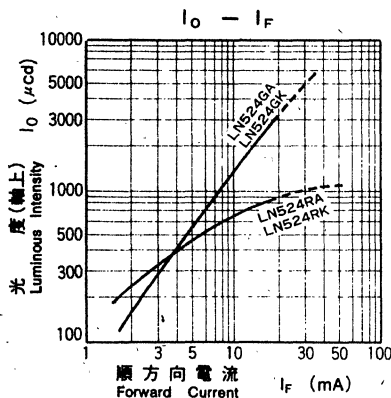
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

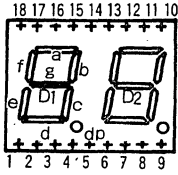
Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I _R		
			Typ.	Min.		Typ.	Max.				Typ.	Max.	V _R
LN524RA	Red	Anode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN524RK	Red	Cathode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN524GA	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5
LN524GK	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



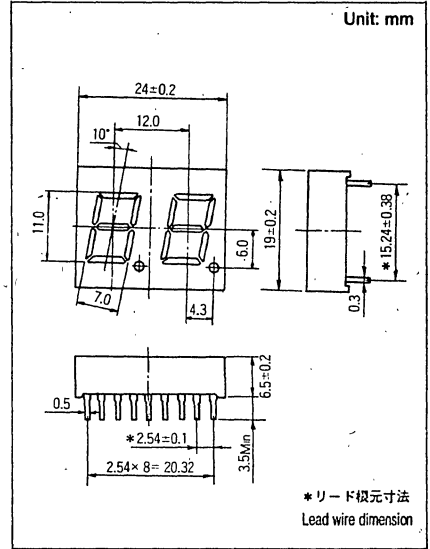
2 Digit 0.4inch Series

Type No.	Lighting Color
LN524YA	Amber
LN524YK	Amber
LN524OA	Orange
LN524OK	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Cathode c1	Anode c1
4	Cathode dp1	Anode dp1
5	Cathode a2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode c2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16	Cathode a1	Anode a1
17	Cathode g1	Anode g1
18	Cathode f1	Anode f1



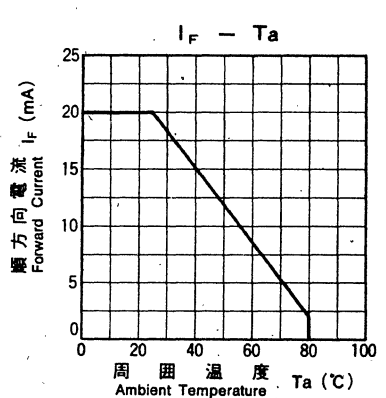
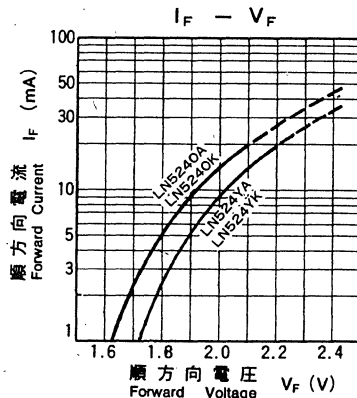
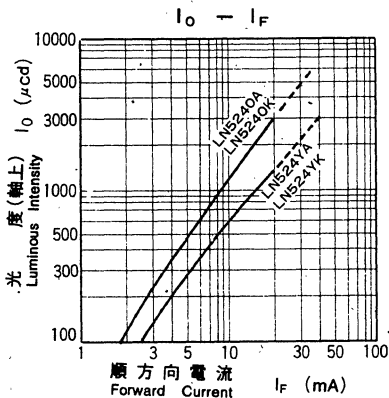
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

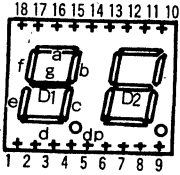
Type No.	Lighting Color	COMMON	I _O /seg		I _F	V _F		λ _P	Δλ	I _F	I _R		
			Typ.	Min.		Typ.	Max.				Typ.	Max.	V _R
LN524YA	Amber	Anode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN524YK	Amber	Cathode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN524OA	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	3
LN524OK	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



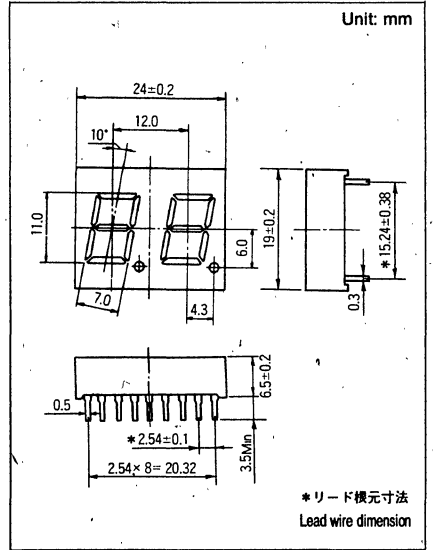
18 0.4inch Series

Type No.	Lighting Color
LN5241RA	Red
LN5241RK	Red
LN5241GA	Green
LN5241GK	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1		
2		
3	Cathode c1	Anode c1
4		
5	Cathode e2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode c2	Anode c2
9		
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16		
17		
18		



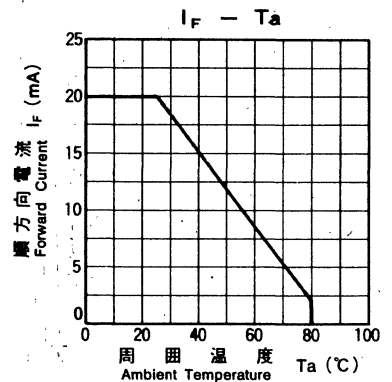
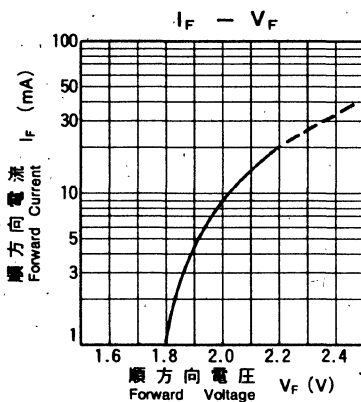
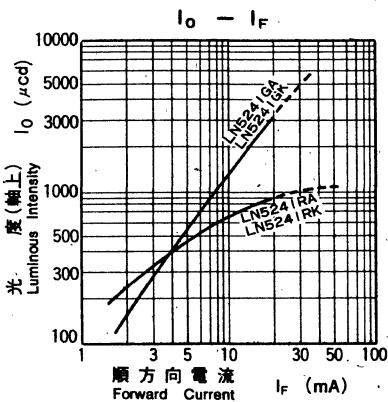
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _F (mW)	I _F (mA)	I _F (mA)*	V _F (V)	T _{op} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_Fの条件は、duty 10%, Pulse width 1 msec. The condition of I_F is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

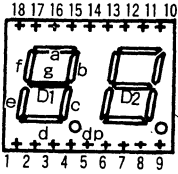
Type No.	Lighting Color	Cathode	I _F /leg		I _F /d.p.		V _F		ΔI		I _F		
			Typ.	Max.	Typ.	I _F	Typ.	Max.	Typ.	Typ.	I _F	Max.	V _A
LN5241RA	Red	Anode	450	150	—	5	2.2	2.8	700	100	20	10	5
LN5241RK	Red	Cathode	450	150	—	5	2.2	2.8	700	100	20	10	5
LN5241GA	Green	Anode	1500	500	—	10	2.2	2.8	565	30	20	10	5
LN5241GK	Green	Cathode	1500	500	—	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



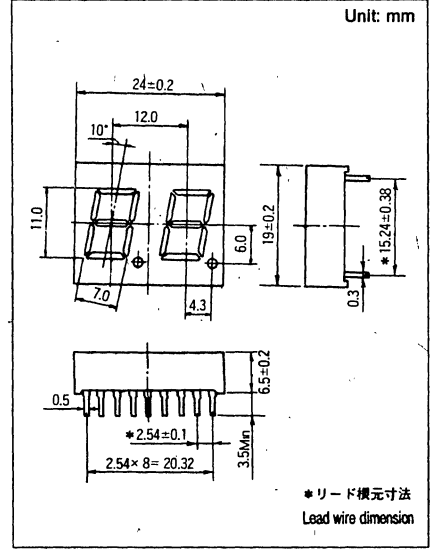
18 0.4inch Series

Type No.	Lighting Color
LN5241YA	Amber
LN5241YK	Amber
LN5241OA	Orange
LN5241OK	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1		
2		
3	Cathode c1	Anode c1
4		
5	Cathode e2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode c2	Anode c2
9		
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16		
17		
18		



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

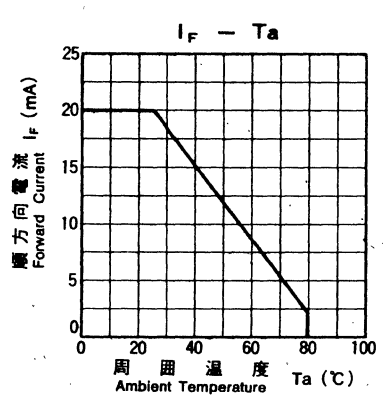
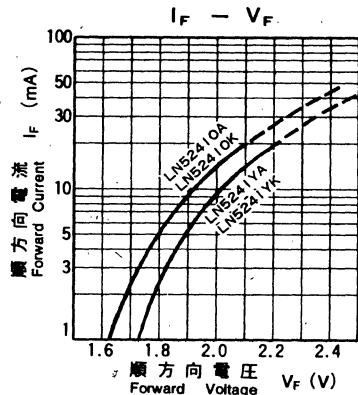
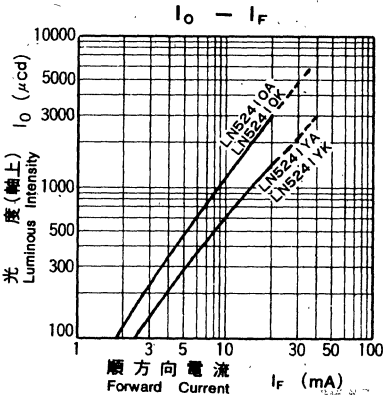
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		V _F		ΔI		I _r		
			Typ.	Min.	Typ.	I _r	Typ.	Max.	Typ.	Typ.	I _r	V ₀	
LN5241YA	Amber	Anode	600	200	—	10	2.2	2.8	590	30	20	10	5
LN5241YK	Amber	Cathode	600	200	—	10	2.2	2.8	590	30	20	10	5
LN5241OA	Orange	Anode	1200	300	—	10	2.1	2.8	630	40	20	10	3
LN5241OK	Orange	Cathode	1200	300	—	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

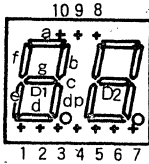
△印は暫定規格を示す。△ Tentative Specification



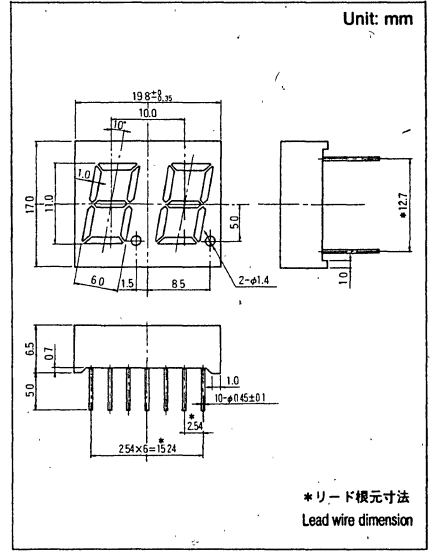
2 Digit 0.4inch Series

- Type No. Lighting Color
- LN524RAMR Red
 - LN524RKMR Red
 - LN524GAMG Green
 - LN524GKMG Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Cathode d	Anode d
3	Cathode c	Anode c
4	Cathode dp	Anode dp
5	Cathode b	Anode b
6	Cathode a	Anode a
7	Cathode g	Anode g
8	Cathode f	Anode f
9	Common Anode D2	Common Cathode D2
10	Common Anode D1	Common Cathode D1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

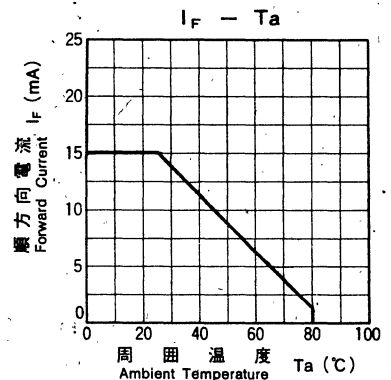
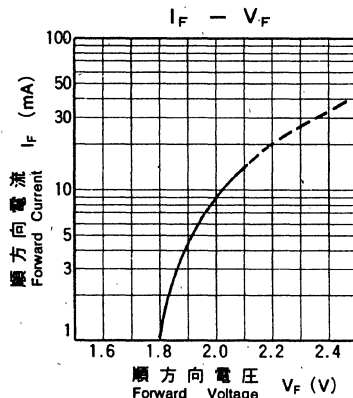
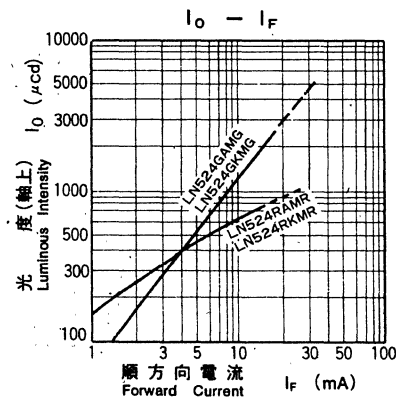
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	40	15	80	5	-25~+80	-30~+85
Green	40	15	80	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p.		I _F	V _F		λ _P	Δλ	I _R		V _R
			Typ.	Min.	Typ.	I _F		Typ.	Max.			Typ.	Max.	
LN524RAMR	Red	Anode	450	200	150	5	2.03	2.8	700	100	10	10	5	
LN524RKMR	Red	Cathode	450	200	150	5	2.03	2.8	700	100	10	10	5	
LN524GAMG	Green	Anode	1500	500	500	10	2.03	2.8	565	30	10	10	5	
LN524GKMG	Green	Cathode	1500	500	500	10	2.03	2.8	565	30	10	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	

△印は暫定規格を示す。△ Tentative Specification

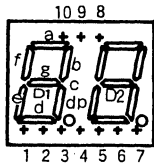


2 Digit 0.4inch Series

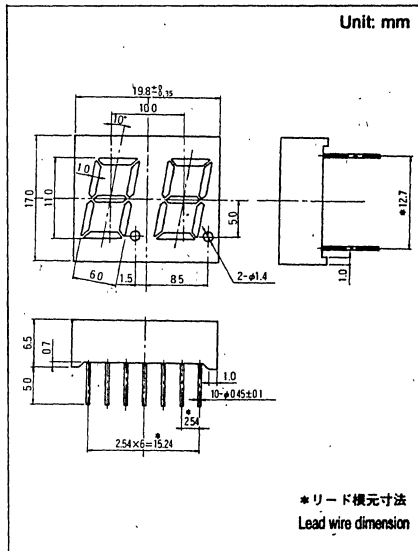
Type No. Lighting Color

- LN524YAMY..... Amber
- LN524YKMY..... Amber
- LN524OAMO..... Orange
- LN524OKMO..... Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e	Anode e
2	Cathode d	Anode d
3	Cathode c	Anode c
4	Cathode dp	Anode dp
5	Cathode b	Anode b
6	Cathode a	Anode a
7	Cathode g	Anode g
8	Cathode f	Anode f
9	Common Anode D2	Common Cathode D2
10	Common Anode D1	Common Cathode D1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

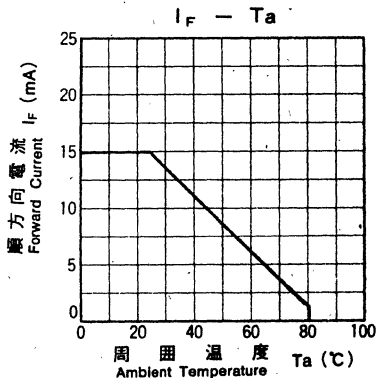
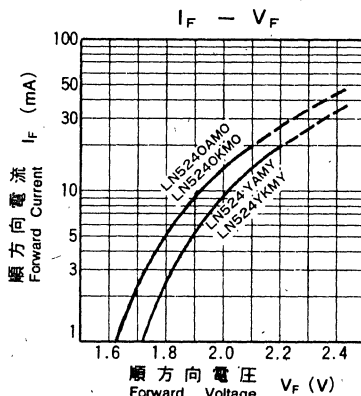
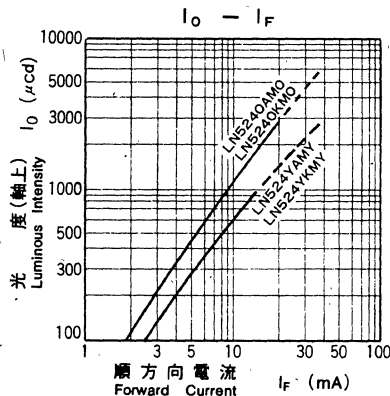
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	15	100	5	-25~+80	-30~+85
Orange	60	15	100	3	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _r		
			Typ.	Min.	Typ.	I _F		Typ.	Max.			Typ.	Max.	V _R
△ LN524YAMY	Amber	Anode	600	200	200	10	2.00	2.8	590	30	10	10	10	5
△ LN524YKMY	Amber	Cathode	600	200	200	10	2.00	2.8	590	30	10	10	10	5
△ LN524OAMO	Orange	Anode	1200	300	500	10	1.93	2.8	630	40	10	10	10	3
△ LN524OKMO	Orange	Cathode	1200	300	500	10	1.93	2.8	630	40	10	10	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	

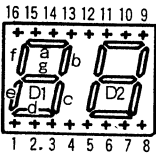
△印は暫定規格を示す。△ Tentative Specification



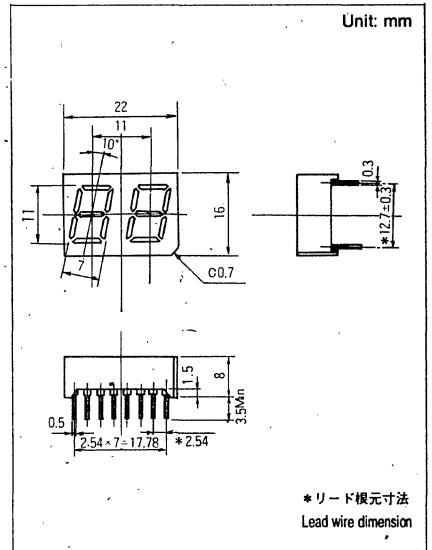
2 Digit 0.4inch Series

Type No.	Lighting Color
LN524RAS	Red
LN524RKS	Red
LN524GAS	Green
LN524GKS	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode c1	Anode c1
2	Cathode e1	Anode e1
3	Cathode d1	Anode d1
4	Common Anode D1	Common Cathode D1
5	Common Anode D2	Common Cathode D2
6	Cathode d2	Anode d2
7	Cathode e2	Anode e2
8	Cathode c2	Anode c2
9	Cathode g2	Anode g2
10	Cathode a2	Anode a2
11	Cathode f2	Anode f2
12	Cathode b2	Anode b2
13	Cathode b1	Anode b1
14	Cathode f1	Anode f1
15	Cathode a1	Anode a1
16	Cathode g1	Anode g1



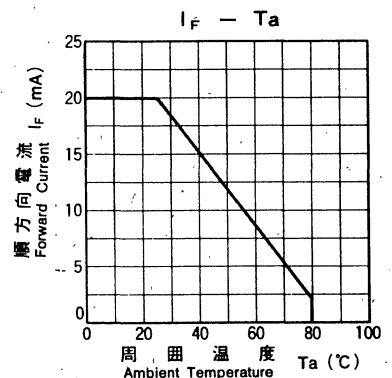
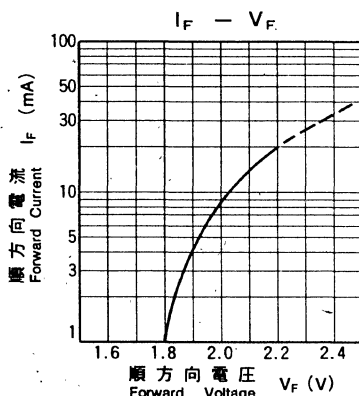
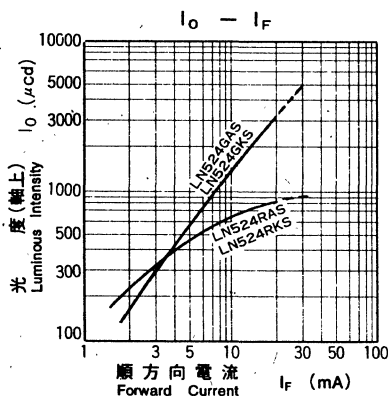
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的・光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I _o /seg				I _F	V _F		λ _p	Δλ	I _n	
			Typ.	Min.	Typ.	I _F		Typ.	Max.			Typ.	Typ.
LN524RAS	Red	Anode	450	150	—	5	2.2	2.8	700	100	20	10	5
LN524RKS	Red	Cathode	450	150	—	5	2.2	2.8	700	100	20	10	5
LN524GAS	Green	Anode	1500	500	—	10	2.2	2.8	565	30	20	10	5
LN524GKS	Green	Cathode	1500	500	—	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

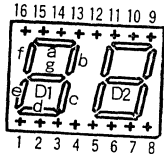


2 Digit 0.4inch Series

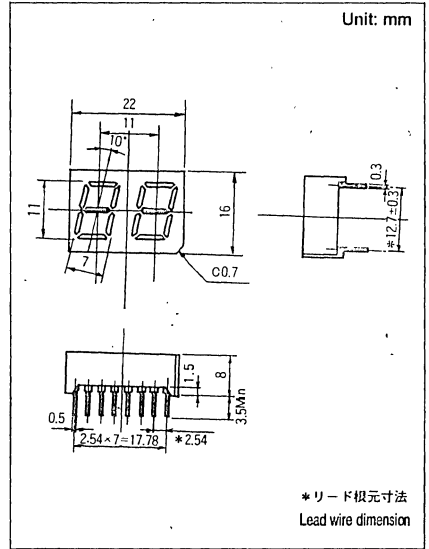
Type No Lighting Color

- LN524YAS..... Amber
- LN524YKS..... Amber
- LN524OAS..... Orange
- LN524OKS..... Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode c1	Anode c1
2	Cathode e1	Anode e1
3	Cathode d1	Anode d1
4	Common Anode D1	Common Cathode D1
5	Common Anode D2	Common Cathode D2
6	Cathode d2	Anode d2
7	Cathode e2	Anode e2
8	Cathode c2	Anode c2
9	Cathode g2	Anode g2
10	Cathode a2	Anode a2
11	Cathode f2	Anode f2
12	Cathode b2	Anode b2
13	Cathode b1	Anode b1
14	Cathode f1	Anode f1
15	Cathode a1	Anode a1
16	Cathode g1	Anode g1



*リード根元寸法
Lead wire dimension

絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

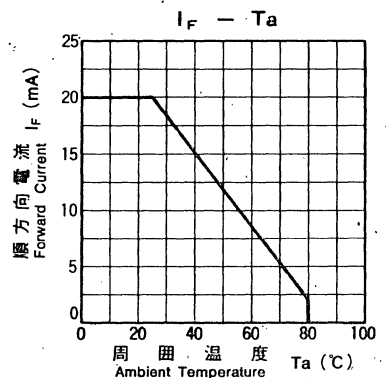
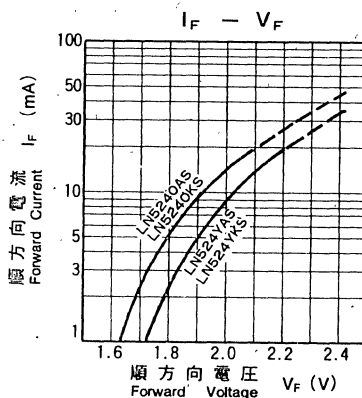
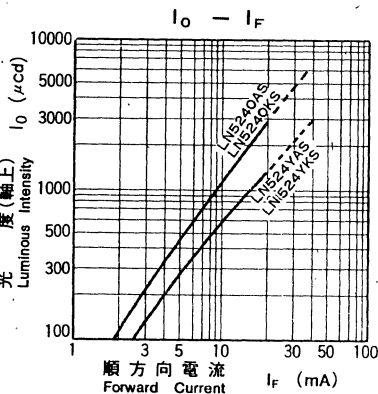
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p.	I _F	V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.			Typ.	Typ.				Max.	Max.
△ LN524YAS	Amber	Anode	600	200	—	10	2.2	2.8	590	30	20	10	5
△ LN524YKS	Amber	Cathode	600	200	—	10	2.2	2.8	590	30	20	10	5
△ LN524OAS	Orange	Anode	1200	300	—	10	2.1	2.8	630	40	20	10	3
△ LN524OKS	Orange	Cathode	1200	300	—	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

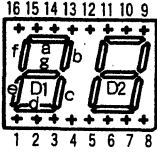
△印は暫定規格を示す。△ Tentative Specification



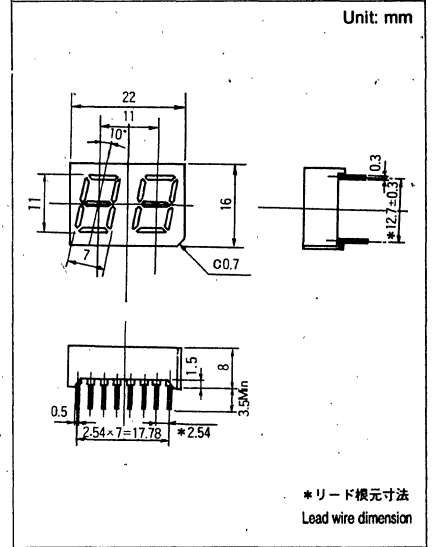
18 0.4inch Series

Type No.	Lighting Color
LN5241RAS	Red
LN5241RKS	Red
LN5241GAS	Green
LN5241GKS	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode c1	Anode c1
2	_____	_____
3	_____	_____
4	Common Anode D1	Common Cathode D1
5	Common Anode D2	Common Cathode D2
6	Cathode d2	Anode d2
7	Cathode e2	Anode e2
8	Cathode c2	Anode c2
9	Cathode g2	Anode g2
10	Cathode a2	Anode a2
11	Cathode f2	Anode f2
12	Cathode b2	Anode b2
13	Cathode b1	Anode b1
14	_____	_____
15	_____	_____
16	_____	_____



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

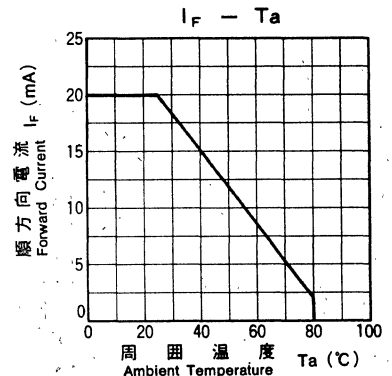
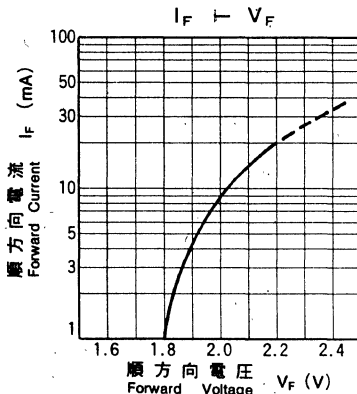
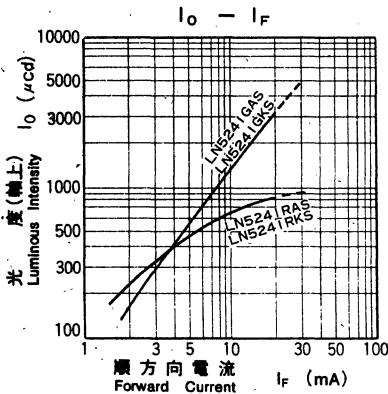
Lighting Color	P _o (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	To _{pr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I _o /seg				V _F				I _n		
			Typ.	Min.	Typ.	I _F	Typ.	Max.	Typ.	Typ.	I _F	Max.	V _R
LN5241RAS	Red	Anode	450	150	—	5	2.2	2.8	700	100	20	10	5
LN5241RKS	Red	Cathode	450	150	—	5	2.2	2.8	700	100	20	10	5
LN5241GAS	Green	Anode	1500	500	—	10	2.2	2.8	565	30	20	10	5
LN5241GKS	Green	Cathode	1500	500	—	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

△印は暫定規格を示す。△ Tentative Specification

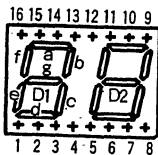


18 0.4inch Series

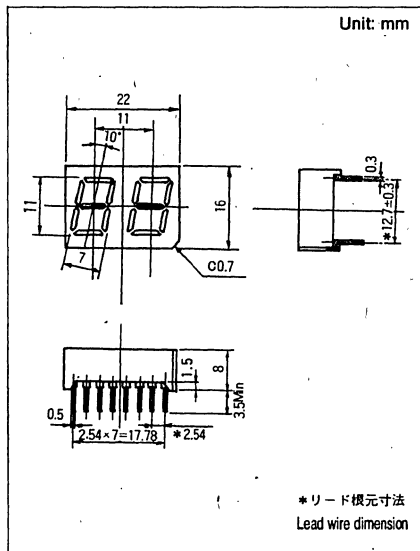
Type No. Lighting Color

- LN5241YAS..... Amber
- LN5241YKS..... Amber
- LN5241OAS..... Orange
- LN5241OKS..... Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode c1	Anode c1
2	—	—
3	—	—
4	Common Anode D1	Common Cathode D1
5	Common Anode D2	Common Cathode D2
6	Cathode d2	Anode d2
7	Cathode e2	Anode e2
8	Cathode c2	Anode c2
9	Cathode g2	Anode g2
10	Cathode a2	Anode a2
11	Cathode f2	Anode f2
12	Cathode b2	Anode b2
13	Cathode b1	Anode b1
14	—	—
15	—	—
16	—	—



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

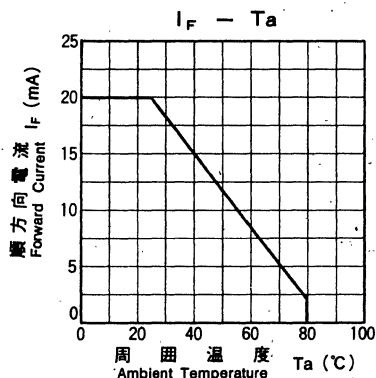
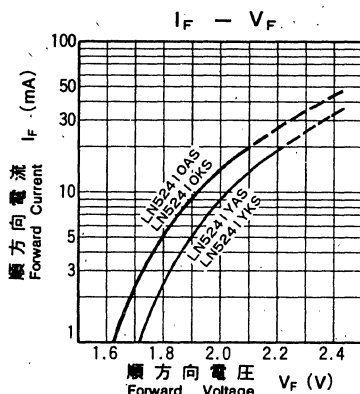
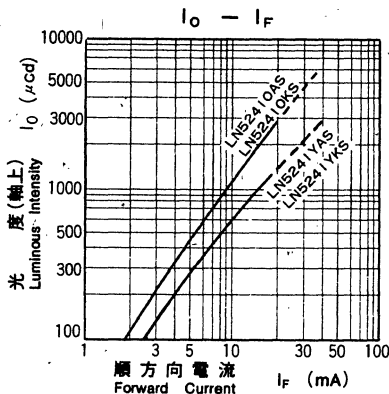
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width, 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I _O /seg		I _O /d.p		I _F	V _F		λ _P		Δλ		I _r	
			Typ.	Min.	Typ.	I _F		Typ.	Max.	Typ.	Typ.	I _F	Max.	V _R	
△ LN5241YAS	Amber	Anode	600	200	—	10	2.2	2.8	590	30	20	10	5		
△ LN5241YKS	Amber	Cathode	600	200	—	10	2.2	2.8	590	30	20	10	5		
△ LN5241OAS	Orange	Anode	1200	300	—	10	2.1	2.8	630	40	20	10	3		
△ LN5241OKS	Orange	Cathode	1200	300	—	10	2.1	2.8	630	40	20	10	3		
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V		

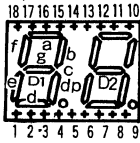
△印は暫定規格を示す。△ Tentative Specification



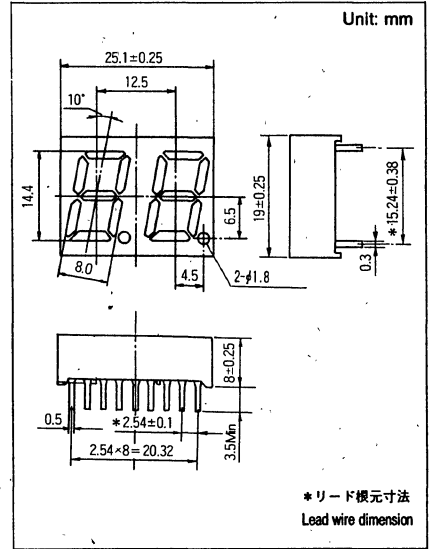
2 Digit 0.6inch Peries

Type No.	Lighting Color
LN526RA	Red
LN526RK	Red
LN526GA	Green
LN526GK	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Cathode c1	Anode e1
4	Cathode dp1	Anode dp1
5	Cathode e2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode c2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16	Cathode a1	Anode a1
17	Cathode g1	Anode g1
18	Cathode f1	Anode f1



*リード線寸法
Lead wire dimension

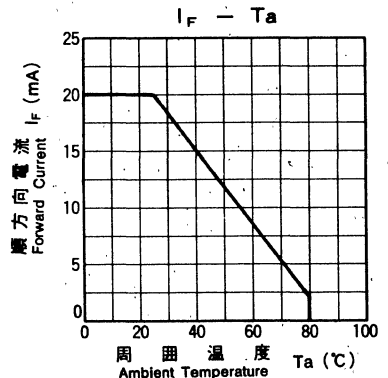
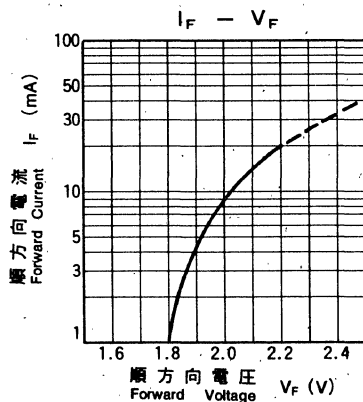
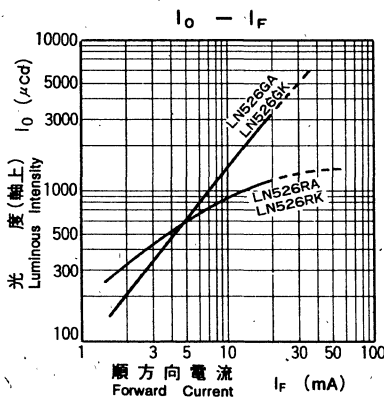
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr(°C)	Tstg(°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

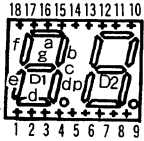
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	Typ.			Typ.	Max.				Max.	V _R
LN526RA	Red	Anode	600	250	250	5	2.2	2.8	700	100	20	10	5	
LN526RK	Red	Cathode	600	250	250	5	2.2	2.8	700	100	20	10	5	
LN526GA	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5	
LN526GK	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



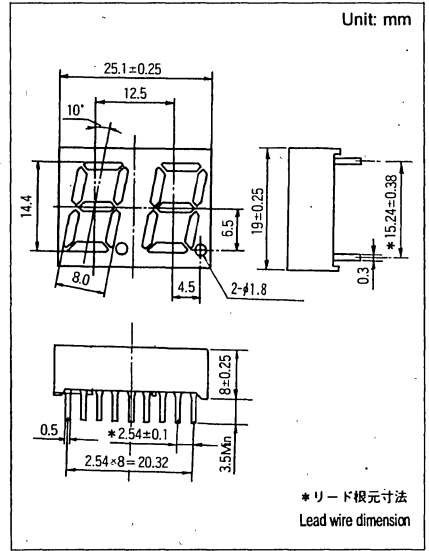
2 Digit 0.6inch Series

Type No.	Lighting Color
LN526YA	Amber
LN526YK	Amber
LN526OA	Orange
LN526OK	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Cathode c1	Anode c1
4	Cathode dp1	Anode dp1
5	Cathode e2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode p2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16	Cathode a1	Anode a1
17	Cathode g1	Anode g1
18	Cathode f1	Anode f1



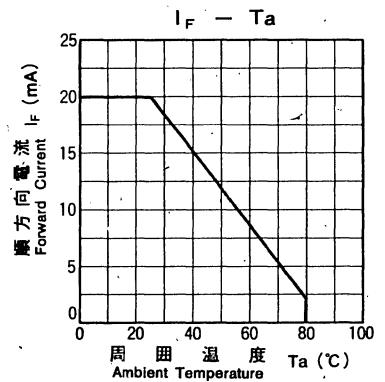
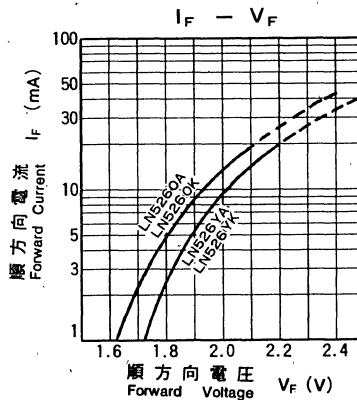
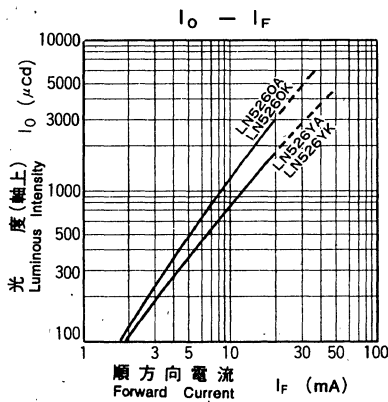
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

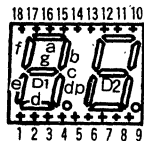
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _F	Δλ	I _n		
			Typ.	Min.	Typ.	I _F		Typ.	Max.			Typ.	Max.	V _R
LN526YA	Amber	Anode	800	300	300	10	2.2	2.8	590	30	20	10	5	
LN526YK	Amber	Cathode	800	300	300	10	2.2	2.8	590	30	20	10	5	
LN526OA	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	3	
LN526OK	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	3	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



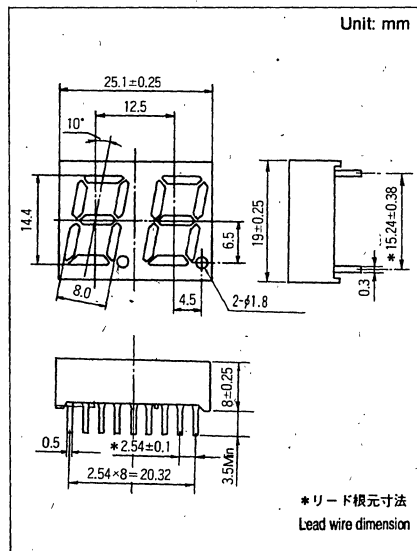
18 0.6inch Series

Type No.	Lighting Color
LN5261RA	Red
LN5261RK	Red
LN5261GA	Green
LN5261GK	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1		
2		
3	Cathode c1	Anode c1
4		
5	Cathode e2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode c2	Anode c2
9		
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16		
17		
18		



*リード線元寸法
Lead wire dimension

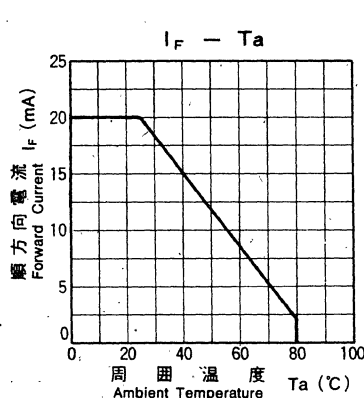
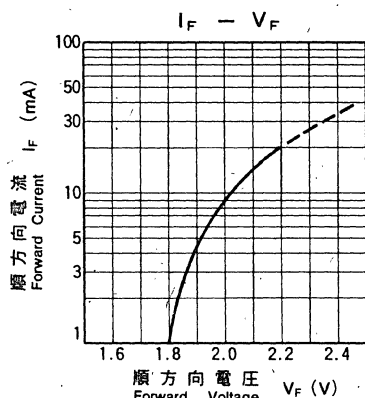
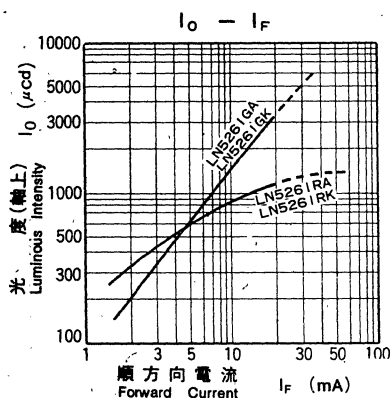
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%. Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

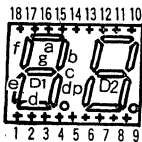
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Typ.	Typ.
LN5261RA	Red	Anode	600	250	—	5	2.2	2.8	700	100	20	10	5	
LN5261RK	Red	Cathode	600	250	—	5	2.2	2.8	700	100	20	10	5	
LN5261GA	Green	Anode	1500	500	—	10	2.2	2.8	565	30	20	10	5	
LN5261GK	Green	Cathode	1500	500	—	10	2.2	2.8	565	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	



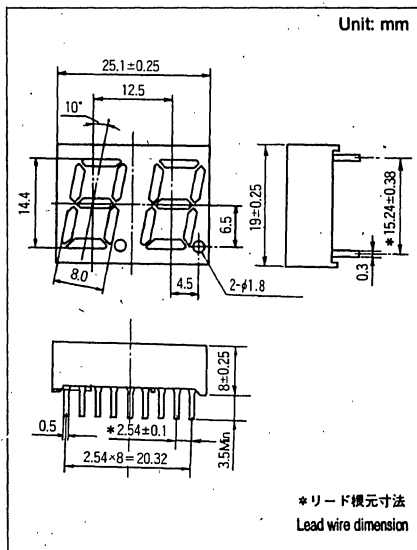
18 0.6inch Series

Type No. Lighting Color
 LN5261YA..... Amber
 LN5261YK..... Amber
 LN5261OA..... Orange
 LN5261OK..... Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1		
2		
3	Cathode c1	Anode c1
4		
5	Cathode e2	Anode e2
6	Cathode d2	Anode d2
7	Cathode g2	Anode g2
8	Cathode c2	Anode c2
9		
10	Cathode b2	Anode b2
11	Cathode a2	Anode a2
12	Cathode f2	Anode f2
13	Common Anode D2	Common Cathode D2
14	Common Anode D1	Common Cathode D1
15	Cathode b1	Anode b1
16		
17		
18		



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

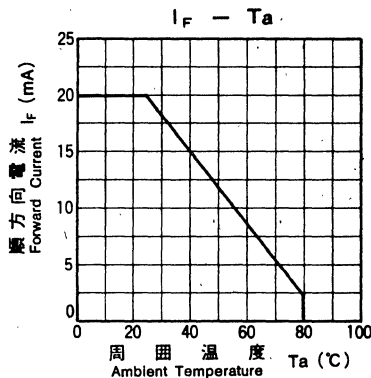
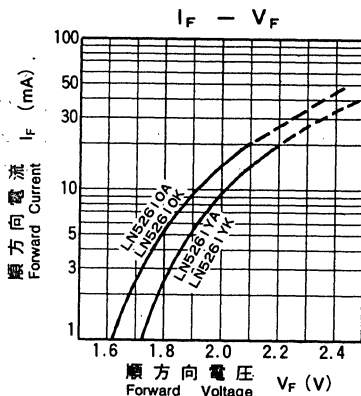
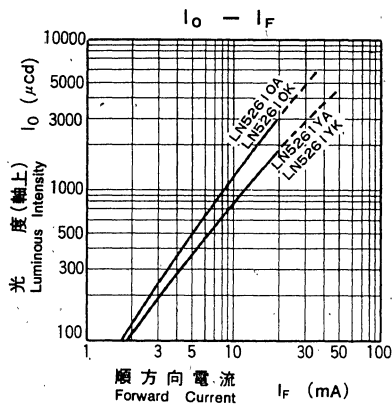
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{op} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	Typ.	I _F	Typ.	Max.				Typ.	Max.
LN5261YA	Amber	Anode	800	300	—	10	2.2	2.8	590	30	20	10	5
LN5261YK	Amber	Cathode	800	300	—	10	2.2	2.8	590	30	20	10	5
LN5261OA	Orange	Anode	1200	300	—	10	2.1	2.8	630	40	20	10	3
LN5261OK	Orange	Cathode	1200	300	—	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

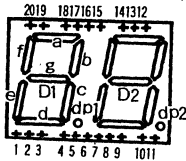
△印は暫定規格を示す。△ Tentative Specification



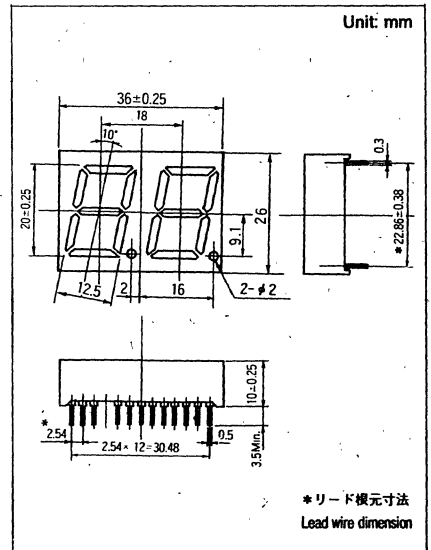
2 Digit 0.8inch Series

Type No. Lighting Color
 LN528RA Red
 LN528RK Red
 LN528GA Green
 LN528GK Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Common Anode D2	Common Cathode D2
9	Cathode g2	Anode g2
10	Cathode c2	Anode c2
11	Cathode dp2	Anode dp2
12	Cathode b2	Anode b2
13	Cathode a2	Anode a2
14	Cathode f2	Anode f2
15	Common Anode D2	Common Cathode D2
16	Common Anode D1	Common Cathode D1
17	Cathode b1	Anode b1
18	Cathode a1	Anode a1
19	Cathode g1	Anode g1
20	Cathode f1	Anode f1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

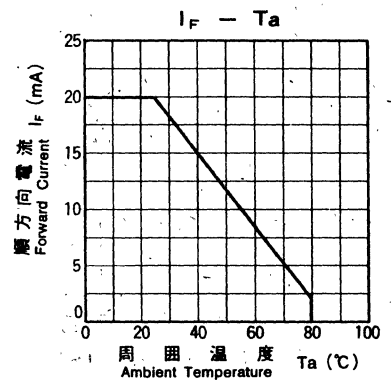
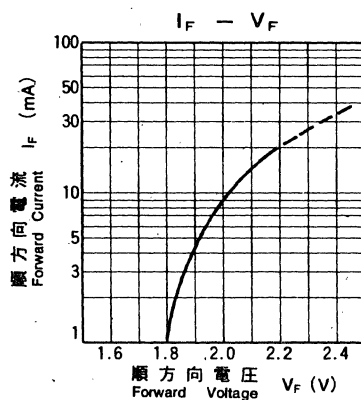
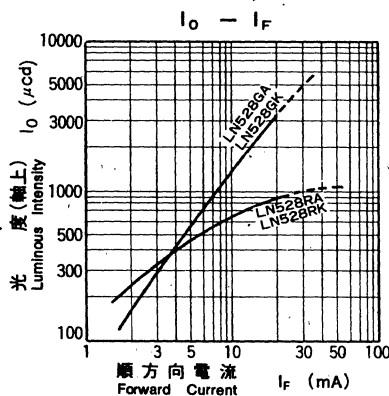
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%、Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P		I _h	V _h
			Typ.	Min.	Typ.	Min.		Typ.	Max.	Typ.	Min.		
△ LN528RA	Red	Anode	450	150	150	5	2.2	2.8	700	100	20	10	5
△ LN528RK	Red	Cathode	450	150	150	5	2.2	2.8	700	100	20	10	5
△ LN528GA	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5
△ LN528GK	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

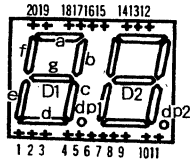
△印は暫定規格を示す。△ Tentative Specification



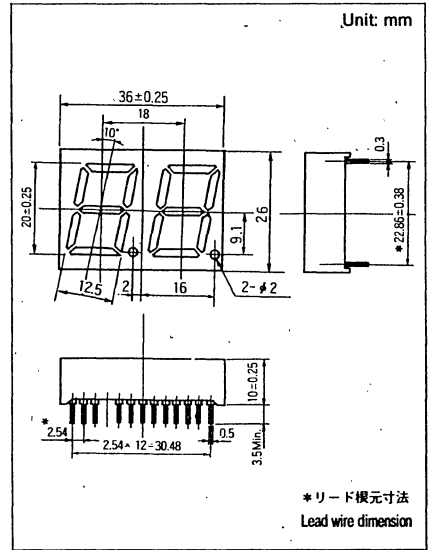
2 Digit 0.8inch Series

Type No.	Lighting Color
LN528YA	Amber
LN528YK	Amber
LN528OA	Orange
LN528OK	Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Common Anode D2	Common Cathode D2
9	Cathode g2	Anode g2
10	Cathode c2	Anode c2
11	Cathode dp2	Anode dp2
12	Cathode b2	Anode b2
13	Cathode a2	Anode a2
14	Cathode f2	Anode f2
15	Common Anode D2	Common Cathode D2
16	Common Anode D1	Common Cathode D1
17	Cathode b1	Anode b1
18	Cathode a1	Anode a1
19	Cathode g1	Anode g1
20	Cathode f1	Anode f1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

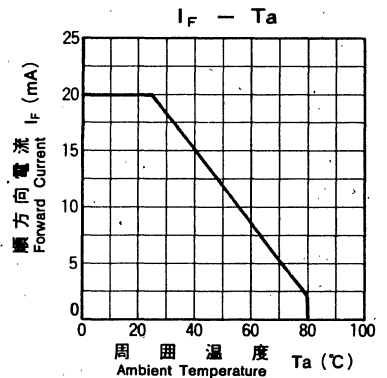
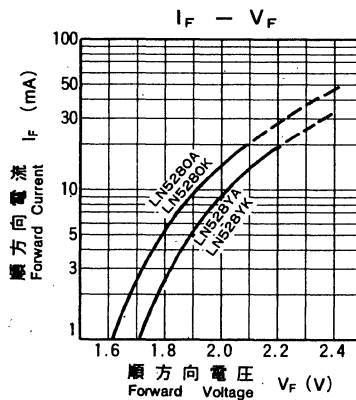
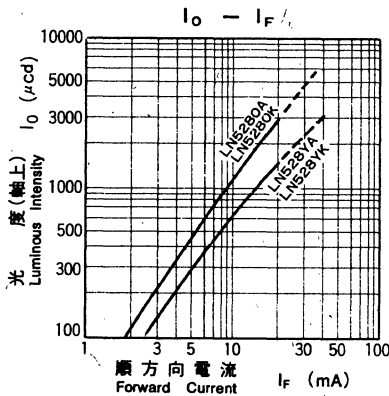
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Typ.	Max.
LN528YA	Amber	Anode	600	200	200	10	2.2	2.8	590	30	20	10	5	
LN528YK	Amber	Cathode	600	200	200	10	2.2	2.8	590	30	20	10	5	
LN528OA	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	5	
LN528OK	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	

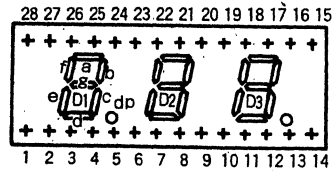
△印は暫定規格を示す。△ Tentative Specification



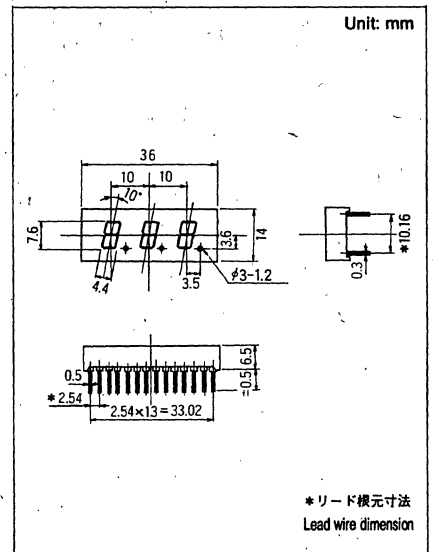
3 Digit 0.3inch Series

Type No. Lighting Color
 LN533RAMR Red
 LN533RKMR Red
 LN533GAMG Green
 LN533GKMG Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode g1	Anode g1
2	Cathode e1	Anode e1
3	Cathode d1	Anode d1
4	Cathode dp1	Anode dp1
5	Cathode c1	Anode c1
6	Anode c1	Cathode c1
7	Cathode e2	Anode e2
8	Cathode d2	Anode d2
9	Cathode c2	Anode c2
10	Cathode g2	Anode g2
11	Cathode e3	Anode e3
12	Cathode d3	Anode d3
13	Cathode dp3	Anode dp3
14	Cathode c3	Anode c3
15	Cathode g3	Anode g3
16	Cathode b3	Anode b3
17	Common Anode D3	Common Cathode D3
18	Cathode a3	Anode a3
19	Cathode f3	Anode f3
20	Cathode b2	Anode b2
21	Common Anode D2	Common Cathode D2
22	Cathode a2	Anode a2
23	Cathode f2	Anode f2
24	Anode b1	Cathode b1
25	Cathode b1	Anode b1
26	Cathode a1	Anode a1
27	Common Anode D1	Common Cathode D1
28	Cathode f1	Anode f1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

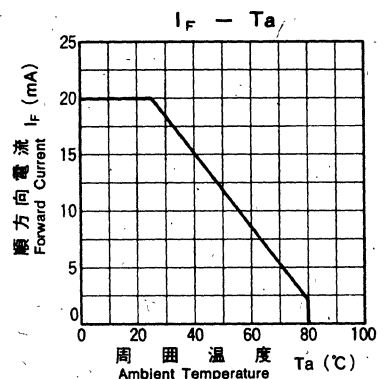
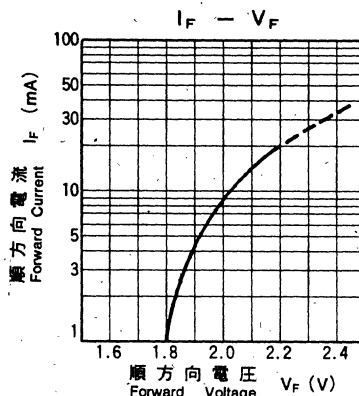
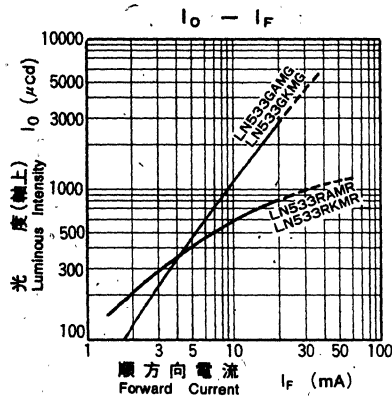
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Typ.	Max.
LN533RAMR	Red	Anode	400	150	150	5	2.2	2.8	700	100	20	10	5	
LN533RKMR	Red	Cathode	400	150	150	5	2.2	2.8	700	100	20	10	5	
LN533GAMG	Green	Anode	1200	400	400	10	2.2	2.8	565	30	20	10	5	
LN533GKMG	Green	Cathode	1200	400	400	10	2.2	2.8	565	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	

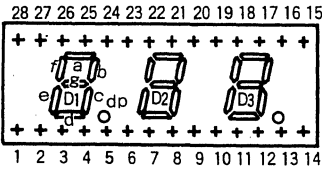
△印は暫定規格を示す。△ Tentative Specification



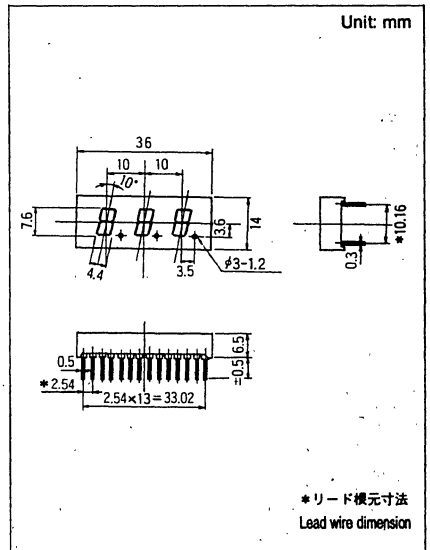
3 Digit 0.3inch Series

Type No. Lighting Color
 LN533YAMY Amber
 LN533YKMY Amber
 LN533OAMO Orange
 LN533OKMO Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode g1	Anode g1
2	Cathode e1	Anode e1
3	Cathode d1	Anode d1
4	Cathode dp1	Anode dp1
5	Cathode c1	Anode c1
6	Anode c1	Cathode c1
7	Cathode e2	Anode e2
8	Cathode d2	Anode d2
9	Cathode c2	Anode c2
10	Cathode g2	Anode g2
11	Cathode e3	Anode e3
12	Cathode d3	Anode d3
13	Cathode dp3	Anode dp3
14	Cathode c3	Anode c3
15	Cathode g3	Anode g3
16	Cathode b3	Anode b3
17	Common Anode D3	Common Cathode D3
18	Cathode a3	Anode a3
19	Cathode i3	Anode i3
20	Cathode b2	Anode b2
21	Common Anode D2	Common Cathode D2
22	Cathode a2	Anode a2
23	Cathode i2	Anode i2
24	Anode b1	Cathode b1
25	Cathode b1	Anode b1
26	Cathode a1	Anode a1
27	Common Anode D1	Common Cathode D1
28	Cathode i1	Anode i1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

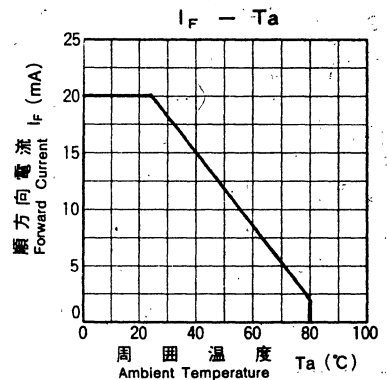
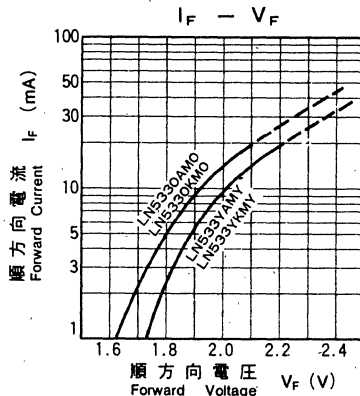
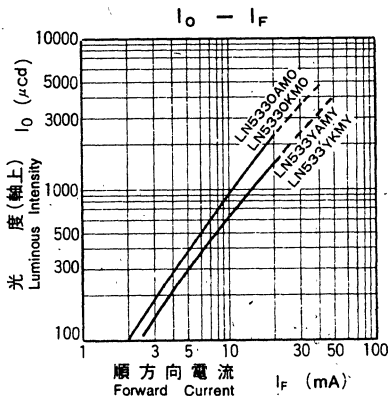
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tatg (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I _R		
			Typ.	Min.		Typ.	Max.				Typ.	Max.	V _R
LN533YAMY	Amber	Anode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN533YKMY	Amber	Cathode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN533OAMO	Orange	Anode	1000	300	400	10	2.1	2.8	630	40	20	10	3
LN533OKMO	Orange	Cathode	1000	300	400	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

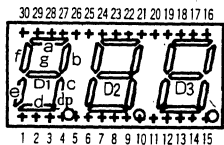
△印は暫定規格を示す。△ Tentative Specification



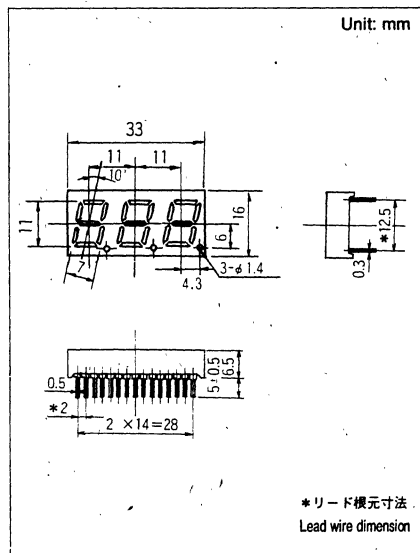
3 Digit 0.4inch Series

Type No. Lighting Color
 LN534RAMR Red
 LN534RKMR Red
 LN534GAMG Green
 LN534GKMG Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Common Anode D2	Common Cathode D2
9	Cathode c2	Anode c2
10	Cathode dp2	Anode dp2
11	Cathode e3	Anode e3
12	Cathode d3	Anode d3
13	Common Anode D3	Common Cathode D3
14	Cathode c3	Anode c3
15	Cathode dp3	Anode dp3
16	Cathode b3	Anode b3
17	Cathode a3	Anode a3
18	Common Anode D3	Common Cathode D3
19	Cathode f3	Anode f3
20	Cathode g3	Anode g3
21	Cathode g2	Anode g2
22	Cathode b2	Anode b2
23	Cathode a2	Anode a2
24	Common Anode D2	Common Cathode D2
25	Cathode f2	Anode f2
26	Cathode g1	Anode g1
27	Cathode b1	Anode b1
28	Cathode a1	Anode a1
29	Common Anode D1	Common Cathode D1
30	Cathode f1	Anode f1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

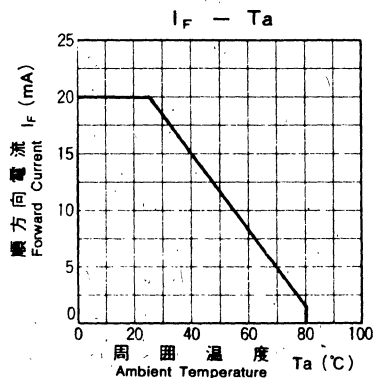
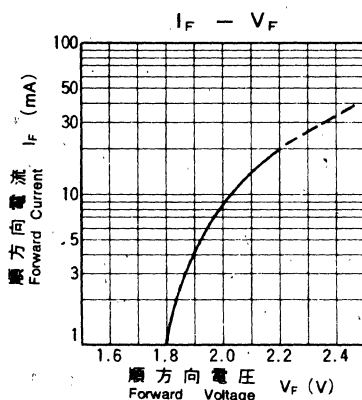
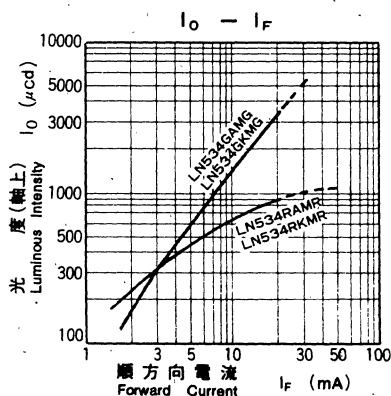
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p	I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.			Typ.	Typ.				Max.	Max.
LN534RAMR	Red	Anode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN534RKMR	Red	Cathode	450	150	150	5	2.2	2.8	700	100	20	10	5
LN534GAMG	Green	Anode	1500	500	500	10	2.2	2.8	565	30	20	10	5
LN534GKMG	Green	Cathode	1500	500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

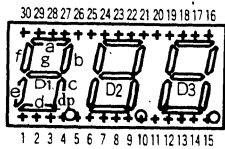
△印は暫定規格を示す。△ Tentative Specification



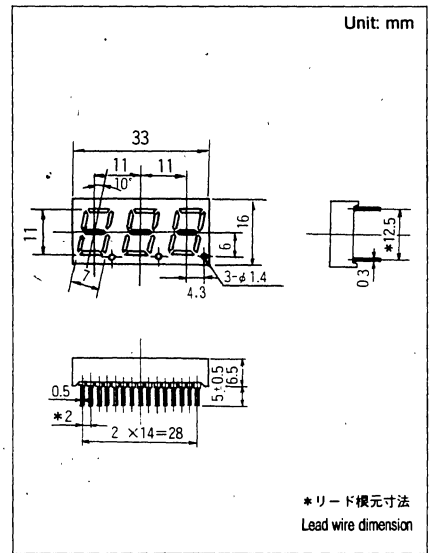
3 Digit 0.4inch Series

Type No. Lighting Color
 LN534YAMY Amber
 LN534YKMY Amber
 LN534OAMO Orange
 LN534OKMO Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Common Anode D2	Common Cathode D2
9	Cathode c2	Anode c2
10	Cathode dp2	Anode dp2
11	Cathode e3	Anode e3
12	Cathode d3	Anode d3
13	Common Anode D3	Common Cathode D3
14	Cathode c3	Anode c3
15	Cathode dp3	Anode dp3
16	Cathode b3	Anode b3
17	Cathode a3	Anode a3
18	Common Anode D3	Common Cathode D3
19	Cathode f3	Anode f3
20	Cathode g3	Anode g3
21	Cathode g2	Anode g2
22	Cathode b2	Anode b2
23	Cathode a2	Anode a2
24	Common Anode D2	Common Cathode D2
25	Cathode f2	Anode f2
26	Cathode g1	Anode g1
27	Cathode b1	Anode b1
28	Cathode a1	Anode a1
29	Common Anode D1	Common Cathode D1
30	Cathode f1	Anode f1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

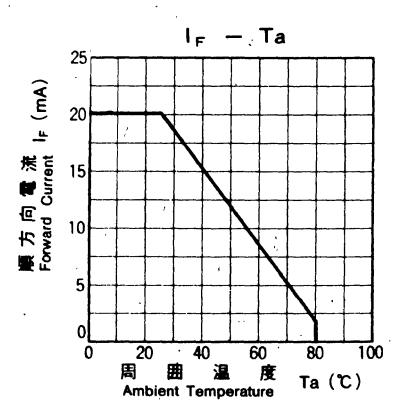
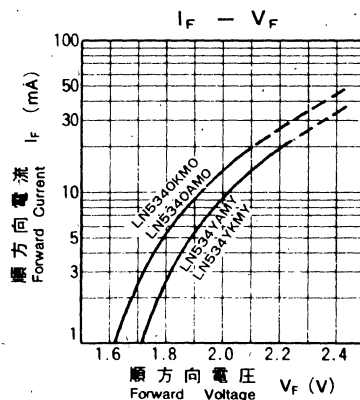
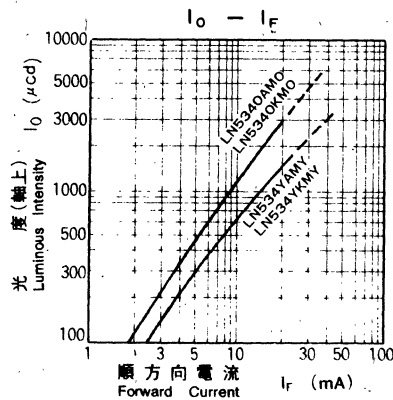
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Amber	60	20	100	5	-25~+80	-30~+85
Orange	60	20	100	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%、Pulse width 1 msec. The condition of I_{FP} is duty 10%、Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		Δp	Δλ	I _F	I _n		
			Typ.	Min.		Typ.	Max.				Max.	V _n	
LN534YAMY	Amber	Anode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN534YKMY	Amber	Cathode	600	200	200	10	2.2	2.8	590	30	20	10	5
LN534OAMO	Orange	Anode	1200	300	500	10	2.1	2.8	630	40	20	10	3
LN534OKMO	Orange	Cathode	1200	300	500	10	2.1	2.8	630	40	20	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

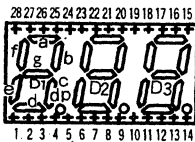
△印は暫定規格を示す。△ Tentative Specification



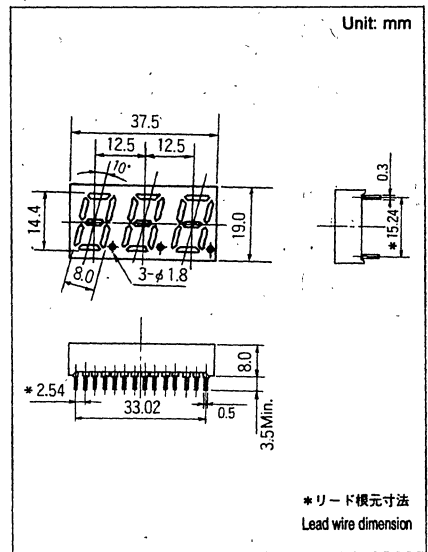
3 Digit 0.6inch Series

Type No.	Lighting Color
LN536RAMR	Red
LN536RKMR	Red
LN536GAMG	Green
LN536GKMG	Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Cathode c2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode e3	Anode e3
11	Cathode d3	Anode d3
12	Cathode g3	Anode g3
13	Cathode c3	Anode c3
14	Cathode dp3	Anode dp3
15	Cathode b3	Anode b3
16	Cathode a3	Anode a3
17	Cathode f3	Anode f3
18	Common Anode D3	Common Cathode D3
19	Common Anode D2	Common Cathode D2
20	Cathode b2	Anode b2
21	Cathode a2	Anode a2
22	Cathode g2	Anode g2
23	Cathode f2	Anode f2
24	Cathode b1	Anode b1
25	Cathode a1	Anode a1
26	Common Anode D1	Common Cathode D1
27	Cathode f1	Anode f1
28	Cathode g1	Anode g1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

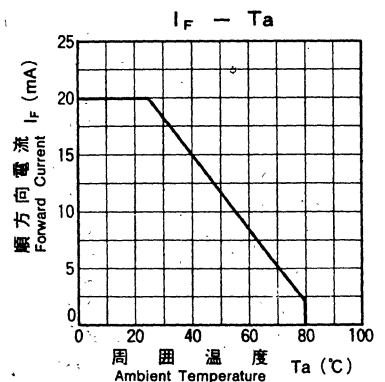
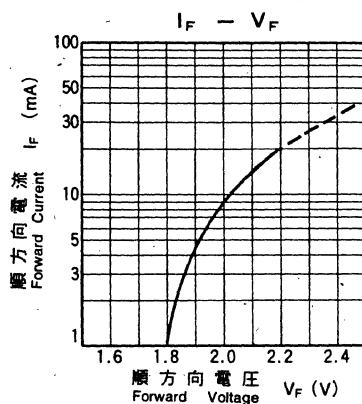
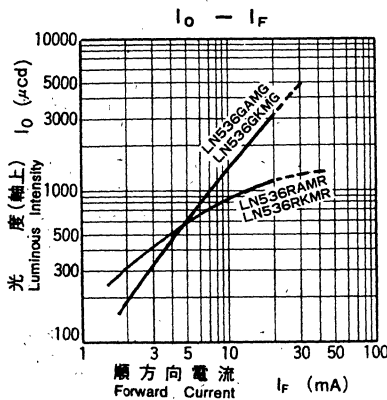
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	50	20	100	5	-25~+80	-30~+85
Green	50	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p	I _F	V _F		λ _p	Δλ	I _F	I _R	
			Typ.	Min.			Typ.	Typ.				Max.	Typ.
LN536RAMR	Red	Anode	600	250	250	5	2.2	2.8	700	100	20	10	5
LN536RKMR	Red	Cathode	600	250	250	5	2.2	2.8	700	100	20	10	5
LN536GAMG	Green	Anode	1500	600	500	10	2.2	2.8	565	30	20	10	5
LN536GKMG	Green	Cathode	1500	600	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

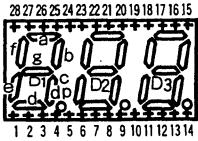
△印は暫定規格を示す。△ Tentative Specification



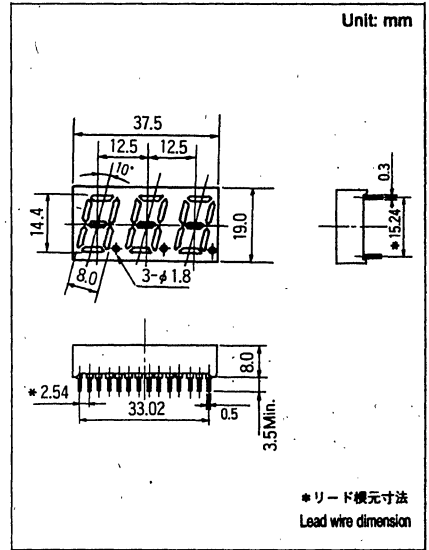
3 Digit 0.6inch Series

Type No. Lighting Color
 LN536YAMY..... Amber
 LN536YKMY..... Amber

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode e1	Anode e1
2	Cathode d1	Anode d1
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Cathode c2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode e3	Anode e3
11	Cathode d3	Anode d3
12	Cathode g3	Anode g3
13	Cathode c3	Anode c3
14	Cathode dp3	Anode dp3
15	Cathode b3	Anode b3
16	Cathode a3	Anode a3
17	Cathode f3	Anode f3
18	Common Anode D3	Common Cathode D3
19	Common Anode D2	Common Cathode D2
20	Cathode b2	Anode b2
21	Cathode a2	Anode a2
22	Cathode g2	Anode g2
23	Cathode f2	Anode f2
24	Cathode b1	Anode b1
25	Cathode a1	Anode a1
26	Common Anode D1	Common Cathode D1
27	Cathode f1	Anode f1
28	Cathode g1	Anode g1



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

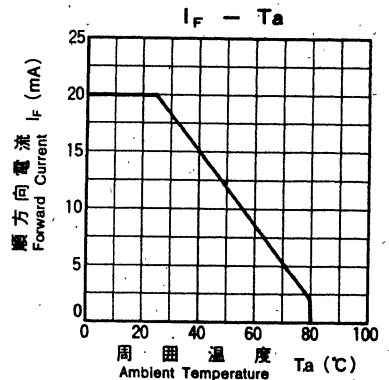
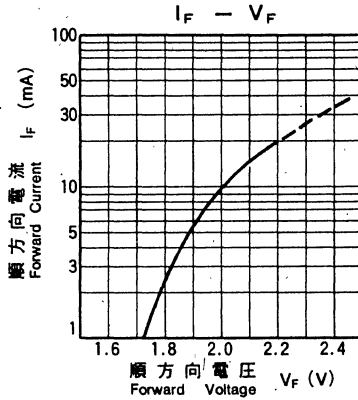
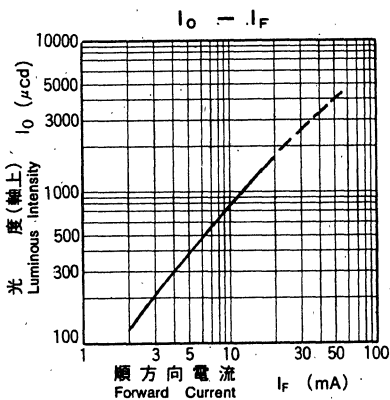
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	Topr (°C)	Tstg
Amber	50	20	100	5	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		V _F		λ _P	Δλ	I _F	I _{min}	I _{off}
			Typ.	Min.	Typ.	I _F	Typ.	Max.					
LN536YAMY	Amber	Anode	800	300	300	10	2.2	2.8	590	30	20	10	5
LN536YKMY	Amber	Cathode	800	300	300	10	2.2	2.8	590	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

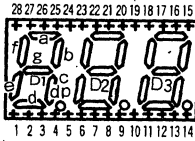
△印は暫定規格を示す。△ Tentative Specification



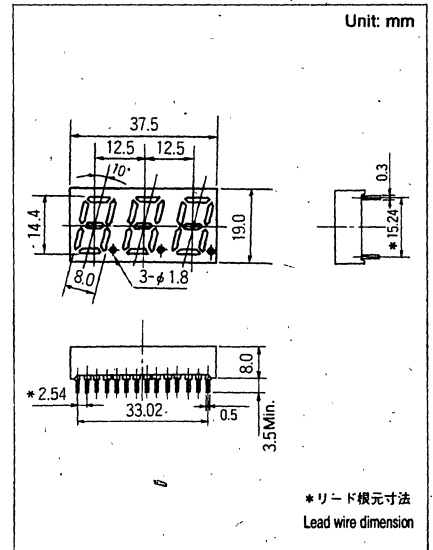
188 0.6inch Series

Type No. Lighting Color
 LN5361RAMR..... Red
 LN5361RKMR..... Red
 LN5361GAMG..... Green
 LN5361GKMG..... Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1		
2		
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Cathode c2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode e3	Anode e3
11	Cathode d3	Anode d3
12	Cathode g3	Anode g3
13	Cathode c3	Anode c3
14	Cathode dp3	Anode dp3
15	Cathode b3	Anode b3
16	Cathode a3	Anode a3
17	Cathode f3	Anode f3
18	Common Anode D3	Common Cathode D3
19	Common Anode D2	Common Cathode D2
20	Cathode b2	Anode b2
21	Cathode a2	Anode a2
22	Cathode g2	Anode g2
23	Cathode f2	Anode f2
24	Cathode b1	Anode b1
25		
26	Common Anode D1	Common Cathode D1
27		
28		



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

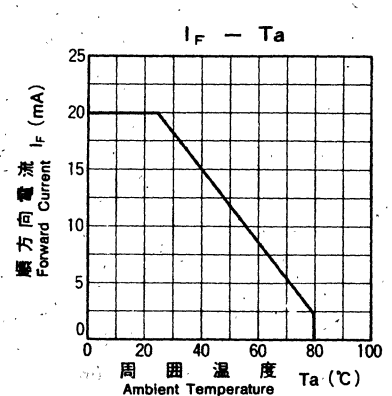
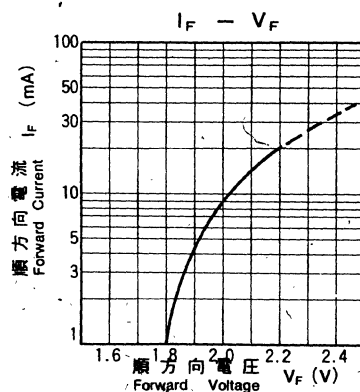
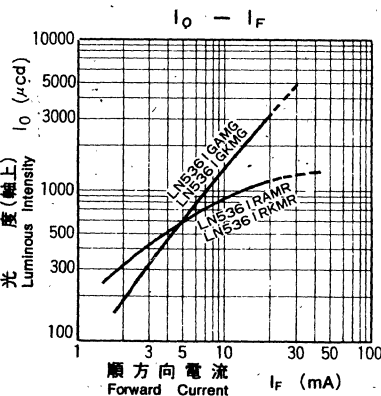
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	50	20	100	5	-25~+80	-30~+85
Green	50	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		I _F	V _F		λ _F	Δλ	I _F	I _R	
			Typ.	Min.	Typ.	I _F		Typ.	Max.				Typ.	Max.
LN5361RAMR	Red	Anode	600	250	—	5	2.2	2.8	700	100	20	10	5	
LN5361RKMR	Red	Cathode	600	250	—	5	2.2	2.8	700	100	20	10	5	
LN5361GAMG	Green	Anode	1500	600	—	10	2.2	2.8	565	30	20	10	5	
LN5361GKMG	Green	Cathode	1500	600	—	10	2.2	2.8	565	30	20	10	5	
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V	

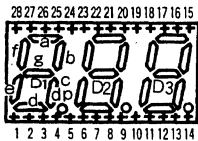
△印は暫定規格を示す。△ Tentative Specification



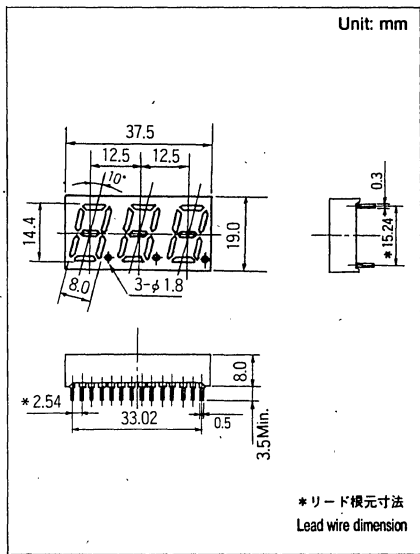
188 0.6inch Series

Type No. Lighting Color
 LN5361YAMY Amber
 LN5361YKMY Amber

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1		
2		
3	Common Anode D1	Common Cathode D1
4	Cathode c1	Anode c1
5	Cathode dp1	Anode dp1
6	Cathode e2	Anode e2
7	Cathode d2	Anode d2
8	Cathode c2	Anode c2
9	Cathode dp2	Anode dp2
10	Cathode e3	Anode e3
11	Cathode d3	Anode d3
12	Cathode g3	Anode g3
13	Cathode c3	Anode c3
14	Cathode dp3	Anode dp3
15	Cathode b3	Anode b3
16	Cathode a3	Anode a3
17	Cathode f3	Anode f3
18	Common Anode D3	Common Cathode D3
19	Common Anode D2	Common Cathode D2
20	Cathode b2	Anode b2
21	Cathode a2	Anode a2
22	Cathode g2	Anode g2
23	Cathode f2	Anode f2
24	Cathode b1	Anode b1
25		
26	Common Anode D1	Common Cathode D1
27		
28		



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

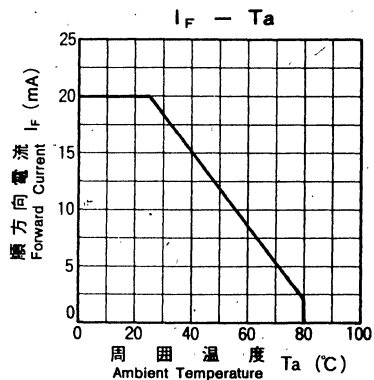
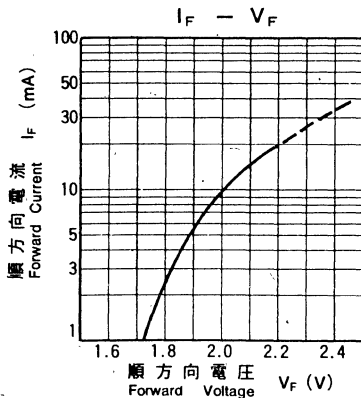
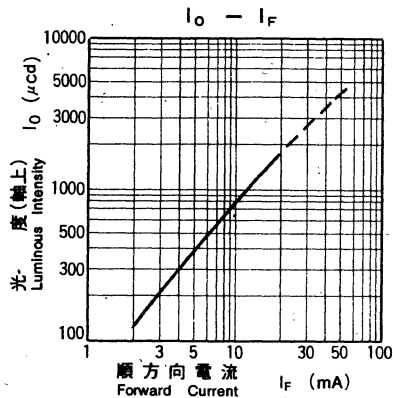
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	50	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I ₀		
			Typ.	Min.		Typ.	Max.				Typ.	Max.	V _R
LN5361YAMY	Amber	Anode	800	300	10	2.2	2.8	590	30	20	10	5	
LN5361YKMY	Amber	Cathode	800	300	10	2.2	2.8	590	30	20	10	5	
Unit			μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

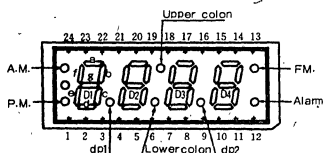
△印は暫定規格を示す。△ Tentative Specification



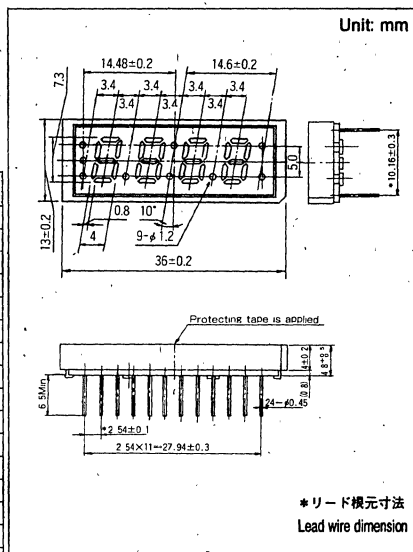
4 Digit 0.3inch Series

Type No. Lighting Color
 LN543RAN8 Red
 LN543RKN8 Red
 LN543GAN8 Green
 LN543GKN8 Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode PM	Anode PM
2	Anode Dig 1	Cathode Dig 1
3	Cathode d	Anode d
4	Cathode dp 1	Anode dp 1
5	Anode Dig 2	Cathode Dig 2
6	Cathode Lower colon	Anode Lower colon
7	Cathode Upper colon	Anode Upper colon
8	Anode Dig 3	Cathode Dig 3
9	Cathode dp 2	Anode dp 2
10	Anode Dig 4	Cathode Dig 4
11	Cathode e	Anode e
12	Cathode Alarm	Anode Alarm
13	Anode FM, Alarm	Cathode FM, Alarm
14	Cathode FM	Anode FM
15	Cathode a	Anode a
16	Anode dp 2	Cathode dp 2
17	Anode Lower colon Upper	Cathode Lower colon Upper
18	Cathode f	Anode f
19	Cathode b	Anode b
20	Cathode c	Anode c
21	Anode dp 1	Cathode dp 1
22	Cathode g	Anode g
23	Cathode AM	Anode AM
24	Anode AM, PM	Cathode AM, PM



*リード線寸法
Lead wire dimension

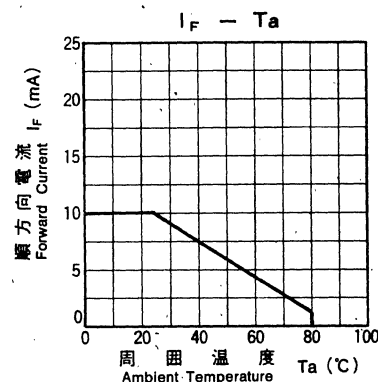
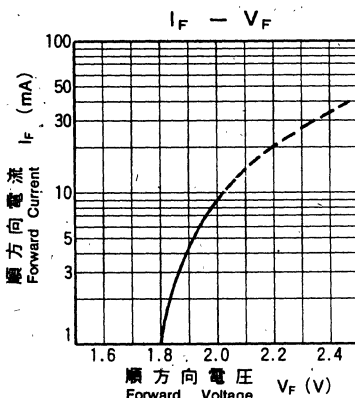
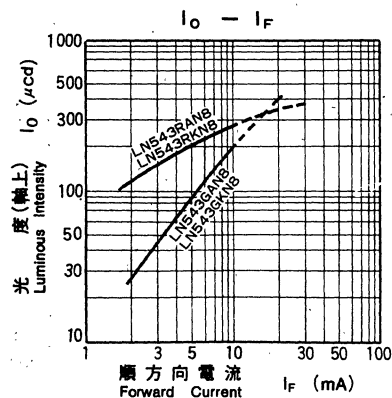
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _A (V)	T _{opr} (°C)	T _{stg} (°C)
Red	30	10	60	5	-25~+80	-30~+85
Green	30	10	60	5	-25~+80	-30~+85

*I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec.

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

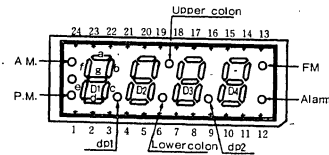
Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I _R		
			Typ.	Min.		Typ.	Max.				Typ.	Max.	
LN543RAN8	Red	Anode	200	100	100	5	2.03	2.8	700	100	10	10	5
LN543RKN8	Red	Cathode	200	100	100	5	2.03	2.8	700	100	10	10	5
LN543GAN8	Green	Anode	200	80	80	10	2.03	2.8	565	30	10	10	5
LN543GKN8	Green	Cathode	200	80	80	10	2.03	2.8	565	30	10	10	5
Unit.	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



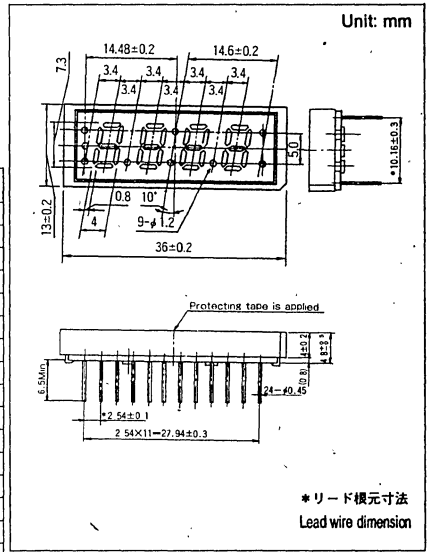
4 Digit 0.3inch Series

Type No. Lighting Color
 LN5430AN8 Orange
 LN5430KN8 Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode PM	Anode PM
2	Anode Dig 1	Cathode Dig 1
3	Cathode d	Anode d
4	Cathode dp 1	Anode dp 1
5	Anode Dig 2	Cathode Dig 2
6	Cathode Lower colon	Anode Lower colon
7	Cathode Upper colon	Anode Upper colon
8	Anode Dig 3	Cathode Dig 3
9	Cathode dp 2	Anode dp 2
10	Anode Dig 4	Cathode Dig 4
11	Cathode e	Anode e
12	Cathode Alarm	Anode Alarm
13	Anode FM, Alarm	Cathode FM, Alarm
14	Cathode FM	Anode FM
15	Cathode a	Anode a
16	Anode dp 2	Cathode dp 2
17	Anode Lower Upper colon	Cathode Lower Upper colon
18	Cathode f	Anode f
19	Cathode b	Anode b
20	Cathode c	Anode c
21	Anode dp 1	Cathode dp 1
22	Cathode g	Anode g
23	Cathode AM	Anode AM
24	Anode AM, PM	Cathode AM, PM



*リード線寸法
Lead wire dimension

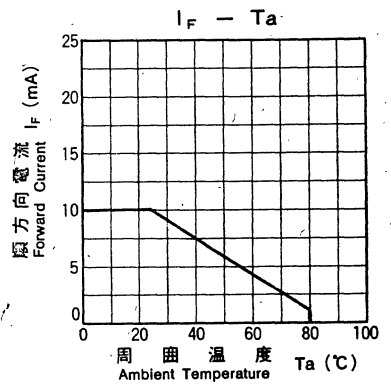
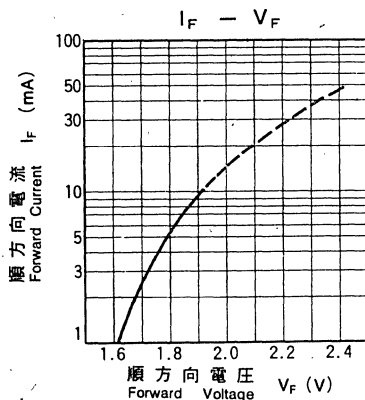
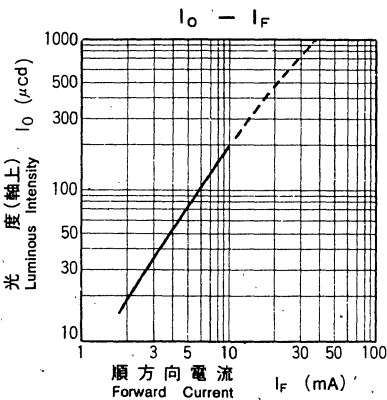
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Orange	30	10	60	3	-25~+80	-30~+85

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

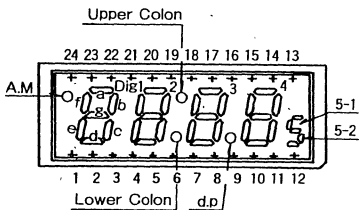
Type No.	Lighting Color	COMMON	I _O /seg				V _F		λ _P	Δλ	I _F	I _n	
			Typ.	Min.	Typ.	I _F	Typ.	Max.				Max.	V _R
LN5430AN8	Orange	Anode	200	100	100	10	1.93	2.8	630	40	10	10	3
LN5430KN8	Orange	Cathode	200	100	100	10	1.93	2.8	630	40	10	10	3
Unit			μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



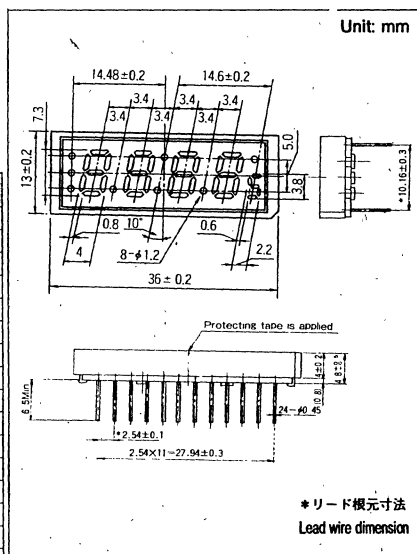
4 Digit 0.3inch Series

Type No. Lighting Color
 LN543RAHN3 Red
 LN543RKHN3 Red
 LN543GAHN3 Green
 LN543GKHN3 Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1		
2	Anode Dig 1	Cathode Dig 1
3	Cathode d	Anode d
4		
5	Anode Dig 2	Cathode Dig 2
6	Cathode Lower colon	Anode Lower colon
7	Cathode Upper colon	Anode Upper colon
8	Anode Dig 3	Cathode Dig 3
9	Cathode dp,5-1	Anode dp,5-1
10	Anode Dig 4	Cathode Dig 4
11	Cathode e	Anode e
12	Cathode 5-2	Anode 5-2
13	Anode 5-1,5-2	Cathode 5-1,5-2
14		
15	Cathode a	Anode a
16	Anode dp1	Cathode dp1
17	Anode Lower Upper colon	Cathode Lower Upper colon
18	Cathode f	Anode f
19	Cathode b	Anode b
20	Cathode c	Anode c
21		
22	Cathode g	Anode g
23	Cathode AM	Anode AM
24	Anode AM	Cathode AM



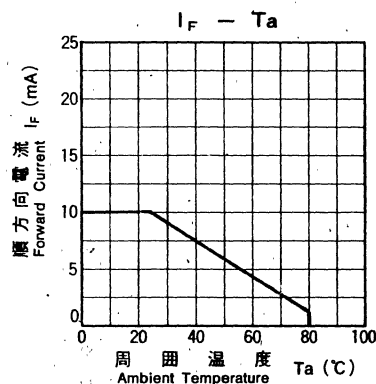
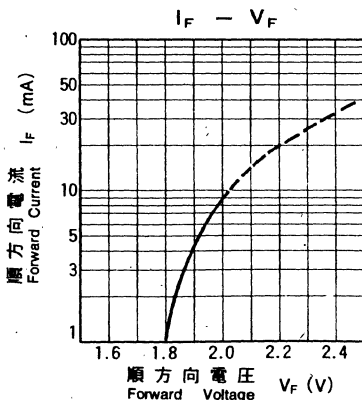
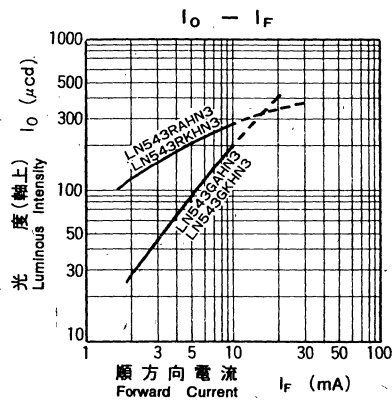
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	30	10	60	5	-25~+80	-30~+85
Green	30	10	60	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _p		Δλ		I _R	
			Typ.	Min.		Typ.	Max.	Typ.	Typ.	I _F	Max.	V _R	
LN543RAHN3	Red	Anode	200	100	100	5	2.03	2.8	700	100	10	10	5
LN543RKHN3	Red	Cathode	200	100	100	5	2.03	2.8	700	100	10	10	5
LN543GAHN3	Green	Anode	200	80	80	10	2.03	2.8	565	30	10	10	5
LN543GKHN3	Green	Cathode	200	80	80	10	2.03	2.8	565	30	10	10	5
Unit			μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



1888 0.3inch Series

Type No. Lighting Color

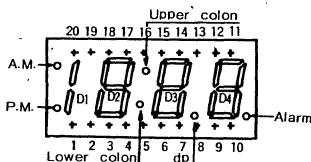
LN5431RAMR Red

LN5431RKMR Red

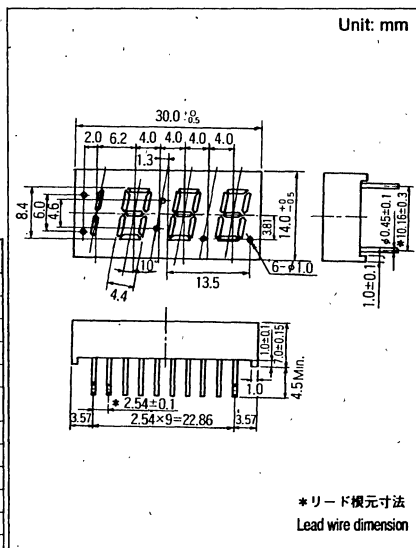
LN5431GAMG Green

LN5431GKMG Green

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode PM	Anode PM
2	Anode Dig 1	Cathode Dig 1
3	Cathode d	Anode d
4	Cathode c	Anode c
5	Cathode Lower colon	Anode Lower colon
6	Anode Dig 3 Lower colon	Cathode Dig 3 Lower colon
7	Anode dp	Cathode dp
8	Cathode dp	Anode dp
9	Anode Alarm	Cathode Alarm
10	Cathode Alarm	Anode Alarm
11	Cathode g	Anode g
12	Anode Dig 4	Cathode Dig 4
13	Cathode b	Anode b
14	Cathode a	Anode a
15	Cathode f	Anode f
16	Cathode Upper colon	Anode Upper colon
17	Anode Dig 2 Upper colon	Cathode Dig 2 Upper colon
18	Cathode e	Anode e
19	Anode AM, PM	Cathode AM, PM
20	Cathode AM	Anode AM



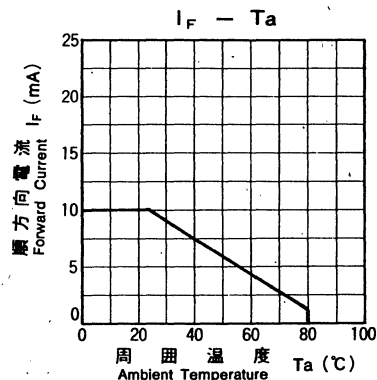
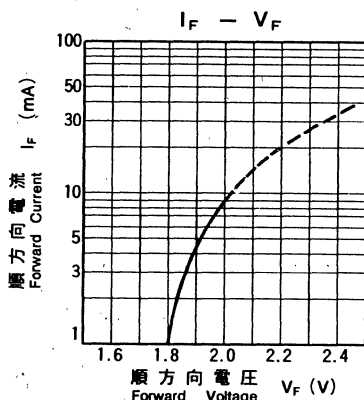
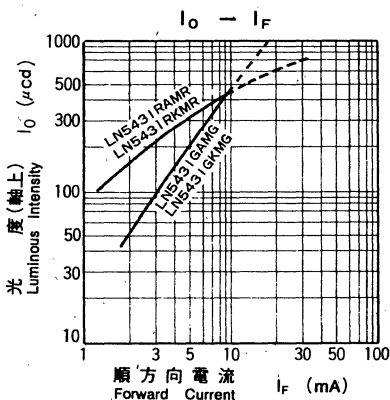
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	T _{op} (°C)	T _{stg} (°C)
Red	30	10	60	5	-25~+80	-30~+85
Green	30	10	60	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

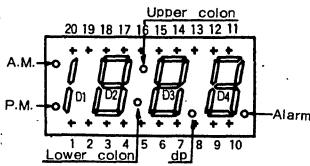
Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I ₀	
			Typ.	Min.		Typ.	Typ.				Max.	Max.
LN5431RAMR	Red	Anode	300	150	5	2.03	2.8	700	100	10	10	5
LN5431RKMR	Red	Cathode	300	150	5	2.03	2.8	700	100	10	10	5
LN5431GAMG	Green	Anode	500	200	10	2.03	2.8	565	30	10	10	5
LN5431GKMG	Green	Cathode	500	200	10	2.03	2.8	565	30	10	10	5
Unit	—	—	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



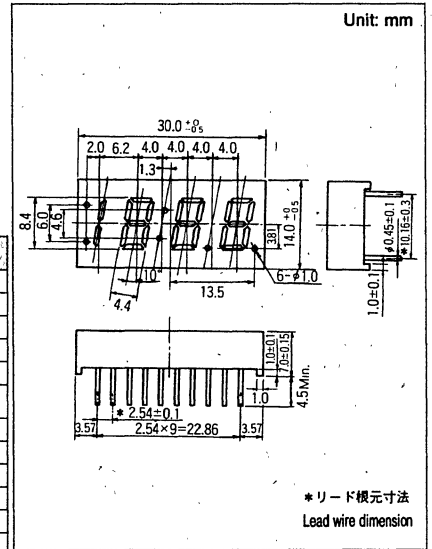
1888 0.3inch Series

Type No. Lighting Color
 LN5431YAMY Amber
 LN5431YKMY Amber
 LN5431OAMO Orange
 LN5431OKMO Orange

端子接続 Terminal Connection



Pin No.	Assignment	Assignment
1	Cathode PM	Anode PM
2	Anode Dig 1	Cathode Dig 1
3	Cathode d	Anode d
4	Cathode c	Anode c
5	Cathode Lower colon	Anode Lower colon
6	Anode Dig 3 Lower colon	Cathode Dig 3 Lower colon
7	Anode dp	Cathode dp
8	Cathode dp	Anode dp
9	Anode Alarm	Cathode Alarm
10	Cathode Alarm	Anode Alarm
11	Cathode g	Anode g
12	Anode Dig 4	Cathode Dig 4
13	Cathode b	Anode b
14	Cathode a	Anode a
15	Cathode f	Anode f
16	Cathode Upper colon	Anode Upper colon
17	Anode Dig 2 Upper colon	Cathode Dig 2 Upper colon
18	Cathode e	Anode e
19	Anode AM, PM	Cathode AM, PM
20	Cathode AM	Anode AM



*リード線寸法
Lead wire dimension

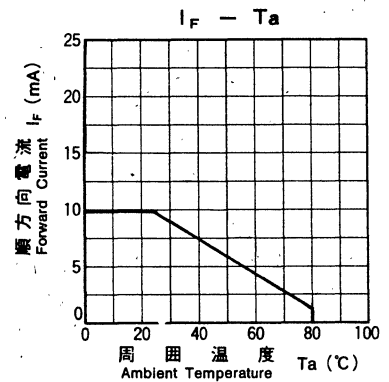
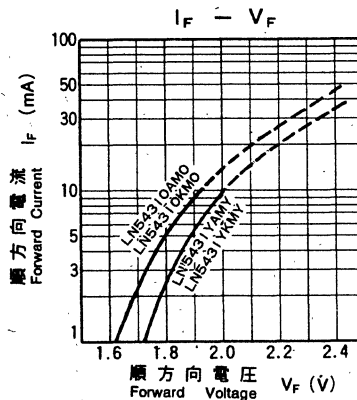
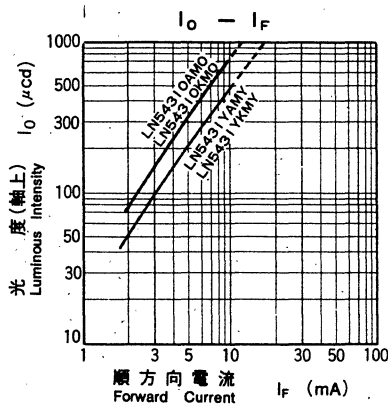
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Amber	30	10	60	5	-25~+80	-30~+85
Orange	30	10	60	3	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

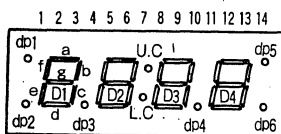
Type No.	Lighting Color	COMMON	I ₀ /seg		I ₀ /d.p		V _F		λ _P	Δλ	I _R		
			Typ.	Min.	Typ.	I _F	Typ.	Max.			Typ.	Max.	V _R
LN5431YAMY	Amber	Anode	500	200	200	10	2.00	2.8	590	30	10	10	5
LN5431YKMY	Amber	Cathode	500	200	200	10	2.00	2.8	590	30	10	10	5
LN5431OAMO	Orange	Anode	800	400	200	10	1.93	2.8	630	40	10	10	3
LN5431OKMO	Orange	Cathode	800	400	200	10	1.93	2.8	630	40	10	10	3
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



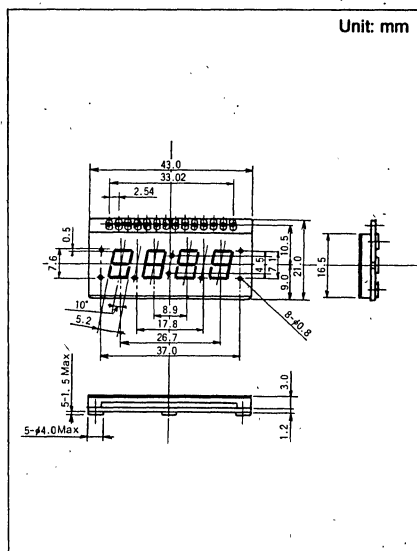
4 Digit 0.3inch Series

Type No. Lighting Color
 LN543RAFNB Red
 LN543YAFNB Amber

端子接続, Terminal Connection



Pin No.	Assignment
1	Common Anode D4
2	Common Anode D3
3	Common Anode D2
4	Common Anode D1
5	Cathode a, dp1
6	Cathode b, dp2
7	Cathode c, dp3
8	Common Anode dp.
9	Cathode U.C.
10	Cathode L.C.
11	Cathode d, dp4
12	Cathode e, dp5
13	Cathode f, dp6
14	Cathode g



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

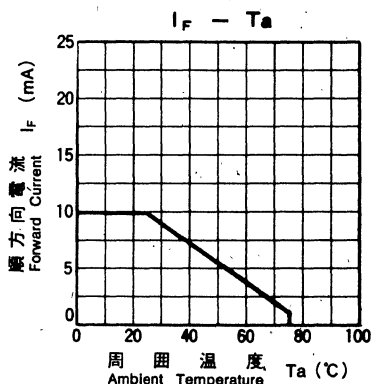
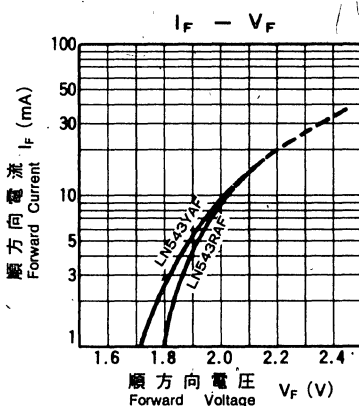
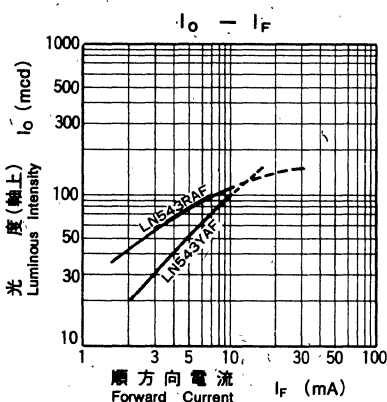
Lighting Color	P ₀ (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{opr} (°C)	T _{stg} (°C)
Red	30	10	60	5	-25~+75	-30~+80
Amber	30	10	60	5	-25~+75	-30~+80

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _p	Δλ		I _F	I _n	V _R
			Typ.	Min.		Typ.	Typ.		Max.	Typ.			
LN543RAFNB	Red	Anode	80	40	40	5	2.03	2.8	700	100	10	10	5
LN543YAFNB	Amber	Anode	100	50	50	10	2.00	2.8	590	30	10	10	5
Unit			μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

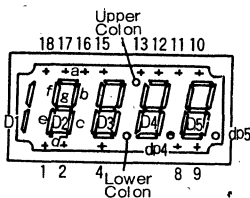
△印は暫定規格を示す。△ Tentative Specification



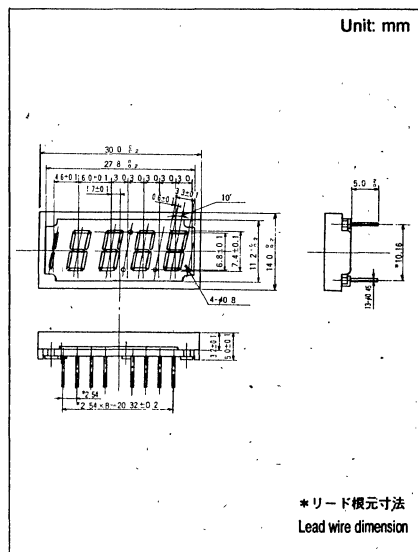
18888 0.3inch Series

Type No. LN5531GAP Lighting Color Green

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode e
2	Common Anode Dig 2, L.colon
3	
4	Cathode d
5	
6	
7	
8	Cathode c
9	Cathode colon dp
10	Cathode g
11	Common Anode Dig 5, dp5
12	Cathode a
13	Common Anode Dig 4, dp4
14	
15	Common Anode Dig 3, U.colon
16	Cathode f
17	Cathode b
18	Common Anode Dig 1



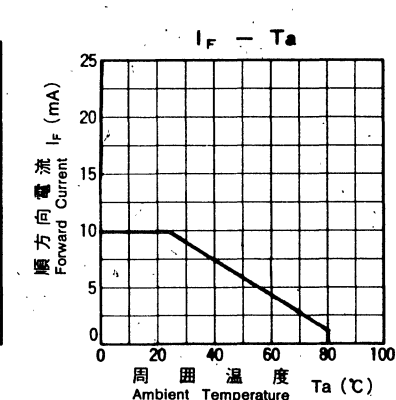
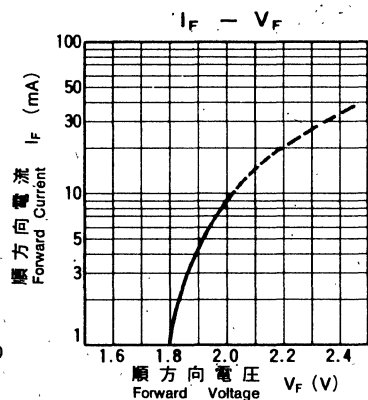
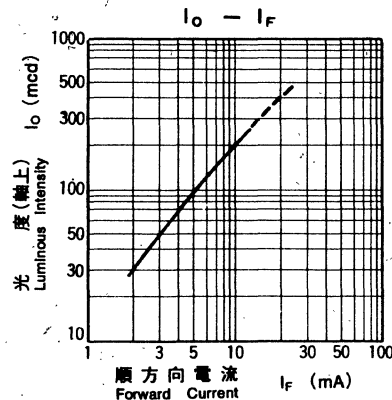
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Green	30	10	60	5	-25~+80	-30~+85

* I_{FP}の条件は、 duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

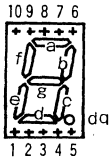
Type No	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I _R		
			Typ.	Min.		Typ.	Typ.				Max.	V _R	
LN5531GAP	Green	Anode	200	—	100	10	2.03	2.8	565	30	10	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



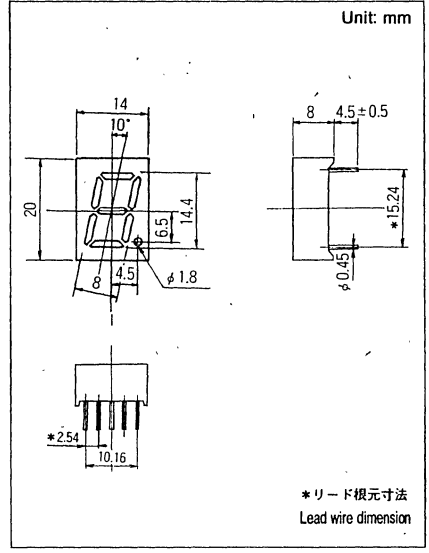
二色発光 Two Color Lighting 1 Digit 0.6inch Series

Type No. LN516RGA Lighting Color Red, Green

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode e (Red,Green)
2	Cathode d (Red,Green)
3	Common Anode (Red)
4	Cathode c (Red,Green)
5	Cathode dp (Red,Green)
6	Cathode b (Red,Green)
7	Cathode a (Red,Green)
8	Common Anode (Green)
9	Cathode f (Red,Green)
10	Cathode g (Red,Green)



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

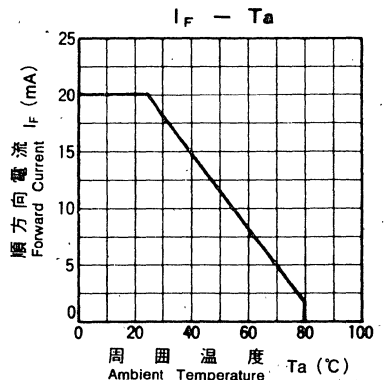
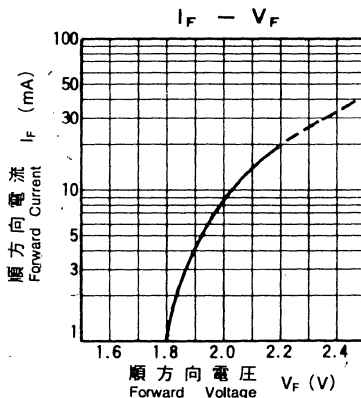
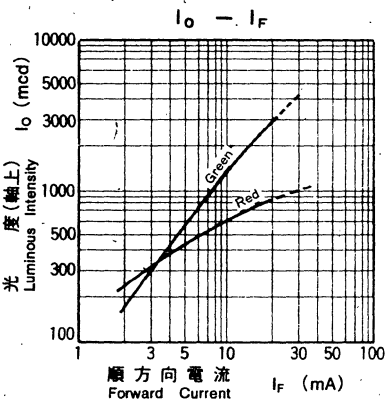
Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I _R	
			Typ.	Min.		Typ.	Typ.	Typ.	I _F		Max.	V _R
LN516RGA	Red	Anode	450	150	5	Typ.	Max.	700	100	20	10	5
	Green		1500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

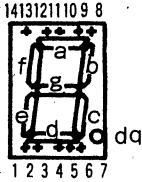
△印は暫定規格を示す。△ Tentative Specification



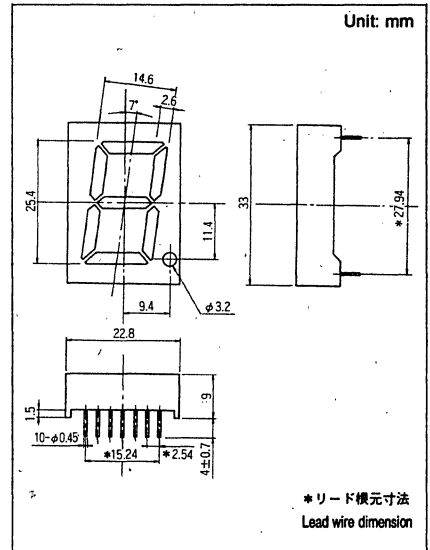
二色発光 Two Color Lighting 1 Digit 1.0inch Series

Type No. Lighting Color
LN5110GAMW Orange, Green

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode e (Orange,Green)
2	Cathode d (Orange,Green)
3	—
4	Common Anode (Green)
5	Cathode c (Orange,Green)
6	Cathode dp (Orange,Green)
7	—
8	Cathode b (Orange,Green)
9	Cathode a (Orange,Green)
10	—
11	Common Anode (Orange)
12	Cathode f (Orange,Green)
13	—
14	Cathode g (Orange,Green)



絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

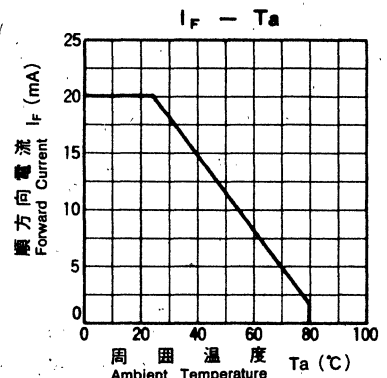
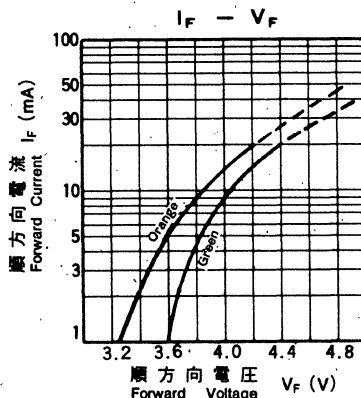
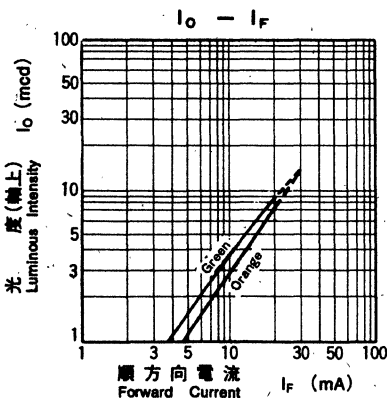
Lighting Color	P _{tot} (mW)	I _F (mA)	I _{FP} (mA)*	V _F (V)	T _{opt} (°C)	T _{stg} (°C)
Orange	110	20	100	3	-25~+80	-30~+85
Green	110	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は, duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg				I _F	V _F		λ _F		I _F	I _m	
			Typ.	Min.	Typ.	I _F		Typ.	Max.	Typ.	Typ.		Max.	V _F
LN5110GAMW	Orange	Anode	5.0	2.5	1.5	15	4.2	5.6	630	40	20	10	6	
	Green		6.0	2.5	2.0	15	4.4	5.6	565	30	20	10	10	
Unit	—	—	mcd	mcd	mcd	mA	V	V	nm	nm	mA	μA	V	

△印は暫定規格を示す。△ Tentative Specification

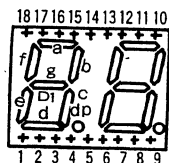


二色発光 Two Color Lighting

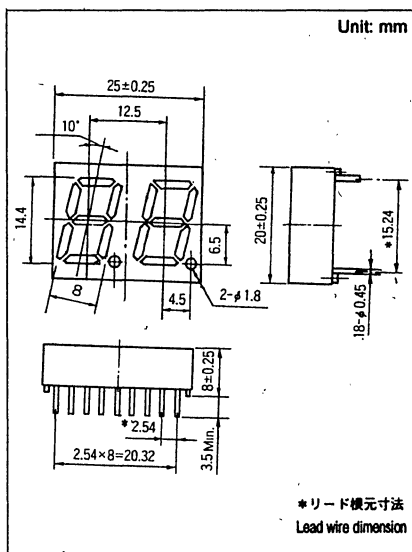
2 Digit 0.6inch Series (スタティック回路) (Static Diagram)

Type No. LN526RGA Lighting Color Red, Green

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode e1 (Red,Green)
2	Cathode d1 (Red,Green)
3	Cathode c1 (Red,Green)
4	Cathode dp1 (Red,Green)
5	Cathode e2 (Red,Green)
6	Cathode g2 (Red,Green)
7	Cathode d2 (Red,Green)
8	Cathode c2 (Red,Green)
9	Cathode dp2 (Red,Green)
10	Cathode b2 (Red,Green)
11	Cathode a2 (Red,Green)
12	Cathode f2 (Red,Green)
13	Common Anode (Green)
14	Common Anode (Red)
15	Cathode b1 (Red,Green)
16	Cathode a1 (Red,Green)
17	Cathode g1 (Red,Green)
18	Cathode f1 (Red,Green)



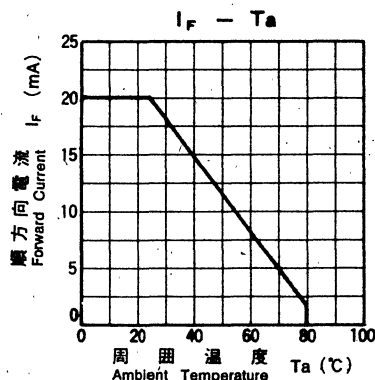
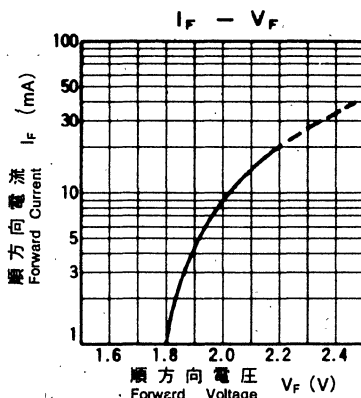
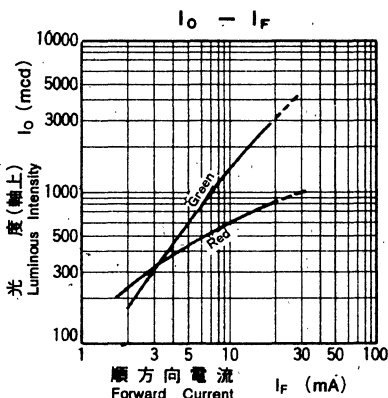
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _A (V)	T _{opr} (°C)	T _{stg} (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _F	Δλ	I _n	I _n		
			Typ.	Min.		Typ.	Typ.				Max.	Max.	V ₀
LN526RGA	Red	Anode	450	150	150	5	2.2	2.8	700	100	20	10	5
	Green		1500	500	500	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V

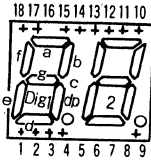


二色発光 Two Color Lighting

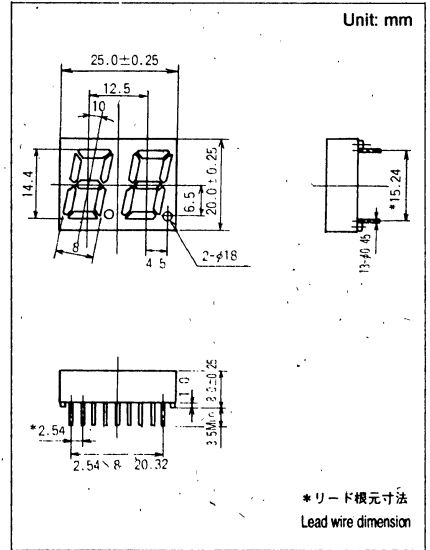
2 Digit 0.6inch Series (ダイナミック回路) (Dynamic Diagram)

Type No. LN526RGAD Lighting Color Red, Green

端子接続 Terminal Connection



Pin No.	Assignment
1	Cathode e (Red,Green)
2	Cathode d (Red,Green)
3	Cathode c (Red,Green)
4	—
5	—
6	—
7	—
8	—
9	—
10	Cathode b (Red,Green)
11	Cathode a (Red,Green)
12	Common Anode (D2 Red)
13	Common Anode (D2 Green)
14	Common Anode (D1 Red)
15	Common Anode (D1 Green)
16	—
17	Cathode g (Red,Green)
18	Cathode f (Red,Green)



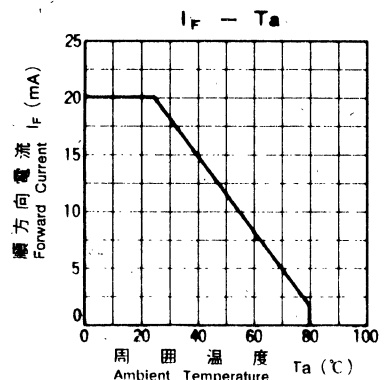
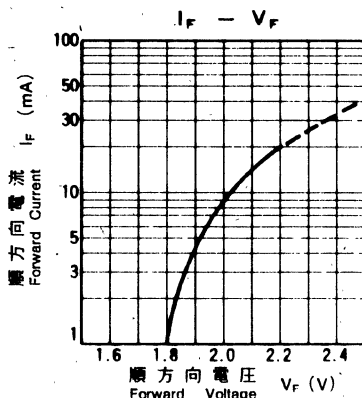
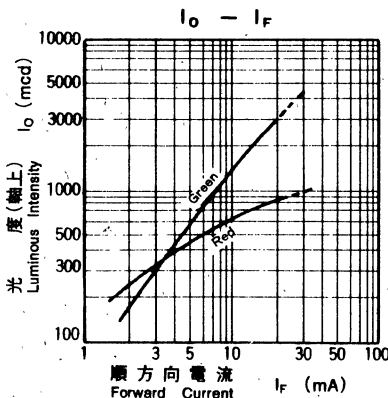
絶対最大定格 Absolute Maximum Ratings (Ta=25 °C)

Lighting Color	P _D (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	Topr (°C)	Tstg (°C)
Red	60	20	100	5	-25~+80	-30~+85
Green	60	20	100	5	-25~+80	-30~+85

* I_{FP}の条件は、duty 10%, Pulse width 1 msec. The condition of I_{FP} is duty 10%, Pulse width 1 msec

電気的光学的特性 Electro-Optical Characteristics (Ta=25 °C)

Type No.	Lighting Color	COMMON	I ₀ /seg		I _F	V _F		λ _P	Δλ	I _F	I _R		
			Typ.	Min.		Typ.	Max.				Typ.	Max.	V _R
LN526RGAD	Red	Anode	450	150	—	5	2.2	2.8	700	100	20	10	5
	Green		1500	500	—	10	2.2	2.8	565	30	20	10	5
Unit	—	—	μcd	μcd	μcd	mA	V	V	nm	nm	mA	μA	V



ユニット商品／UNIT PRODUCTS

パネルディスプレイユニット

Panel Display Units

パネルディスプレイユニット PANEL DISPLAY UNITS

製品一覧表 PRODUCTS LIST

Type No.	Item ゲートアレイ搭載 Gate Array	表示色 Display Colors	ドットサイズ Dot diameter	ドット間ピッチ Dot Pitch	ドット数 Dot total number	表示面サイズ Display Surface Size	重量 Weight (Typ.)	ページ Page
LN5121149UNA4		Red, Green, Amber	□2.0×2.0mm	2.5mm	16×32	40×80mm	65 g	
LN256144UNA		Red, Green, Amber	φ3mm	4mm	16×16	64×64mm	160 g	
LN2561156UNAH4	有・Provided	Red, Green, Amber	φ3mm	4mm	16×16	64×64mm	90 g	
LN576146UNA		Red, Green, Amber	φ3mm	4mm	24×24	96×96mm	350 g	
LN5761150UNAH4	有・Provided	Red, Green, Amber	φ3mm	4mm	24×24	96×96mm	175 g	
LN256166UNA		Red, Green, Amber	φ5mm	6mm	16×16	96×96mm	250 g	
LN2561141UNA4	有・Provided	Red, Green, Amber	φ5mm	6mm	16×16	96×96mm	175 g	
△ LN2561232UNA	有・Provided	Red, Green, Amber	φ5mm	6mm	16×16	96×96mm	175 g	
LN5761111UNA		Red, Green, Amber	φ5mm	6mm	24×24	144×144mm	295 g	
LN2561171UNAH4	有・Provided	Red, Green, Amber	φ8mm	9mm	16×16	144×144mm	330 g	
LN2561151UNA4	有・Provided	Red, Green, Amber	φ7.4mm	9mm	16×16	144×144mm	330 g	

△印は暫定規格を示す。△ Tentative Specification

注：表示色の橙色は赤色、緑色の同時点灯時

Note: Amber is displayed when red and green are simultaneously illuminated.

概 要

GENERAL DESCRIPTION

今日、私たちの社会に於いては情報が日々多様化しています。それだけに多くの人々に伝えたい情報はこれまで以上にその価値を問われる時期であると言えます。LEDパネルディスプレイはこのような大人数を対象とした情報メディアとして最適です。

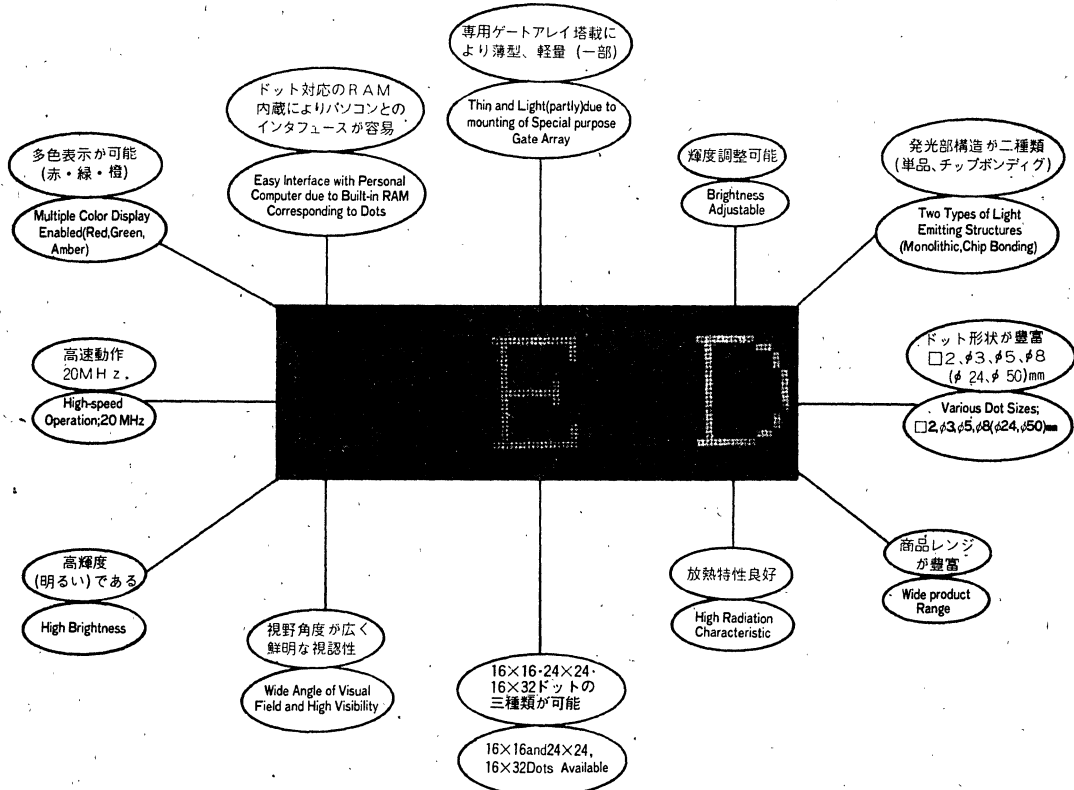
松下の開発したLEDパネルディスプレイユニットはその世界に誇るオプトエレクトロニクス技術を結集し、独自の専用ゲートアレイを使用することにより薄型、軽量、高密度実装化を実現しました。

商品レンジも2mm角、φ3mm、φ5mm、φ8mmの16×16および24×24、16×32ドットと豊富です。本ユニットを縦、横に並べ（小画面から大画面までのもの）、コンピュータとの簡単な接続により文字、記号、絵、グラフィックなど多彩な表示ができサービス告知に、デモンストレーションに、PRにとあらゆる分野で活躍できるLEDパネルディスプレイユニットです。

Today, as information is diversified increasingly in our society, a value of information, which you want to give to many people, is more important than before. Our LED panel display units are optimum information media aiming at a large number of people. Based on our proud optoelectronics know-how and with our unique special purpose gate array used, MATSUSHITA developed LED panel display units are designed thin and light for high-density installation.

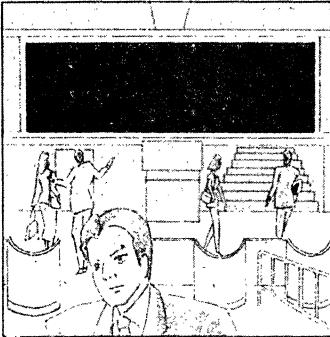
A product range is wide such as 16×16 and 24×24, 16×32 dots with dot sizes of 2mm Square Type, φ3mm, φ5mm and φ8mm, Characters, symbols, pictures, graphics, etc. can be displayed by arranging these units vertically and horizontally (ranging from a small screen to a large one) and connecting them to a computer. These LED panel display units are useful in various fields such as notifications of news, demonstrations, publicities, etc.

特 長
FEATURES

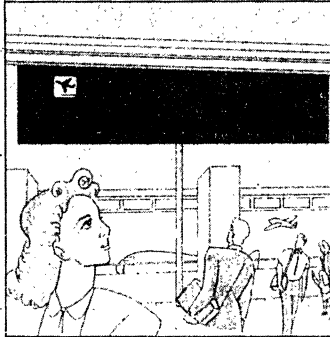


応 用 例
APPLICATIONS

駅構内表示
Display in Station Precincts



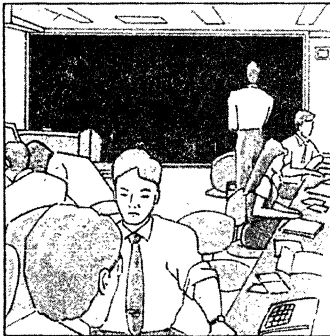
空港案内表示
Information Display at Airport



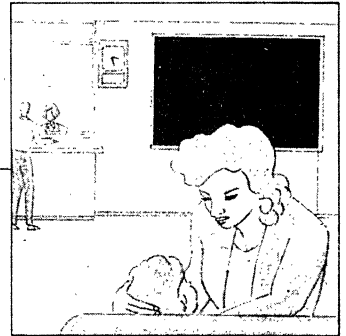
店頭案内表示
Information Display at Store



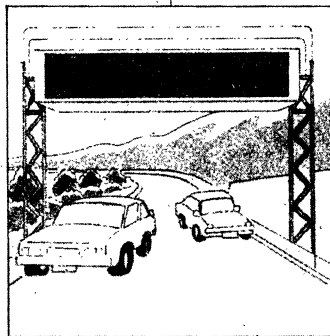
管理モニター表示
Management Monitor Display



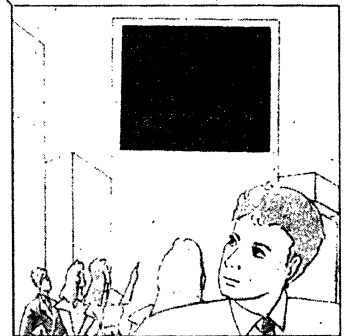
病院・ホテル等々の各種表示
Various Displays at Hospital, Hotel, etc.



証券会社の情報表示
Information Display at Securities Firm



道路情報表示
Road Information Display



市街地のポスター表示
Poster Display in Urban District

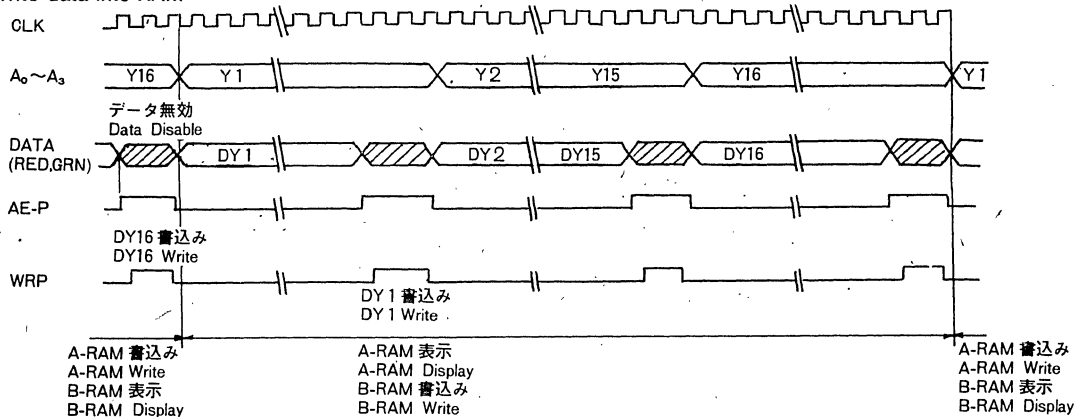
タイミングチャート
TIMING CHART

■ゲートアレイタイプ

Gate Array Type

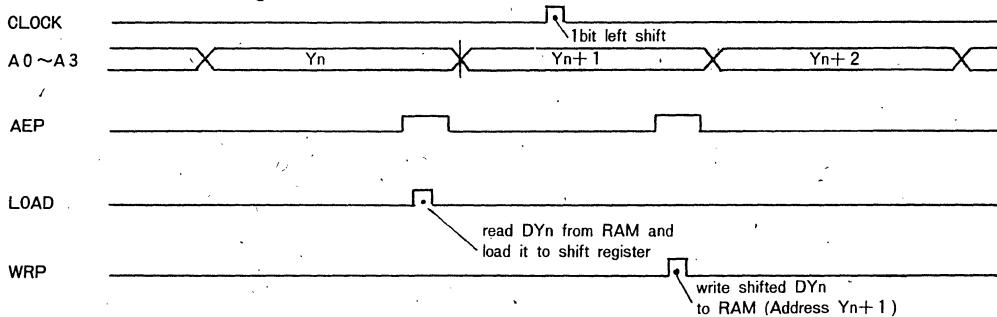
●RAM へのデータ書込み

Write data into RAM



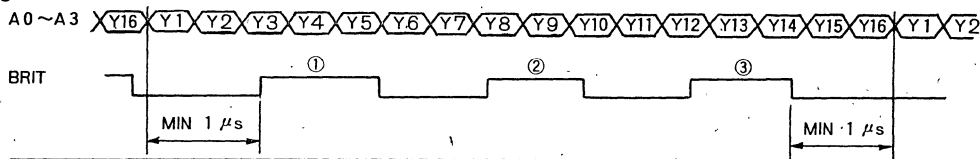
●RAM データのシフトレジスタへのロード (LN2561232UNA)

Load data of RAM to shift register



●輝度制御

Bright control (LN2561232UNA)



	PULSE NUMBER															
BRIT	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BRIGHTNESS	LIGHT → DARK															

above example, pulse number is 3

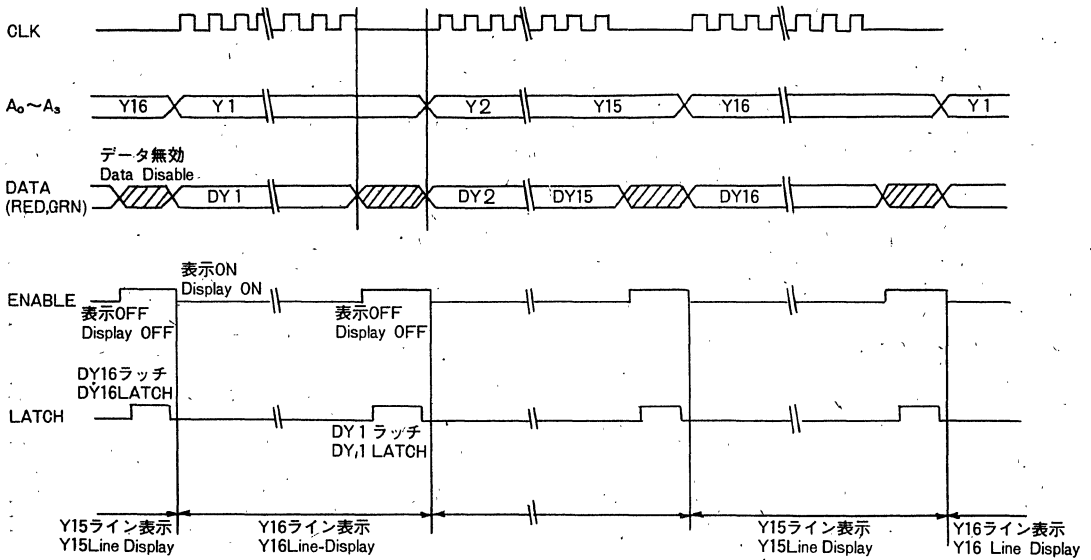
- CLK : データシフト用クロック信号 (立上りでシフト)
Data shifting clock signal (shift at rise)
- A₀~A₃ : RAMのアドレス信号 (24×24ドットの場合はA₀~A₄でアドレスY1~Y24を指定する。)
RAM address signals (A₀~A₄ specify addresses Y1~Y24 for 24×24 dots.)
- RED、GRN : 赤、緑、表示用データ信号 (HighレベルでLEDがON)
Red, green display data signals (LED ON at High level)
- AE-P : RAM アドレスイネーブル信号 (Highレベルでアドレスイネーブル)
RAM address enable signal (address enable at High level)
- WRP : ライトパルス信号 (Highレベルでデータの書込み)
Write pulse signal (data write at High level)
- LOAD : RAM データのシフトレジスタへのロード信号
Signal which loads data of RAM to shift Register
- BRIT : 輝度制御信号
Bright control signal

パネルディスプレイユニット PANEL DISPLAY UNITS

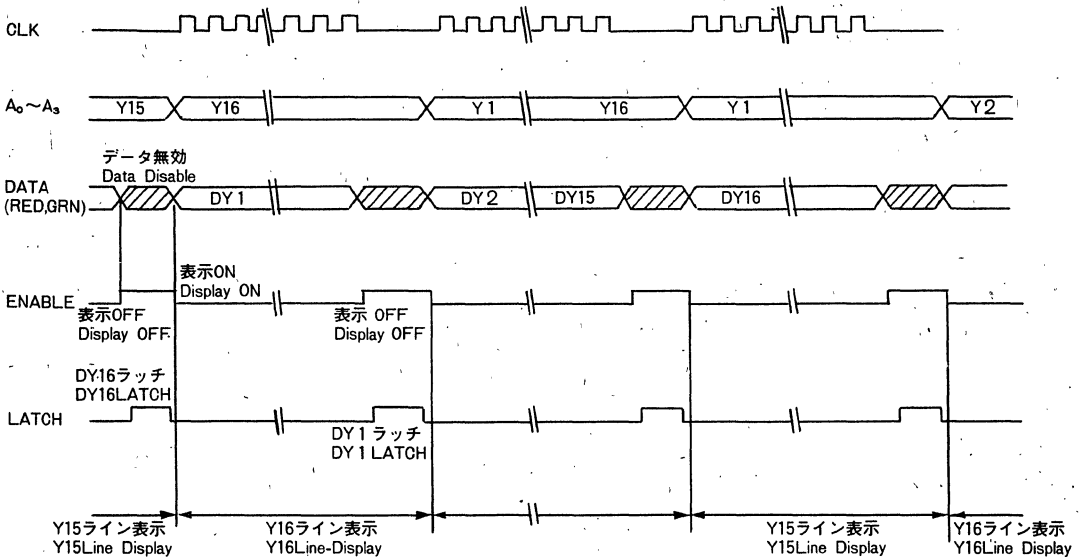
■シフトレジスタタイプ

Shift Register Type

(LN256144UNA, LN256166UNA, LN5761111UNA)



(LN5121149UNA)

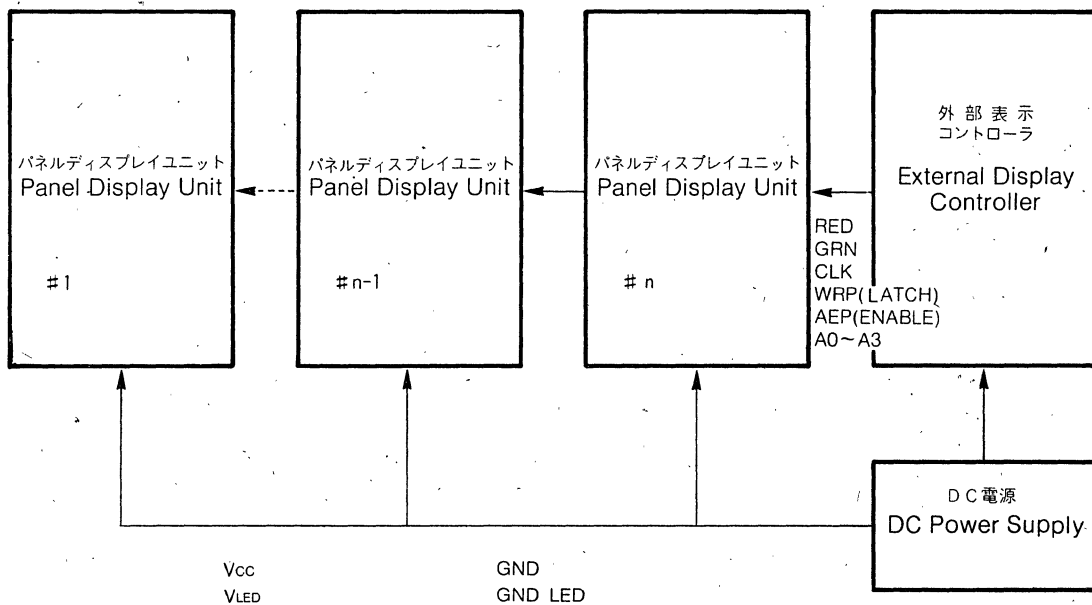


- CLK** : データシフト用クロック信号 (立上りでシフト)
Data shifting clock signal (shift at rise)
- A₀~A₃** : 表示用ローアドレス信号 (24×24ドットの場合はY1~Y10を指定する)
Display Row address signals (Y1~Y10 are specified for 24×24 dots)
- RED、GRN** : 赤、緑、表示用データ信号 (HighレベルでLEDがON)
Red, green display data signals (LED ON at High level)
- ENABLE** : LED ON/OFF 信号 (LowレベルでLEDがON)
LED ON/OFF signal (LED ON at Low level)
- LATCH** : 表示データのラッチ信号 (Highレベルでデータをラッチ)
Display data latch signal (data latch at High level)

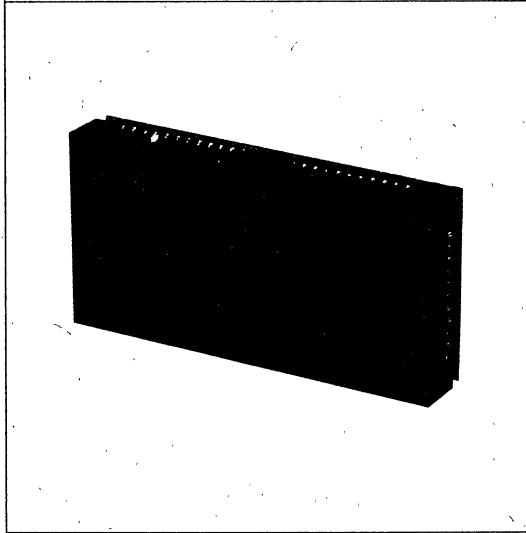
パネルディスプレイユニット PANEL DISPLAY UNITS

インターフェース INTERFACE

本パネルディスプレイユニット単体では動作せず外部表示器コントローラ及び直流電源によって動作します。
This panel display unit alone does not work, and it is operated by an external display controller and a DC power supply.



□ 2 × 2 mm 16 × 32 Dots LN5121149UNA4



■特 長

- 高密度実装技術による薄型、軽量
- 多色表示が可能 (赤・緑・橙)
- 視野角度が広く鮮明な視認性
- 動作速度 2 MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱性が良好
- ボリュームによりユニット間の輝度バラツキをなくすことができる (大画面時の輝度の均一化)
- 2 mm の 16 × 32 (512) ドット

■Features

- Thin and light features from high-density installation technology
- Multiple color display enabled (Red-Green-Amber)
- Wide angle of visual field and high visibility.
- Operating speed 2 MHz
- Flat Panel display ranging from a small screen to a large one
- High radiation characteristic
- A difference of brightness between units can be eliminated by a control VR (uniformalization of brightness for a large screen)
- 2-mm 16 × 32 (512) dots

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

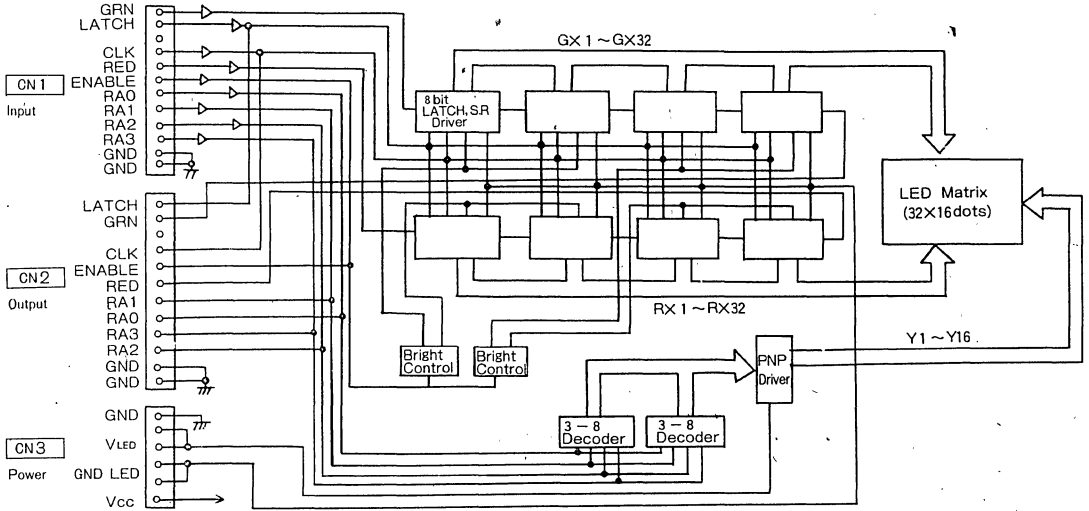
項 目	Item	Symbol	定 格	Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+6.0		V
LED用電源電圧	Supply Voltage for LED	VLED	5.5 max		V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3		V
動作周囲温度	Operating Ambient Temperature	Topr	0~+45		°C
保 存 温 度	Storage Temperature	Tstg	-25~+85		°C

■主なる仕様 Main Specifications (Ta=25°C)

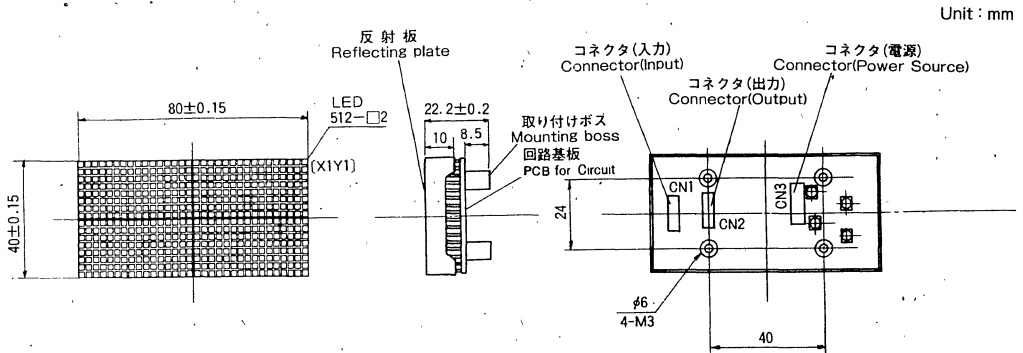
項 目	Item	Symbol	定 格	Ratings	Unit	
表 示 色	Display Colors			Red, Green, Amber		
ドットサイズ	Dot Diameter			□2.0	mm	
ドットピッチ	Dots Pitch			2.5	mm	
ドット数	Dot Total Number			512 (16×32)		
表示面サイズ	Display Surface Size			40×80	mm	
輝 度	Brightness (when lighting all lamps)			Red : 40 調整可能 Green : 40 Controllabele	cd/m ²	
駆 動 方 式	Operating Method			1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting		
ク ロ ッ ク 周 波 数	Clock Frequency			2 max	MHz	
ロジック用電源電圧	動作電圧	Supply Voltage	Supply Voltage	Vcc	5.0 ± 5%	V
	消費電流	for Logic	Supply Current	Icc	220 max	mA
LED用電源電圧	動作電圧	Supply Voltage	Supply Voltage	VLED	5.0	V
	消費電流	for LED	Supply Current	ILED	2.2 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight			約 50	g	

パネルディスプレイユニット PANEL DISPLAY UNITS

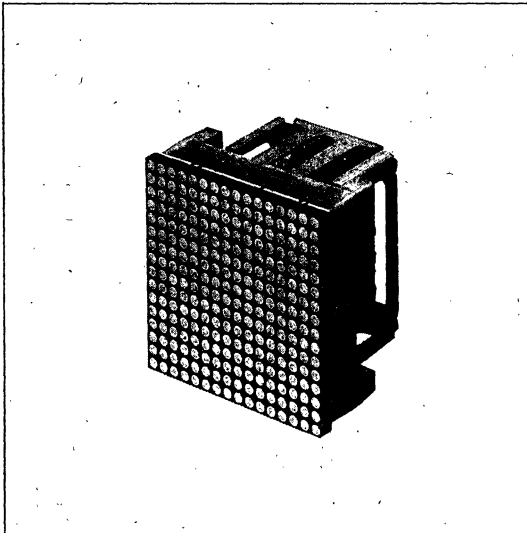
■ブロック図
Block Diagram



■外形図
Outline Drawing



φ3mm 16×16 Dots LN256144UNA



■特 長

- 薄型、軽量で高性能
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- 動作速度 2 MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- φ3mmの16×16 (256) ドット

■Features

- Thin, light and high performance
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility
- Operating speed 2MHz
- Flat panel display ranging from a small screen to a large one
- High radiation characteristic
- φ3-mm16×16 (256) dots

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

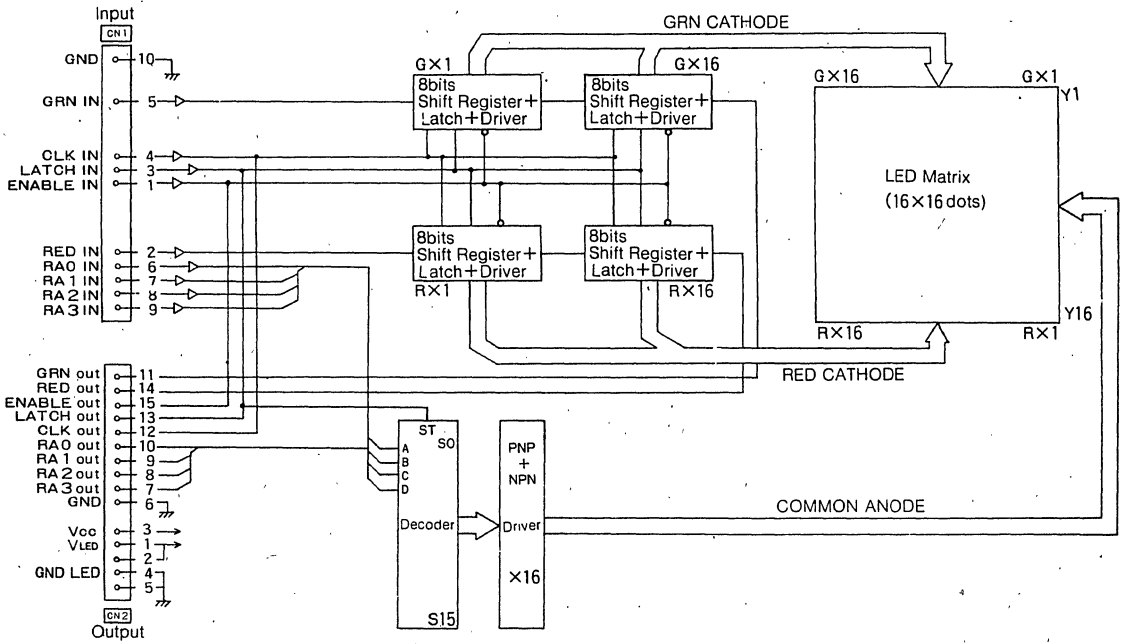
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+7.0	V
L E D用電源電圧	Supply Voltage for LED	VLED	5.0 max	V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topr	0~+45	°C
保 存 温 度	Storage Temperature	Tstg	-10~+70	°C

■主なる仕様 Main Specifications (Ta=25°C)

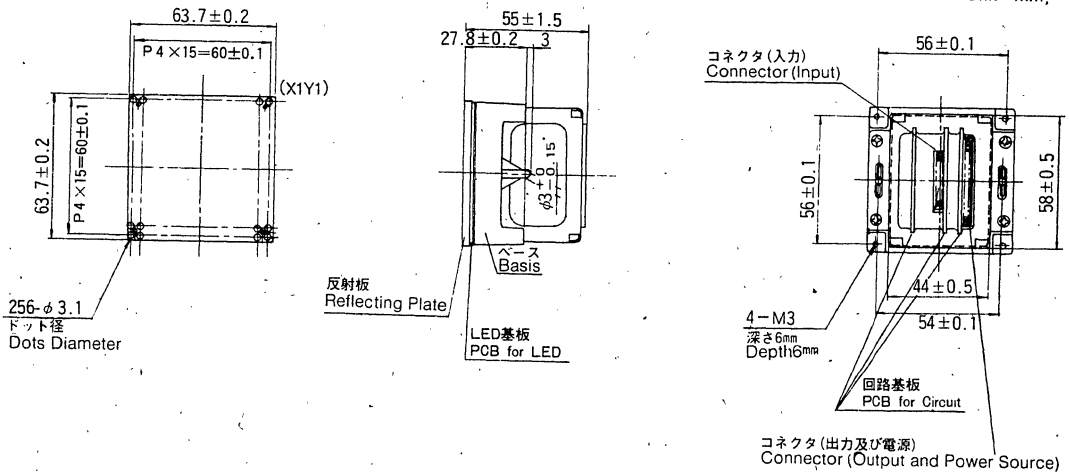
項 目	Item	Symbol	定 格 Ratings	Unit		
表 示 色	Display Colors		Red, Green, Amber			
ドットサイズ	Dot Diameter		φ3.1	mm		
ドットピッチ	Dots Pitch		4.0	mm		
ドット数	Dot Total Number		256 (16×16)			
表示面サイズ	Display Surface Size		64×64	mm		
輝 度	Brightness (when lighting all lamps)		Red : 60~90 Green : 60~90	cd/m ²		
駆 動 方 式	Operating Method		1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting			
ク ロ ッ ク 周 波 数	Clock Frequency		2 max	MHz		
ロジック用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic	Supply Current	Icc	400 max	mA
L E D用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	VLED	5.0	V
	消費電流	for LED	Supply Current	ILED	2.4 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight		160	g		

パネルディスプレイユニット PANEL DISPLAY UNITS

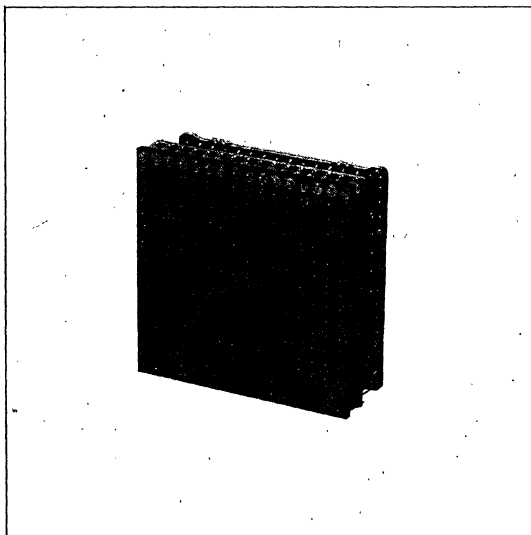
■ブロック図 (シフトレジスタタイプ)
Blok Diagram (Shift Register Type)



■外形図
Outline Drawing



φ3 mm 16×16 Dots LN2561156UNAH4



■特 長

- 専用ゲートアレイ搭載により薄型、軽量
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- ドット対応のRAM内蔵によりパソコンとのインターフェースが容易
- 動作速度20MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- ボリュームによりユニット間の輝度バラッキをなくすことができる。(大画面時の輝度の均一化)
- φ3mmの16×16 (256) ドット

■Features

- Thin and light due to mounting of special purpose gate array
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility
- Easy interface with a personal computer due to built-in RAM corresponding to dots
- Operating speed 20 MHz
- Flat panel display ranging from a small screen to a large one
- High radiation characteristic
- A difference of brightness between units can be eliminated by a control VR. (uniformization of brightness for a large screen)
- φ3-mm16×16 (256) dots

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

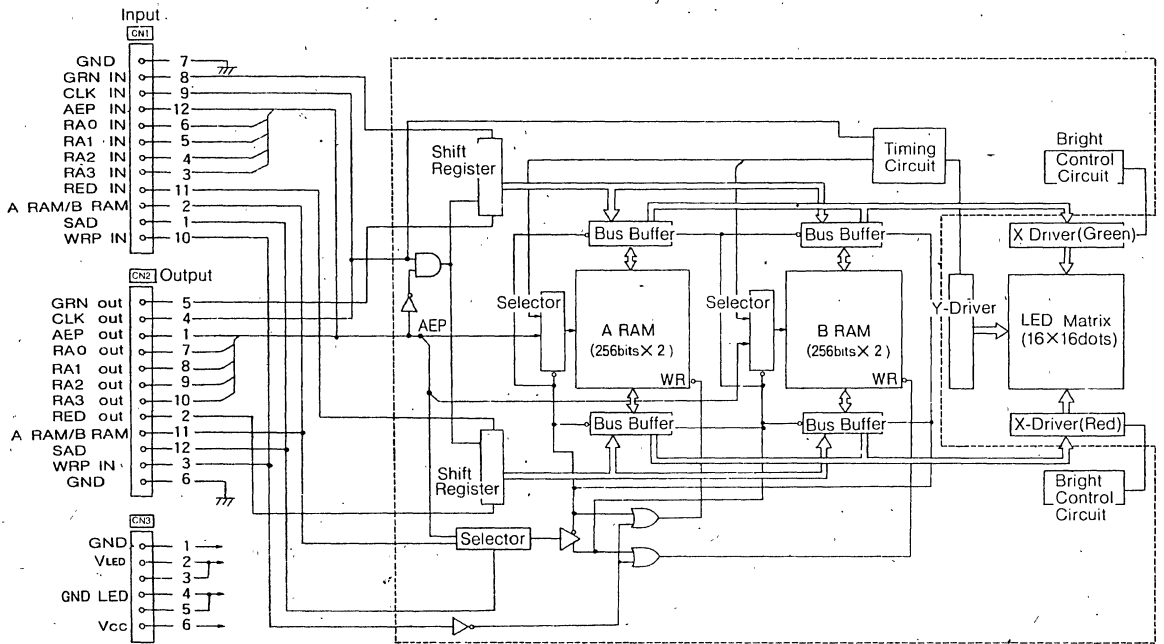
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+6.0	V
LED用電源電圧	Supply Voltage for LED	VLED	5.5 max	V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topr	-10~+45	°C
保 存 温 度	Storage Temperature	Tstg	-20~+85	°C

■主なる仕様 Main Specifications (Ta=25°C)

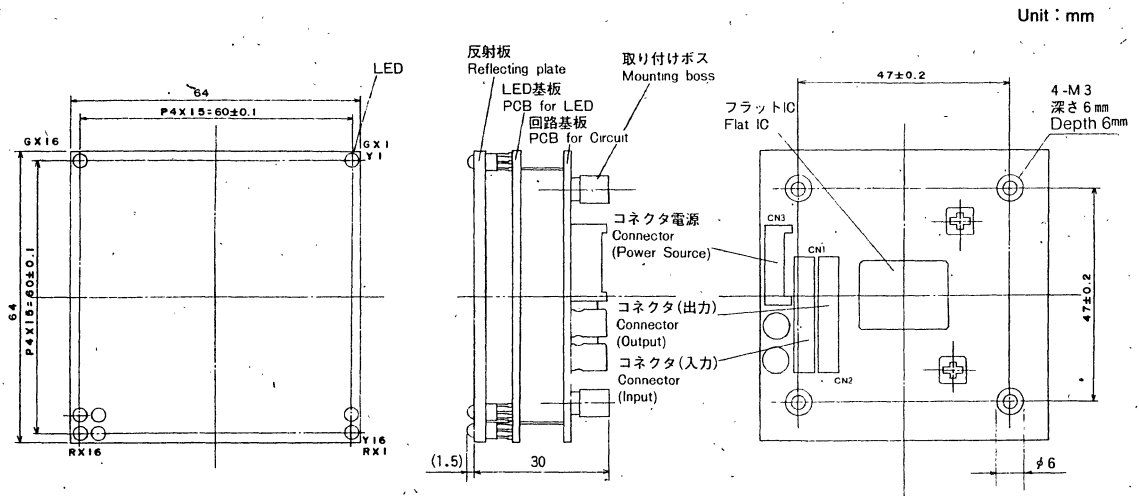
項 目	Item	Symbol	定 格 Ratings	Unit	
表 示 色	Display Colors		Red, Green, Amber		
ドットサイズ	Dot Diameter		φ 3.0	mm	
ドットピッチ	Dots Pitch		4.0	mm	
ドット数	Dot Total Number		256 (16×16)		
表示面サイズ	Display Surface Size		64×64	mm	
輝 度	Brightness (when lighting all lamps)		Red : 100 調整可能 Green : 100 Controllable	cd/m ²	
駆 動 方 式	Operating Method		1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting		
クロック周波数	Clock Frequency		20 max	MHz	
ロジック用電源電圧	動作電圧	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic	Supply Current	Icc	30 max
LED用電源電圧	動作電圧	Supply Voltage	VLED	5.0	V
	消費電流	for LED	Supply Current	ILED	1.9 max 二色全点灯 When two colors are all turned "ON"
重 量	Weight		95	g	

パネルディスプレイユニット PANEL DISPLAY UNITS

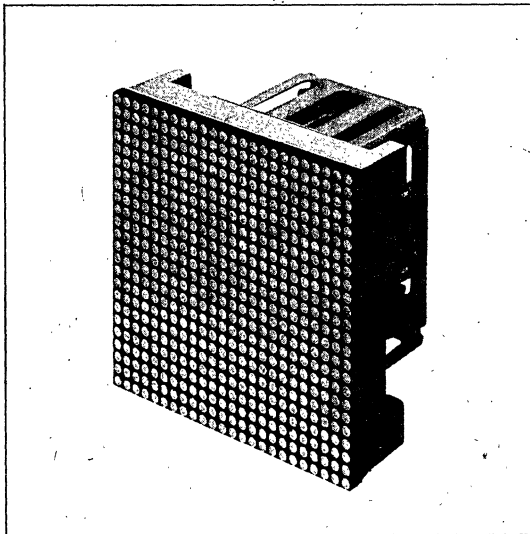
■ブロック図 (ゲートアレイタイプ)
Block Diagram (Gate Array Type)



■外形図
Outline Drawing



φ3 mm 24×24 Dots LN576146UNA



■特 長

- 明朝体文字が表示できる
- 薄型、軽量で高性能
- 多色表示が可能（赤、緑、橙）
- 視野角度が広く鮮明な視認性
- 動作速度2MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- φ3mmの24×24（576）ドット

■Features

- Capable of displaying Ming-style characters
- Thin, light and high performance
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility
- Operating speed 2MHz
- Flat panel display ranging from a small screen to a large one
- High radiation characteristic
- φ3-mm24×24 (576) dots

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

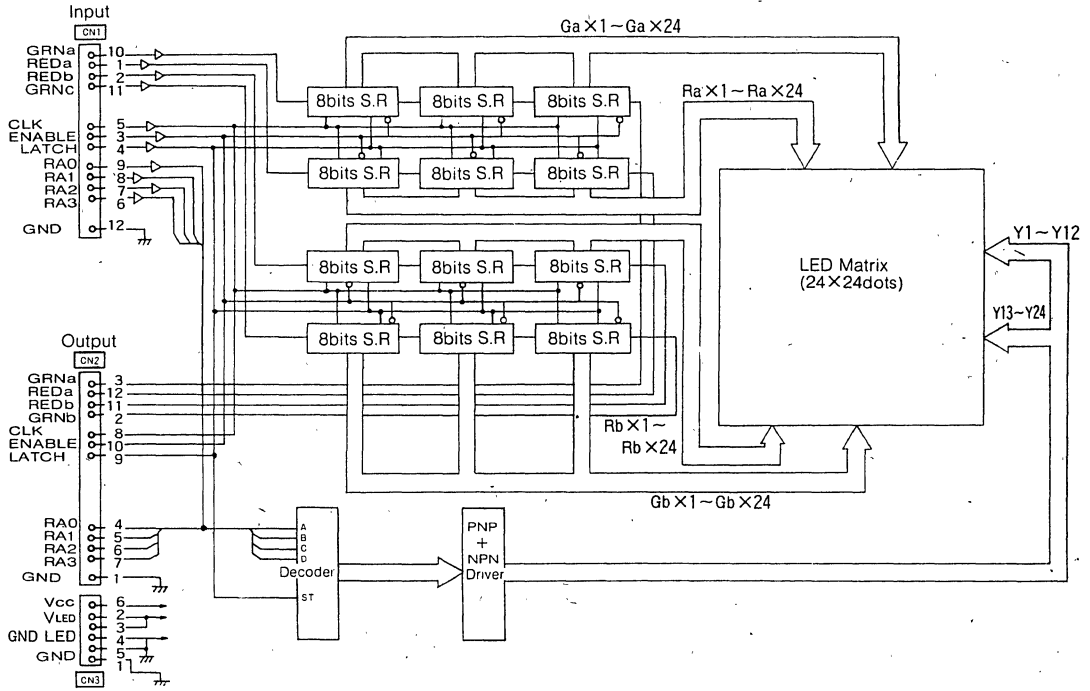
項 目	Item	Symbol	定 格	Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+7.0		V
L E D用電源電圧	Supply Voltage for LED	VLED	4.5 max		V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3		V
動作周囲温度	Operating Ambient Temperature	Topr	0~+45		°C
保 存 温 度	Storage Temperature	Tstg	-10~+70		°C

■主なる仕様 Main Specifications (Ta=25°C)

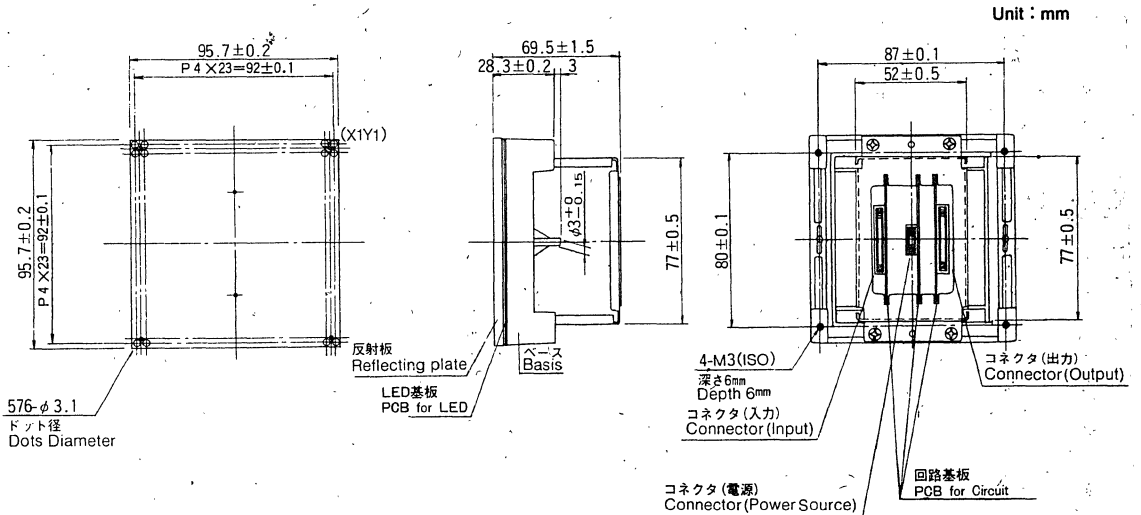
項 目	Item	Symbol	定 格	Ratings	Unit
表 示 色	Display Colors			Red, Green, Amber	
ドットサイズ	Dot Diameter			φ 3.1	mm
ドットピッチ	Dots Pitch			4.0	mm
ドット数	Dot Total Number			576 (24×24)	
表示面サイズ	Display Surface Size			96×96	mm
輝 度	Brightness (when lighting all lamps)			Red : 65~97.5 Green : 70~105	cd/m ²
駆 動 方 式	Operating Method			1/12 (Duty) ダイナミック点灯 1/12 (Duty) Dynamic lighting	
クロック周波数	Clock-Frequency			2 max	MHz
ロジック用 電源電圧	動作電圧	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic Supply Current	Icc	600 max	mA
L E D用 電源電圧	動作電圧	Supply Voltage	VLED	4.5	V
	消費電流	for LED Supply Current	ILED	4.8 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight			350	g

パネルディスプレイユニット PANEL DISPLAY UNITS

■ブロック図 (シフトレジスタタイプ)
Block Diagram (Shift Register Type)

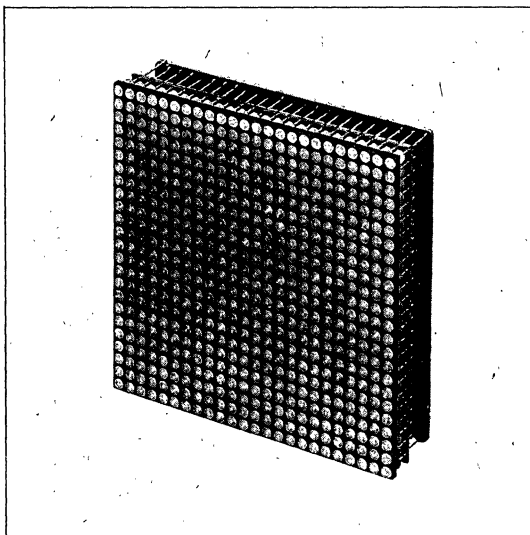


■外形図
Outline Drawing



パネルディスプレイユニット PANEL DISPLAY UNITS

φ3 mm 24×24 Dots LN5761150UNAH4



■特 長

- 専用ゲートアレイ搭載により薄型、軽量
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- ドット対応のRAM内蔵によりパソコンとのインタフェースが容易
- 動作速度20MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- φ3mmの24×24 (576) ドット
- 明朝体文字が表示できる
- ポリウムによりユニット間の輝度バラッキをなくすことができる。(大画面時の輝度の均一化)

■Features

- Thin and light due to mounting of special purpose gate array
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility
- Easy interface with a personal computer due to built-in RAM corresponding to dots
- Operating speed 20 MHz
- Flat panel display ranging from a small screen to a large one.
- High radiation characteristic
- φ3-mm24×24 (576) dots
- Capable of displaying Ming-style characters
- A difference of brightness between units can be eliminated by a control VR (uniformalization of brightness for a large screen)

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

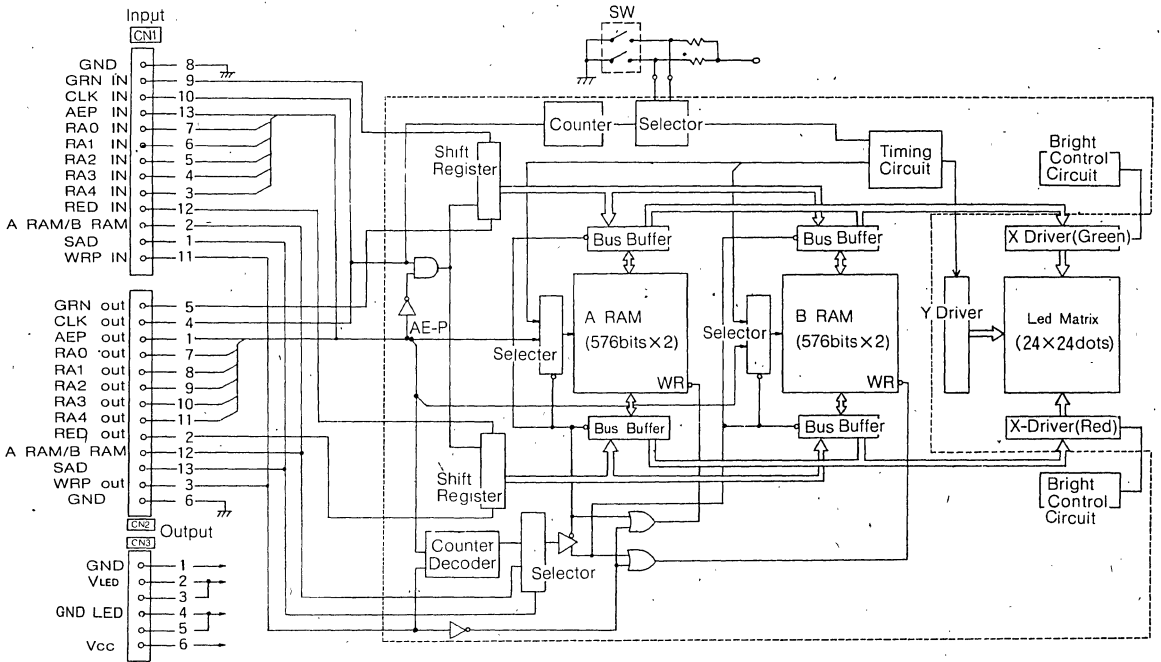
項 目	Item	Symbol	定 格	Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+6.0		V
LED用電源電圧	Supply Voltage for LED	V _{LED}	5.5 max		V
入 力 電 圧	Input Voltage	V _{in}	-0.3~Vcc+0.3		V
動作周囲温度	Operating Ambient Temperature	Topr	-10~+45		°C
保 存 温 度	Storage Temperature	Tstg	-25~+85		°C

■主なる仕様 Main Specifications (Ta=25°C)

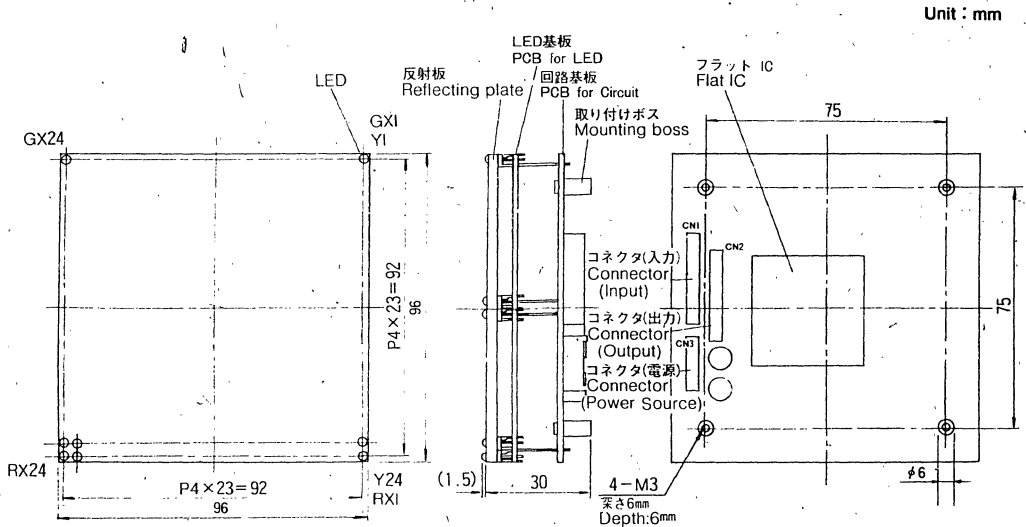
項 目	Item	Symbol	定 格	Ratings	Unit	
表 示 色	Display Colors			Red, Green, Amber		
ドットサイズ	Dot Diameter			φ3.0	mm	
ドットピッチ	Dots Pitch			4.0	mm	
ドット数	Dot Total Number			576 (24×24)		
表示面サイズ	Display Surface Size			96×96	mm	
輝 度	Brightness (when lighting all lamps)			Red : 100 調整可能 Green : 100 Controllable	cd/m ²	
駆 動 方 式	Operating Method			1/24 (Duty) ダイナミック点灯 1/24 (Duty) Dynamic lighting		
クロック周波数	Clock Frequency			20 max	MHz	
ロジック用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic	Supply Current	Icc	50 max	mA
LED用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	V _{LED}	5.0	V
	消費電流	for LED	Supply Current	I _{LED}	2.5 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight			175	g	

パネルディスプレイユニット PANEL DISPLAY UNITS

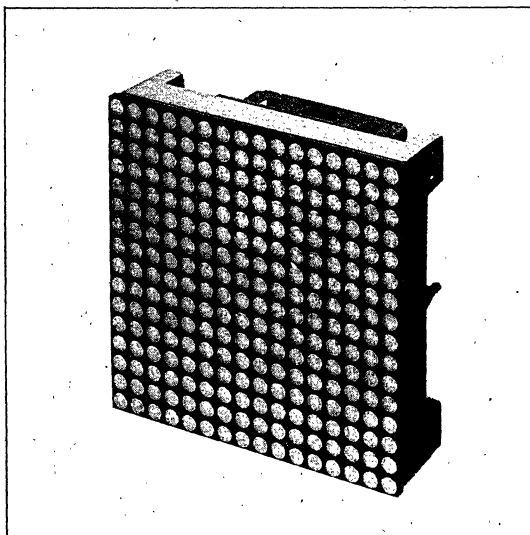
■ブロック図 (ゲートアレイタイプ)
Block Diagram (Gate Array Type)



■外形図
Outline Drawing



φ5 mm 16×16 Dots LN256166UNA



■特 長

- 薄型、軽量で高性能
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- 動作速度2MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- φ5mmの16×16 (256) ドット

■Features

- Thin, light and high performance
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility
- Operating speed 2 MHz
- Flat panel display ranging from a small screen to a large one
- High radiation characteristic
- φ5-mm 16×16 (256) dots

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

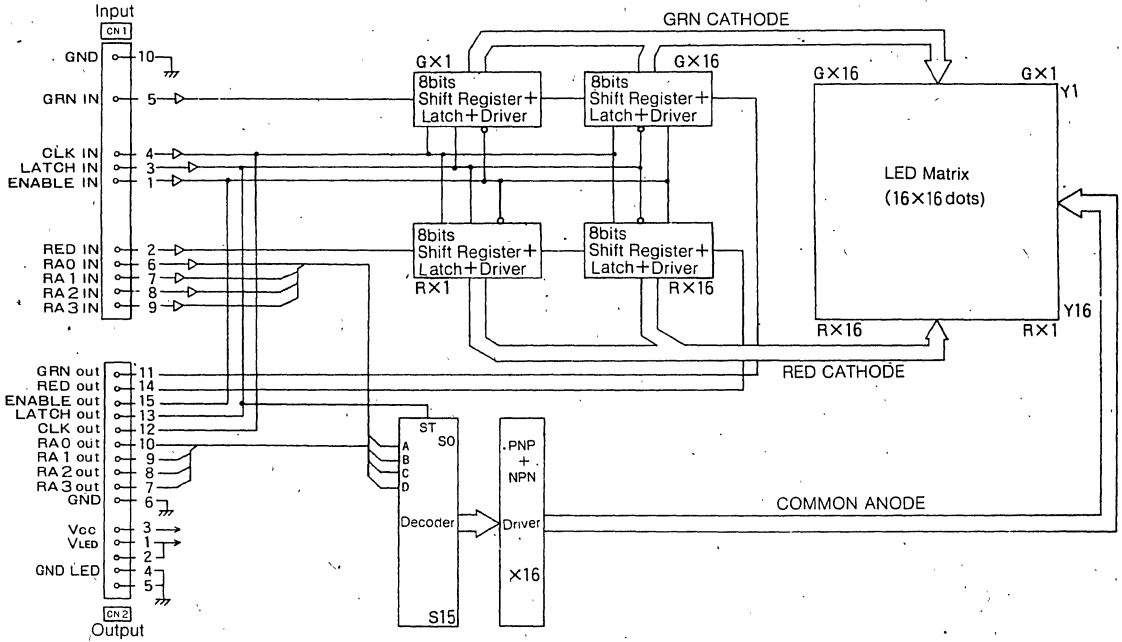
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+7.0	V
L E D用電源電圧	Supply Voltage for LED	VLED	5.0 max	V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topr	0~+45	°C
保 存 温 度	Storage Temperature	Tstg	-10~+70	°C

■主なる仕様 Main Specifications (Ta=25°C)

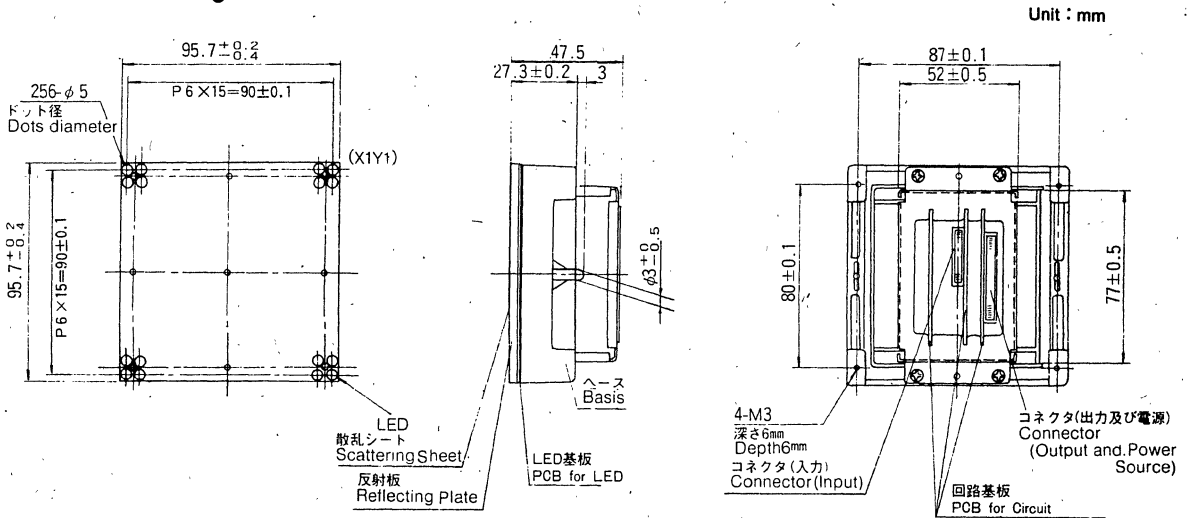
項 目	Item	Symbol	定 格 Ratings	Unit		
表 示 色	Display colors		Red, Green, Amber			
ドットサイズ	Dot Diameter		φ5.0	mm		
ドットピッチ	Dots Pitch		6.0	mm		
ドット数	Dot Total Number		256 (16×16)			
表示面サイズ	Display Surface Size		96×96	mm		
輝 度	Brightness (when lighting all lamps)		Red : 60~90 Green : 60~90	cd/m ²		
駆 動 方 式	Operating Method		1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting			
ク ロ ッ ク 周 波 数	Clock Frequency		2 max	MHz		
ロジック用電源電圧	動作電圧	Supply Voltage	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic	Supply Current	Icc	400 max	mA
L E D用電源電圧	動作電圧	Supply Voltage	Supply Voltage	VLED	5.0	V
	消費電流	for LED	Supply Current	ILED	2.8 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight		250		g	

パネルディスプレイユニット PANEL DISPLAY UNITS

■ブロック図 (シフトレジスタタイプ)
Block Diagram (Shift Register Type)

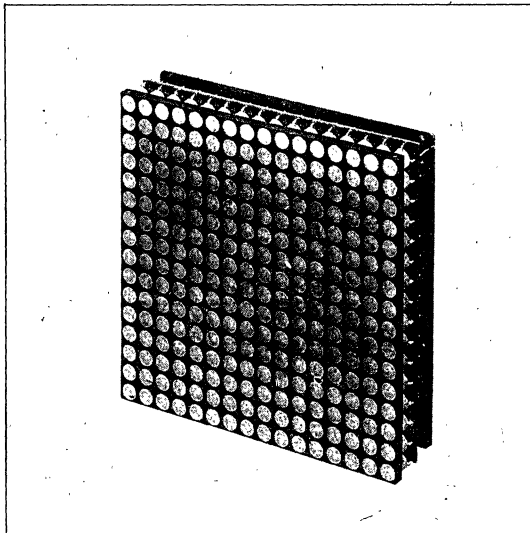


■外形図
Outline Drawing



パネルディスプレイユニット PANEL DISPLAY UNITS

φ5 mm 16×16 Dots LN2561141UNA4



■特 長

- 専用ゲートアレイ搭載により薄型、軽量
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- ドット対応のRAMによりパソコンとのインタフェースが容易
- 動作速度20MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- ボリュームによりユニット間の輝度バラツキをなくすことができる。(大画面時の輝度の均一化)
- φ5mmの16×16 (256) ドット

■Features

- Thin and light due to mounting of special purpose gate array
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility
- Easy interface with a personal computer due to built-in RAM corresponding to dots
- Operating speed 20MHz
- Flat panel display ranging from a small screen to a large one
- High radiation characteristic
- A difference of brightness between units can be eliminated by a control VR (uniformalization of brightness for a large screen)
- φ5-mm16×16 (256) dots

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

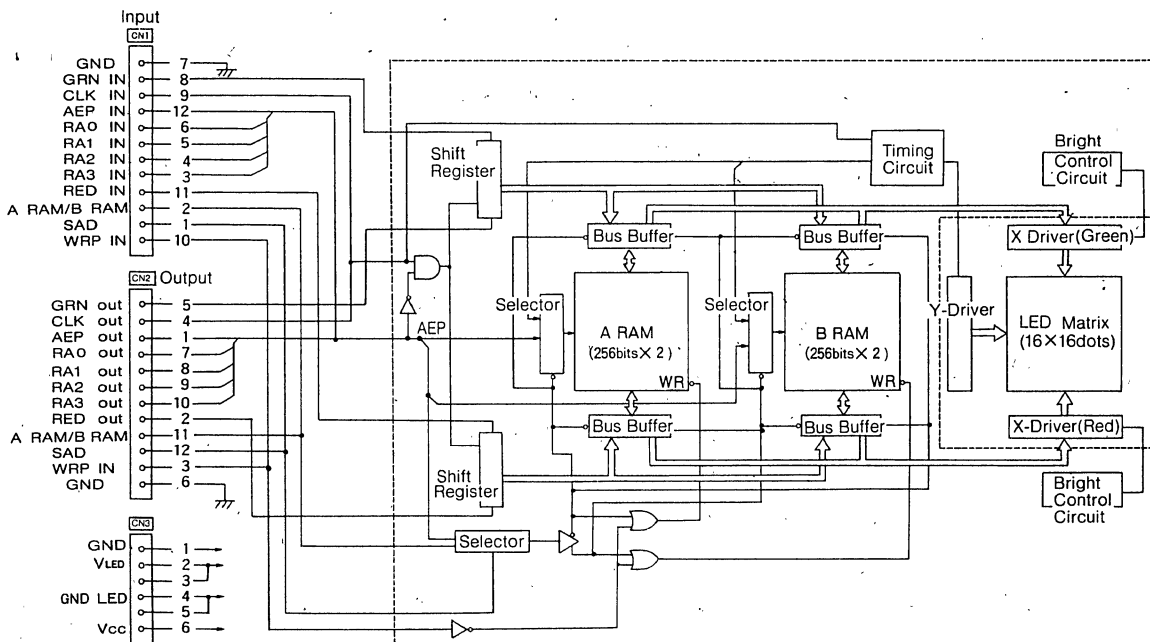
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+6.0	V
LED用電源電圧	Supply Voltage for LED	VLED	5.5 max	V
入力電圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topt	-10~+45	°C
保存温度	Storage Temperature	Tstg	-25~+85	°C

■主なる仕様 Main Specifications (Ta=25°C)

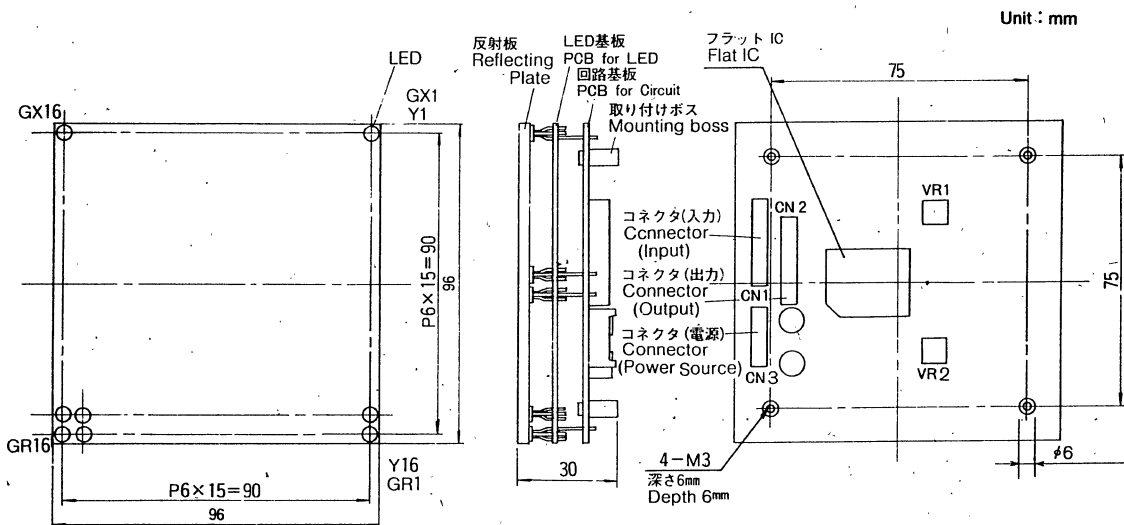
項 目	Item	Symbol	定 格 Ratings	Unit		
表 示 色	Display Colors		Red, Green, Amber			
ドットサイズ	Dot Diameter		φ5.0	mm		
ドットピッチ	Dots Pitch		6.0	mm		
ドット数	Dot Total Number		256 (16×16)			
表示面サイズ	Display Surface Size		96×96	mm		
輝 度	Brightness (when lighting all lamps)		Red: 70 調整可能 Green: 70 Controllable	cd/m ²		
駆 動 方 式	Operating Method		1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting			
クロック周波数	Clock Frequency		20 max	MHz		
ロジック用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic	Supply Current	Icc	30 max	mA
LED用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	VLED	5.0	V
	消費電流	for LED	Supply Current	ILED	2.8 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight		175	g		

パネルディスプレイユニット PANEL DISPLAY UNITS

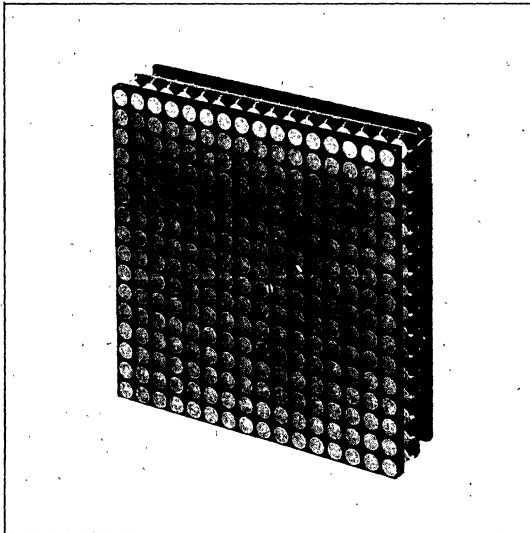
■ブロック図 (ゲートアレイタイプ)
Block Diagram (Gate Array Type)



■外形図
Outline Drawing



φ5 mm 16×16 Dots LN2561232UNA



■特 長

- 専用ゲートアレイ搭載により薄型、軽量
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- ドット対応のRAMによりパソコンとのインタフェースが容易
- 動作速度20MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- ボリュームによりユニット間の輝度バラツキをなくすことができる。(大画面時の輝度の均一化)
- φ5mmの16×16 (256) ドット
- 16階調制御可能
- RAM からのデータ読み出し可能

■Features

- Thin and light due to mounting of special purpose gate array
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility
- Easy interface with a personal computer due to built-in RAM corresponding to dots
- Operating speed 20MHz
- Flat panel display ranging from a small screen to a large one
- A difference of brightness between units can be eliminated by a control VR (uniformalization of brightness for a large screen)
- φ5-mm16×16 (256) dots

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

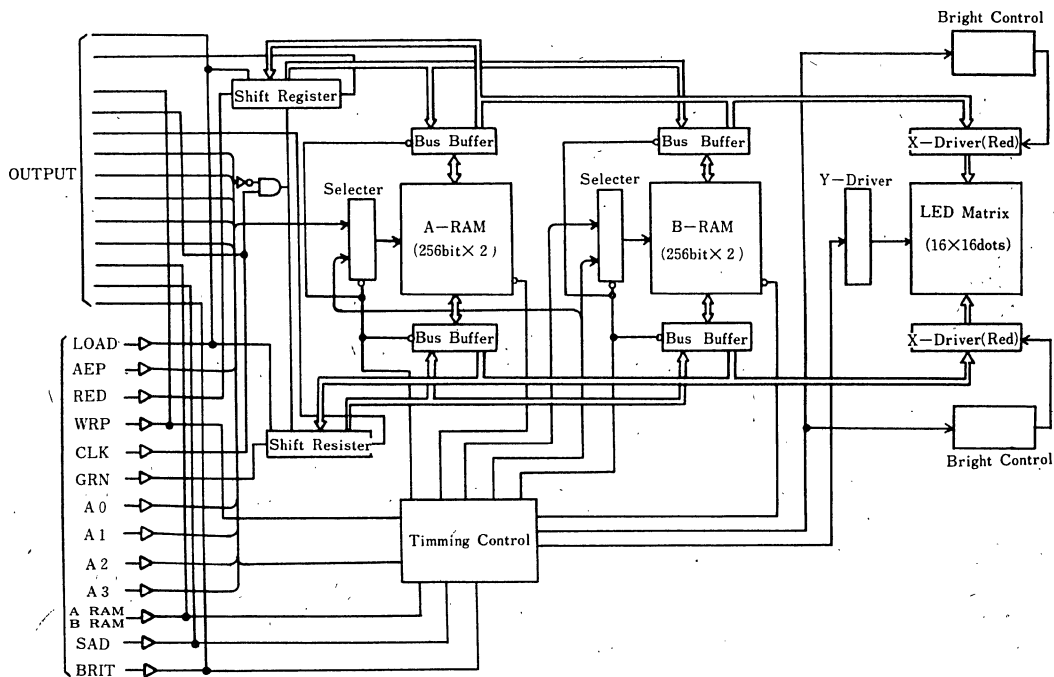
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+6.0	V
LED用電源電圧	Supply Voltage for LED	VLED	5.5 max	V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topr	-10~+45	°C
保 存 温 度	Storage Temperature	Tstg	-25~+85	°C

■主なる仕様 Main Specifications (Ta=25°C)

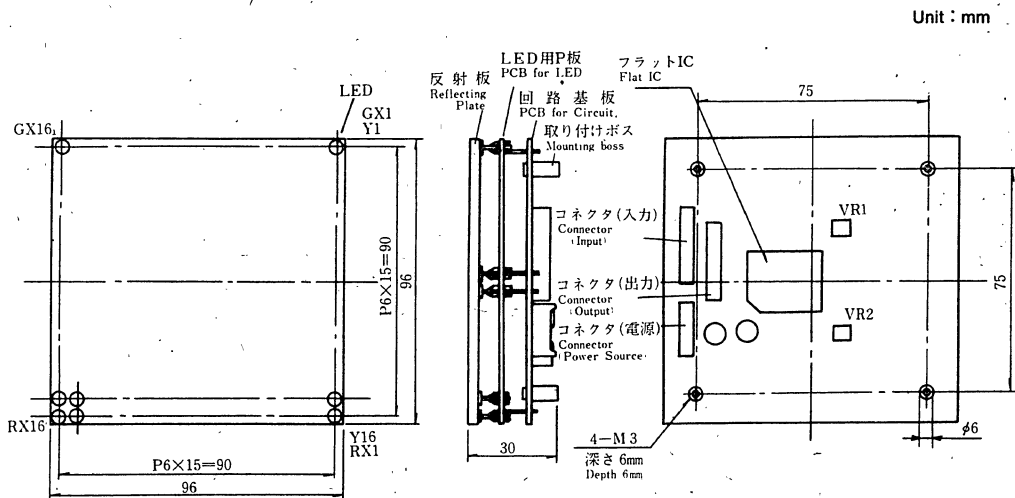
項 目	Item	Symbol	定 格 Ratings	Unit		
表 示 色	Display Colors		Red, Green, Amber			
ドットサイズ	Dot Diameter		φ5.0	mm		
ドットピッチ	Dots Pitch		6.0	mm		
ドット数	Dot Total Number		256 (16×16)			
表示面サイズ	Display Surface Size		96×96	mm		
輝 度	Brightness (when lighting all lamps)		Red : 70 調整可能 Green : 70 Controllable	cd/m ²		
駆 動 方 式	Operating Method		1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting			
ク ロ ッ ク 周 波 数	Clock Frequency		20 max	MHz		
ロジック用 電源電圧	動作電圧	Supply Voltage for Logic	Supply Voltage	Vcc	5.0±5%	V
	消費電流		Supply Current	Icc	30 max	mA
LED用 電源電圧	動作電圧	Supply Voltage for LED	Supply Voltage	VLED	5.0	V
	消費電流		Supply Current	ILED	2.8 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight		175	g		

パネルディスプレイユニット PANEL DISPLAY UNITS

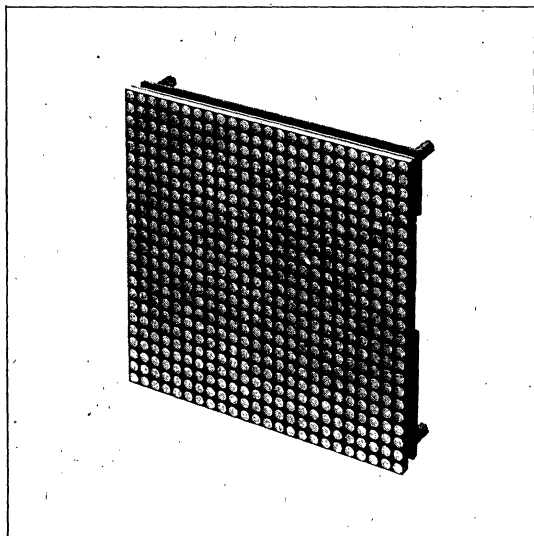
■ブロック図 (ゲートアレイタイプ)
Block Diagram (Gate Array Type)



■外形図
Outline Drawing



φ 5 mm 24×24 Dots LN5761111UNA



■特 長

- 明朝体文字が表示できる
- 薄型、軽量で高性能
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- 動作速度 2 MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- ボリュームによりユニット間の輝度バラツキをなくすことができる。(大画面時の輝度の均一化)
- φ 5 mmの24×24 (576) ドット

■Features

- Capable of displaying Ming-style characters
- Thin, light and high performance
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility.
- Operating speed 2 MHz
- Flat panel display ranging from a small screen to a large one
- High radiation characteristic.
- A difference of brightness between units can be eliminated by a control VR.
(uniformalization of brightness for a large screen)
- φ5-mm24×24 (576) dots.

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

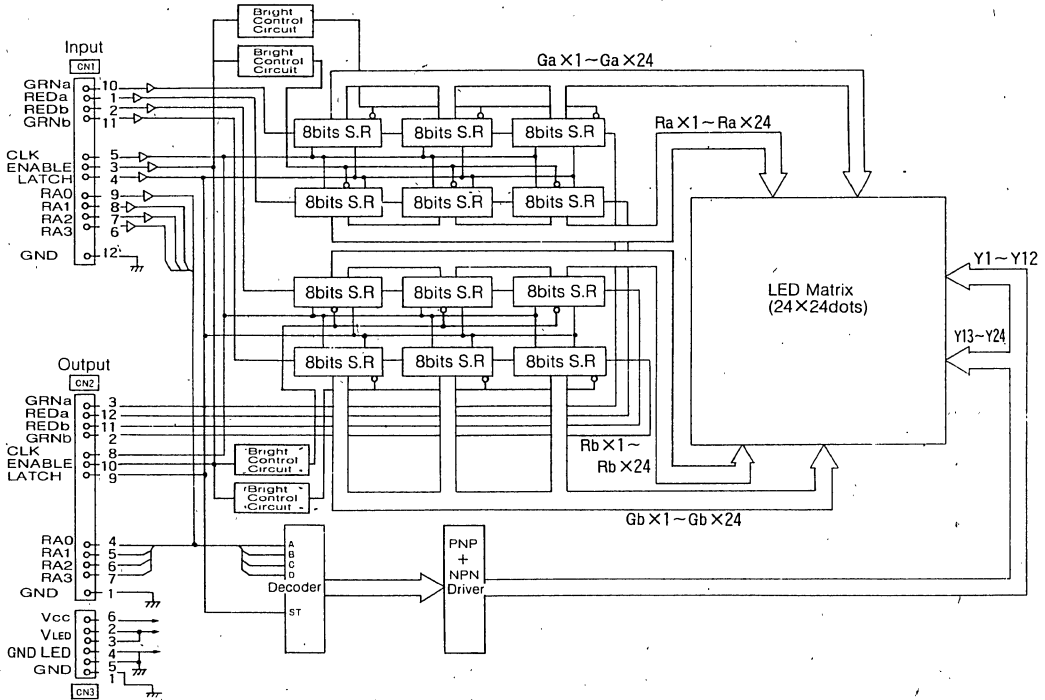
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+5.5	V
LED用電源電圧	Supply Voltage for LED	VLED	5.0 max	V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topr	0~+45	°C
保 存 温 度	Storage Temperature	Tstg	-10~+70	°C

■主なる仕様 Main Specifications (Ta=25°C)

項 目	Item	Symbol	定 格 Ratings	Unit		
表 示 色	Display Colors		Red, Green, Amber			
ドットサイズ	Dot Diameter		φ 5.0	mm		
ドットピッチ	Dots Pitch		6.0	mm		
ドット数	Dot Total Number		576 (24×24)			
表示面サイズ	Display Surface Size		144×144	mm		
輝 度	Brightness (when lighting all lamps)		Red : 80 調整可能 Green : 80 Controllable	cd/m ²		
駆 動 方 式	Operating Method		1/12 (Duty) ダイナミック点灯 1/12 (Duty) Dynamic lighting			
ク ロ ッ ク 周 波 数	Clock Frequency		2 max	MHz		
ロジック用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic	Supply Current	Icc	600 max	mA
LED用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	VLED	5.0	V
	消費電流	for LED	Supply Current	ILED	5.5 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight		295	g		

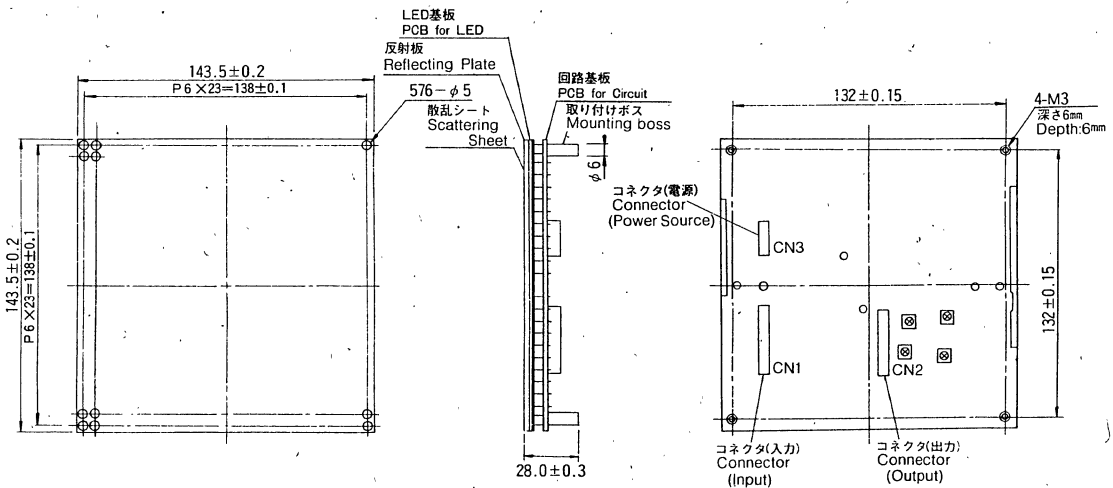
パネルディスプレイユニット PANEL DISPLAY UNITS

■ブロック図 (シフトレジスタタイプ)
Block Diagram (Shift Register Type)

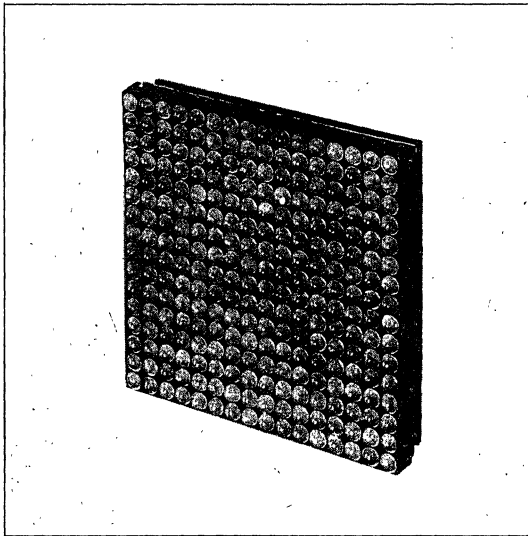


■外形図
Outline Drawing

Unit : mm



φ 8 mm 16×16 Dots LN2561171UNAH4



■特 長

- 専用ゲートアレイ搭載により薄型、軽量
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- ドット対応のRAM内蔵によりパソコンとのインタフェースが容易
- 動作速度20MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- ポリウムによりユニット間の輝度バラツキをなくすことができる。(大画面時の輝度の均一化)
- φ8mmの16×16(256)ドット

■Features

- Thin and light due to mounting of special purpose gate array
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility.
- Easy interface with a personal computer due to built-in RAM corresponding to dots.
- Operating speed 20 MHz.
- Flat panel display ranging from a small screen to a large one.
- High radiation characteristic.
- A difference of brightness between units can be eliminated by a control VR. (uniformalization of brightness for a large screen)
- φ8-mm16×16 (256 dots)

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

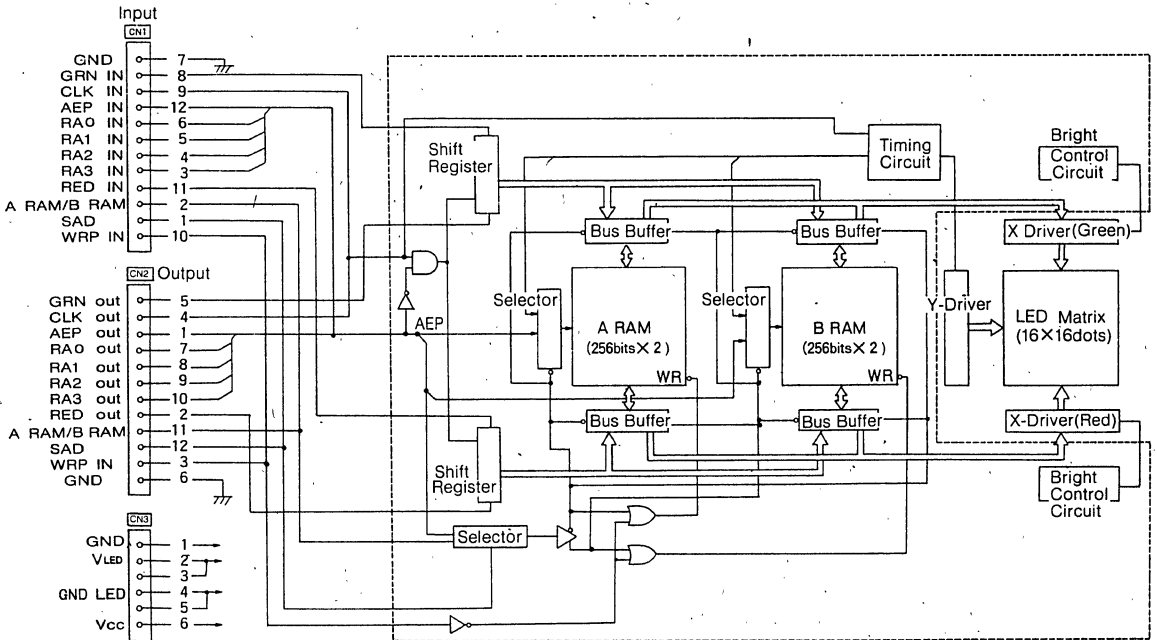
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+6.0	V
LED用電源電圧	Supply Voltage for LED	VLED	5.5 max	V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topr	-10~+45	°C
保 存 温 度	Storage Temperature	Tstg	-25~+85	°C

■主なる仕様 Main Specifications (Ta=25°C)

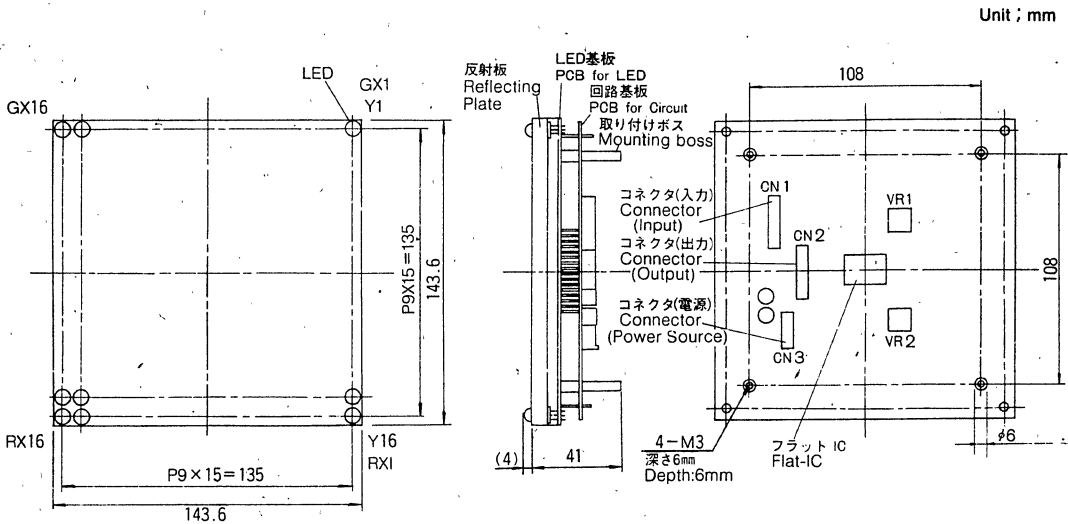
項 目	Item	Symbol	定 格 Ratings	Unit		
表 示 色	Display Colors		Red, Green, Amber			
ドットサイズ	Dot Diameter		φ8.0	mm		
ドットピッチ	Dots Pitch		9.0	mm		
ドット数	Dot Total Number		256 (16×16)			
表示面サイズ	Display Surface Size		144×144	mm		
輝 度	Brightness (when lighting all lamps)		Red : 200 調整可能 Green : 200 Controllable	cd/m ²		
駆 動 方 式	Operating Method		1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting			
クロック周波数	Clock Frequency		20 max	MHz		
ロジック用 電源電圧	動作電圧	Supply Voltage for Logic	Supply Voltage	Vcc	5.0±5%	V
	消費電流		Supply Current	Icc	30 max	mA
LED用 電源電圧	動作電圧	Supply Voltage for LED	Supply Voltage	VLED	5.0	V
	消費電流		Supply Current	ILED	2.8 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight		330	g		

パネルディスプレイユニット PANEL DISPLAY UNITS

■ブロック図 (ゲートアレイタイプ) Block Diagram (Gate Array Type)

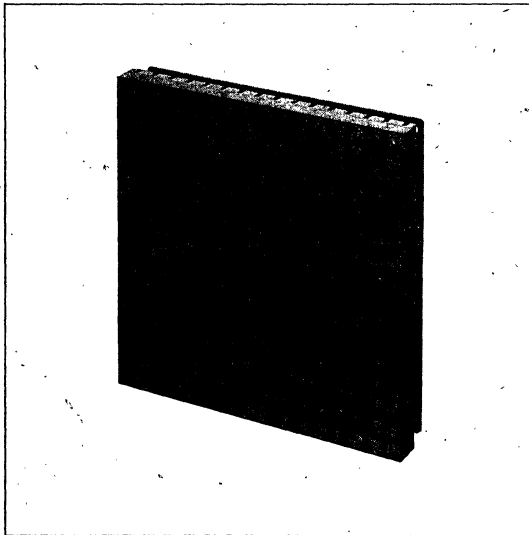


■外形図 Outline Drawing



パネルディスプレイユニット PANEL DISPLAY UNITS

φ 8 mm 16×16 Dots LN2561151UNA4



■特 長

- 専用ゲートアレイ搭載により薄型、軽量
- 多色表示が可能 (赤、緑、橙)
- 視野角度が広く鮮明な視認性
- ドット対応のRAM内蔵によりパソコンとのインターフェースが容易
- 動作速度が20MHz
- 小画面から大画面のフラットパネルディスプレイが可能
- 放熱特性が良好
- ボリュームによりユニット間の輝度バラツキをなくすことができる。(大画面時の輝度の均一化)
- φ8mmの16×16(256)ドット

■Features

- Thin and light due to mounting of special purpose gate array
- Multiple color display enabled (red, green, amber)
- Wide angle of visual field and high visibility.
- Easy interface with a personal computer due to built-in RAM corresponding to dots.
- Operating speed 20 MHz
- Flat panel display ranging from a small screen to a large one.
- High radiation characteristic.
- A difference of brightness between units can be eliminated by a control VR. (uniformalization of brightness for a large screen)
- φ8-mm16×16 (256) dots.

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

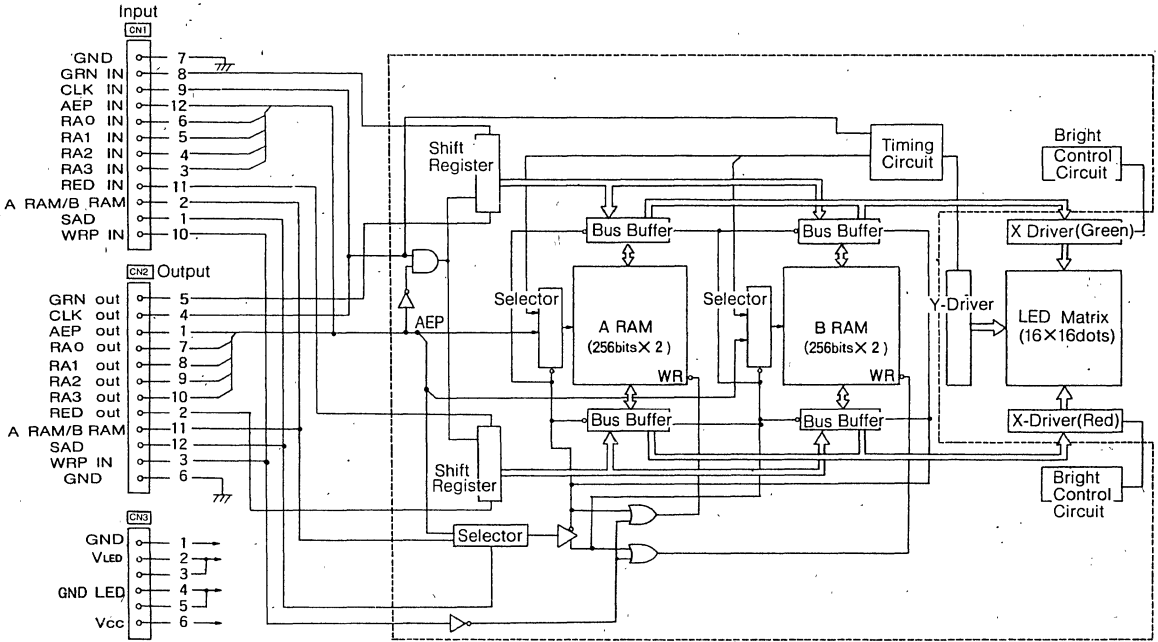
項 目	Item	Symbol	定 格 Ratings	Unit
ロジック用電源電圧	Supply Voltage for Logic	Vcc	-0.3~+6.0	V
LED用電源電圧	Supply Voltage for LED	VLED	5.5 max	V
入 力 電 圧	Input Voltage	Vin	-0.3~Vcc+0.3	V
動作周囲温度	Operating Ambient Temperature	Topr	-10~+45	°C
保 存 温 度	Storage Temperature	Tstg	-25~+85	°C

■主なる仕様 Main Specifications (Ta=25°C)

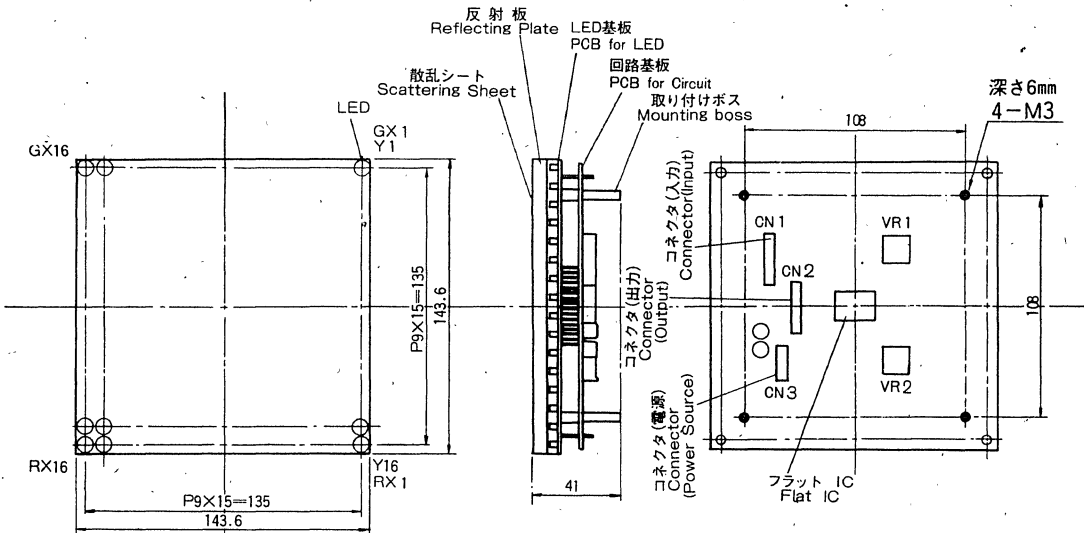
項 目	Item	Symbol	定 格 Ratings	Unit		
表 示 色	Display Colors		Red, Green, Amber			
ドットサイズ	Dot Diameter		φ 7.4	mm		
ドットピッチ	Dots Pitch		9.0	mm		
ドット数	Dot Total Number		256 (16×16)			
表示面サイズ	Display Surface Size		144×144	mm		
輝 度	Brightness (when lighting all lamps)		Red : 60 調整可能 Green : 60 Controllable	cd/m ²		
駆 動 方 式	Operating Method		1/16 (Duty) ダイナミック点灯 1/16 (Duty) Dynamic lighting			
ク ロ ッ ク 周 波 数	Clock Frequency		20 max	MHz		
ロジック用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	Vcc	5.0±5%	V
	消費電流	for Logic	Supply Current	Icc	30 max	mA
LED用 電源電圧	動作電圧	Supply Voltage	Supply Voltage	VLED	5.0	V
	消費電流	for LED	Supply Current	ILED	2.8 max 二色全点灯 When two colors are all turned "ON"	A
重 量	Weight		330	g		

パネルディスプレイユニット PANEL DISPLAY UNITS

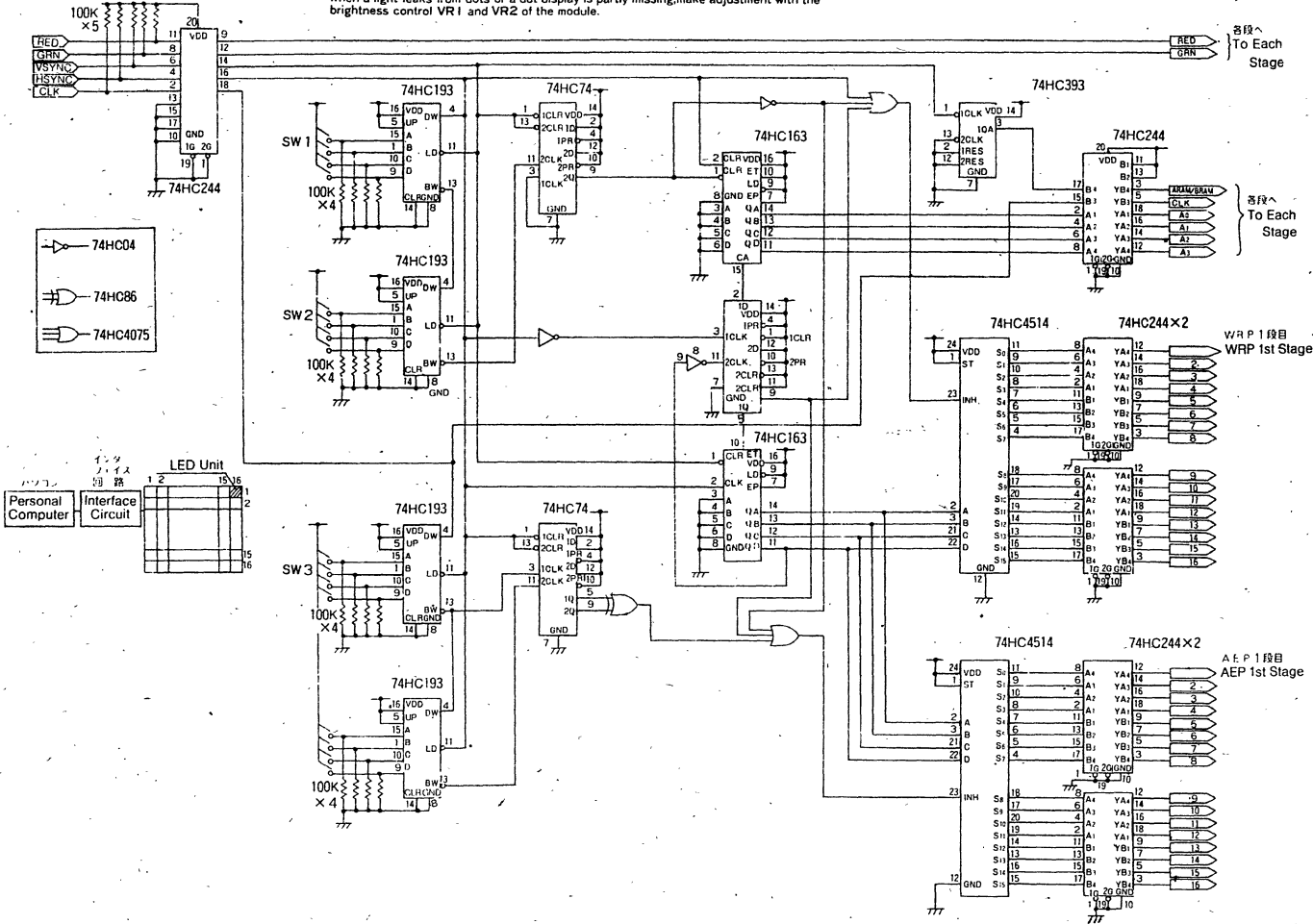
■ブロック図 (ゲードアレイタイプ)
Block Diagram (Gate Array Type)



■外形図
Outline Drawing



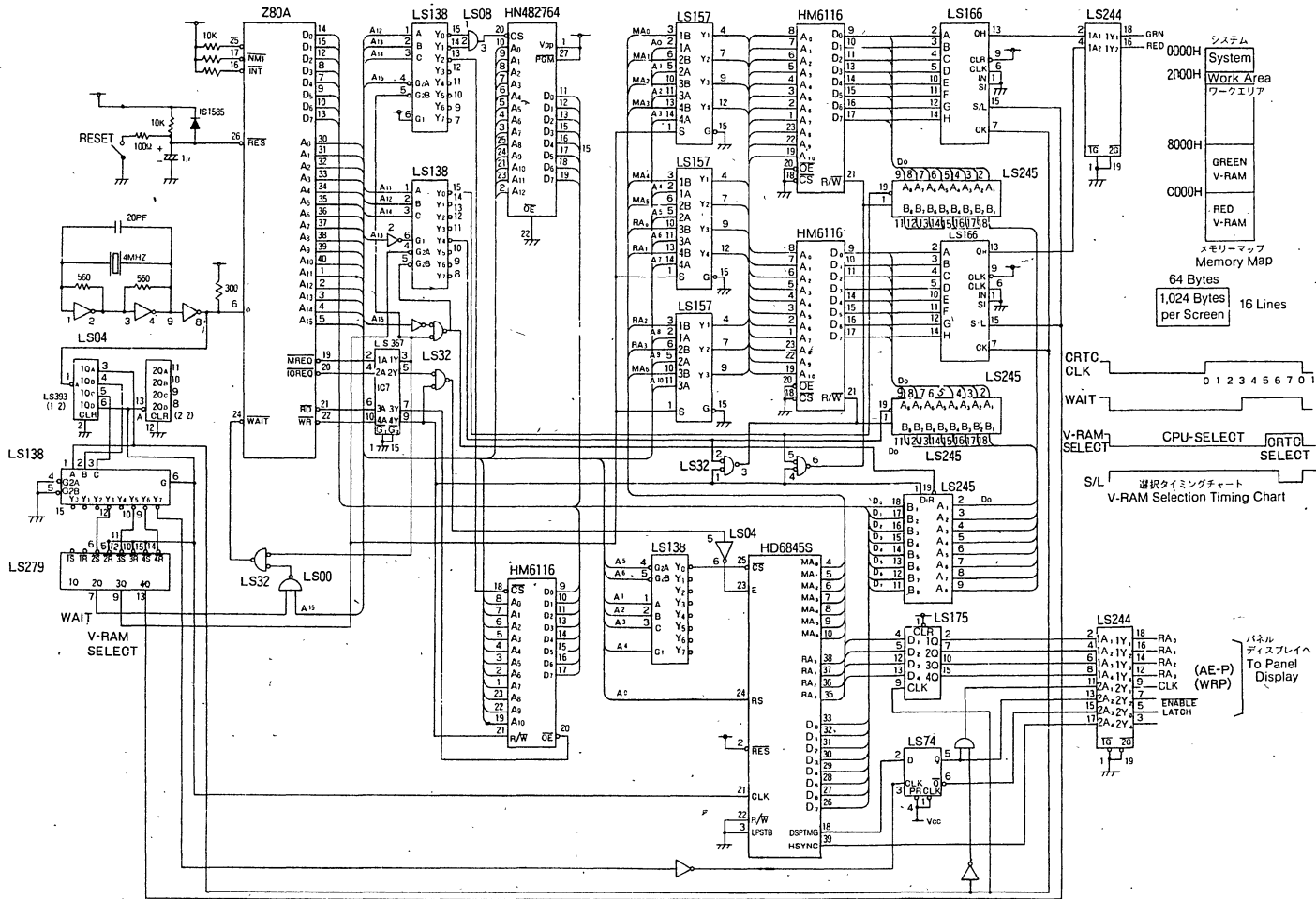
1. 本回路は、縦16行、横16列の256ユニットの画面に対応するものです。
This circuit corresponds to a 256-unit (vertical 16 units x horizontal 16 units) screen.
2. CRTの表示領域は、横方向はSW1, SW2, 縦方向はSW3により設定して下さい。
Set a horizontal CRT display area with SW1, SW2, and a vertical one with SW3.
3. フォットの光もれやドットの表示カケが生じる場合は、モジュールの輝度調整用ボリュームVR1, VR2にて調整して下さい。
When a light leaks from dots or a dot display is partly missing, make adjustment with the brightness control VR1 and VR2 of the module.

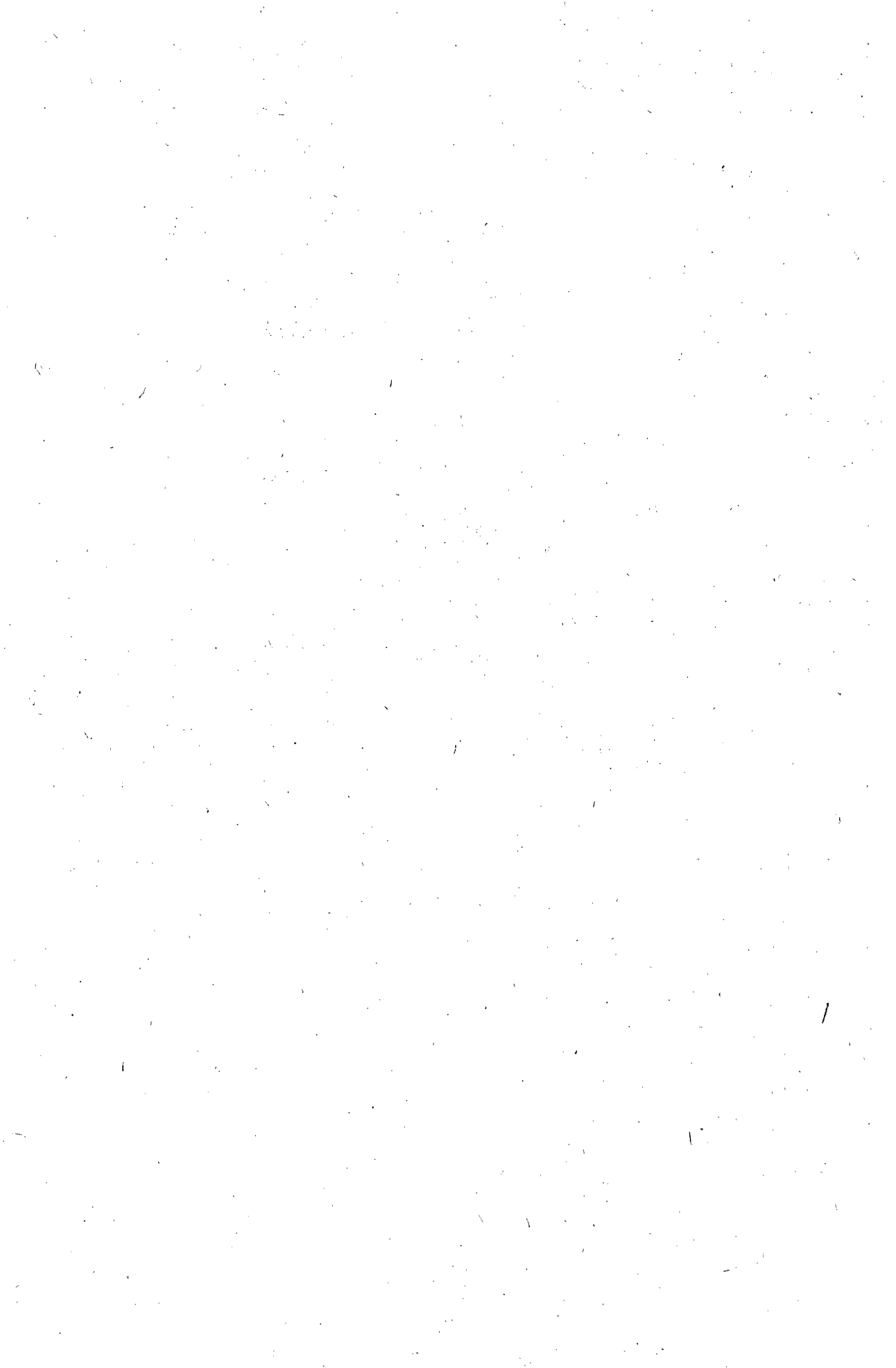


パソコン対応インタフェース回路例
EXAMPLE OF INTERFACE CIRCUIT CORRESPONDING TO PERSONAL COMPUTER

CRTCを用いたコントロール回路図
EXAMPLE OF CONTROL CIRCUIT WITH CRTC

※本回路は16×16ドットユニットに対応するものです
This circuit corresponds to a 256(16×16)-dot unit.





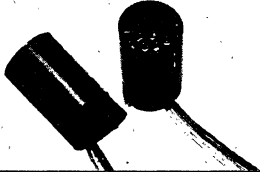

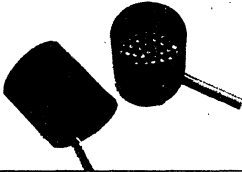
ユニット商品／UNIT PRODUCTS

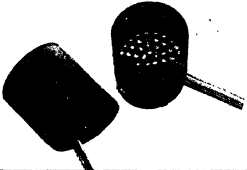
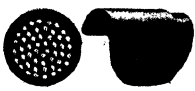

屋外用大型ランプ

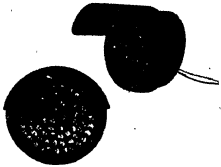
LED Lamp for Outdoor Use



屋外用大型LEDランプ LED LAMP FOR OUTDOOR USE

$\phi 24.0\text{mm}$	$\phi 30.0\text{mm}$	$\phi 50.0\text{mm}$
		
LN015184UN	LN0151223UN	LN0501142UN

$\phi 50.0\text{mm}$		
		
LN0501172UN	LN0501199UN	LN0501229UN

$\phi 70.0\text{mm}$

△ LN0801228UN

△ 暫定規格
△ Tentative Specification

φ24 mm LN015184UN

■特長

- 高輝度LEDによる多色表示 (赤、緑、橙)
- 低消費電力表示
- 防水構造
- 鮮明な視認性
- 長寿命、メンテナンスフリー
- 取り付け角度10.0°

■用途

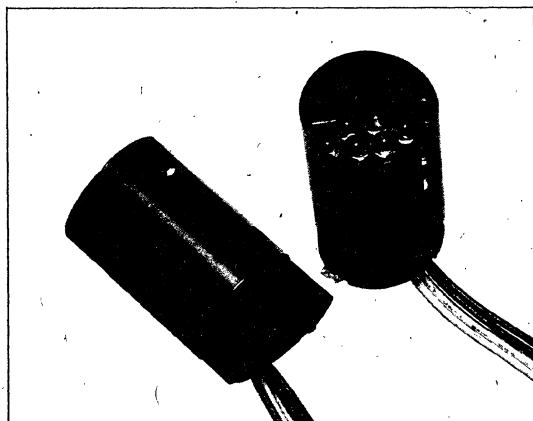
- 道路交通標識用光源
- 市街地での広告用光源 (ビル屋上等)
- 空港、鉄道関係の誘導灯光源

■Features

- Multiple Color display (red, green, amber) by high-brightness LEDs
- Low-power-consumption display
- Waterproof structure
- High visibility
- Long life and free from maintenance
- Setting angle 10.0°

■Applications

- Light source for traffic-control signs
- Light source for advertisement in an urban district (on the roof of a building, etc.)
- Light source for airport and railroad guide lamps



■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

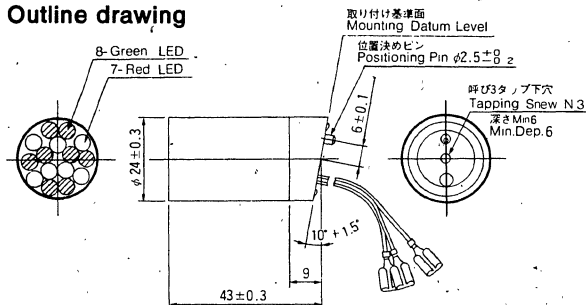
項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
許容損失	Power Dissipation	P _D	Red		350		mW
			Green		520		mW
			Amber		870		mW
順方向電流	Forward Current	I _F	Red		25		mA
			Green	25mA×2	50		mA
逆方向電圧	Reverse Voltage	V _R	Red		21		V
			Green		16		V
動作周囲温度	Operating Ambient Temperature	T _{opr}			-25~+60		°C
保存温度	Storage Temperature	T _{stg}			-30~+100		°C

■主なる仕様 Main Specifications (Ta=25°C)

項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
順方向電圧	Forward Voltage	V _F	Red	IF=20mA	12.6 (Typ.)		V
			Green	IF=20mA	8.8 (Typ.)		V
逆方向電流	Reverse Current	I _R	Red	VR=21V	100		μA
			Green	VR=16V	10		μA
ピーク発光波長	Peak Emission Wavelength	λ _p	Red	IF=20mA	660		nm
			Green	IF=20mA	565		nm
光度	Luminous Intensity	I _o	Red	IF=20mA	2.3 (Typ.)		cd
			Green	IF=40mA	1.2 (Typ.)		cd
			Amber	IF=60mA	3.5 (Typ.)		cd
視認角 (1 cd 以上)	Viewing Angle (1 cd up)				±20		度Degree

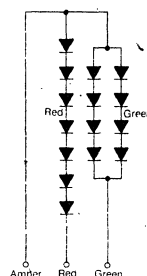
■外形図

Outline drawing

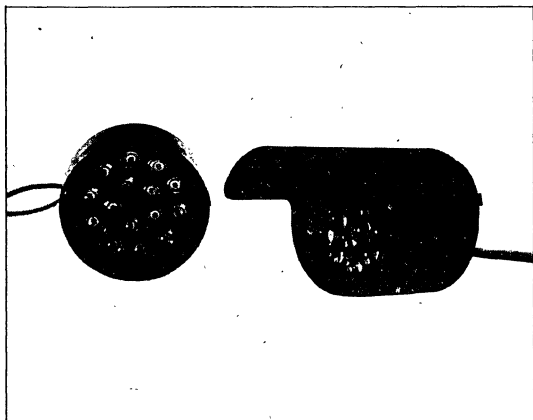


■結線図

Connection Diagram



φ30 mm LN0151223UN



■特長

- 高輝度LEDによる多色表示 (赤、緑、橙)
- 低消費電力表示
- 防水構造
- 鮮明な視認性
- 長寿命、メンテナンスフリー
- 取り付け角度6.0°
- フード取り付け可

■用途

- 道路交通標識用光源
- 市街地での広告用光源 (ビル屋上等)
- 空港、鉄道関係の誘導灯光源

■Features

- Multiple color display (red, green, amber) by high-brightness LEDs
- Low-power-consumption display
- Waterproof structure
- High visibility
- Long life and free from maintenance
- Setting angles (6.0°) available
- Hood mountable

■Applications

- Light source for traffic-control signs
- Light source for advertisement in an urban district (on the roof of a building, etc.)
- Light source for airport and railroad guide lamps

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

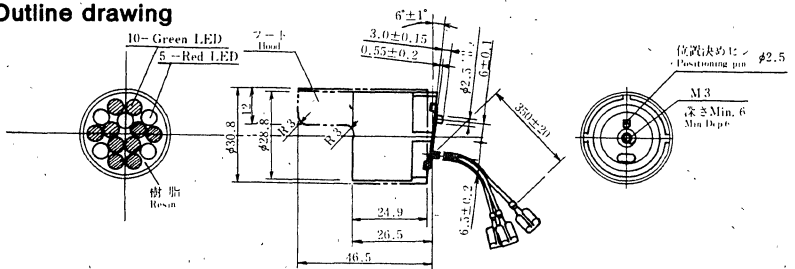
項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
許容損失	Power Dissipation	P _D	Red		250		mW
			Green		650		mW
			Amber		900		mW
順方向電流	Forward Current	I _F	Red	25mA X 1	25		mA
			Green	25mA X 2	50		mA
逆方向電圧	Reverse Voltage	V _R	Red		15		V
			Green		20		V
動作周囲温度	Operating Ambient Temperature	Topr			-25~+60		°C
保存温度	Storage Temperature	Tstg			-30~+100		°C

■主なる仕様 Main Specifications (Ta=25°C)

項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
順方向電圧	Forward Voltage	V _F	Red	IF=20mA	9.0 (Typ.)		V
			Green	IF=20mA	11.0 (Typ.)		V
逆方向電流	Reverse Current	I _R	Red	VR=15V	100		μA
			Green	VR=20V	10		μA
ピーク発光波長	Peak Emission Wavelength	λ _p	Red	IF=20mA	665		nm
			Green	IF=20mA	565		nm
光 度	Luminous Intensity	I _o	Red	IF=20mA	1.2 (Typ.)		cd
			Green	IF=40mA	1.3 (Typ.)		cd
			Amber	IF=60mA	2.5 (Typ.)		cd
視認角 (1 cd 以上)	Viewing Angle (1 cd up)				±25		度Degree

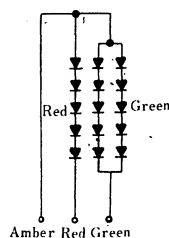
■外形図

Outline drawing

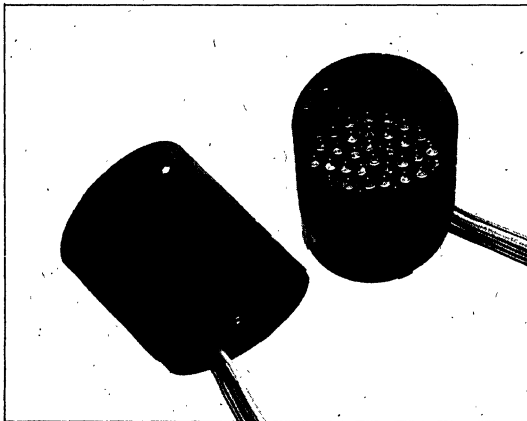


■結線図

Connection Diagram



φ50 mm LN0501142UN



■特長

- 高輝度LEDによる多色表示 (赤、緑、橙)
- 低消費電力表示
- 防水構造
- 鮮明な視認性
- 長寿命、メンテナンスフリー
- 取り付け角度11.3°
- フード取り付け可

■用途

- 道路交通標識用光源
- 市街地での広告用光源 (ビル屋上等)
- 空港、鉄道関係の誘導灯光源

■Features

- Multiple color display (red, green, amber) by high-brightness LEDs
- Low-power-consumption display
- Waterproof structure
- High visibility
- Long life and free from maintenance
- Setting angles (11.3°) available
- Hood mountable

■Applications

- Light source for traffic-control signs
- Light source for advertisement in an urban district (on the roof of a building, etc.)
- Light source for airport and railroad guide lamps

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

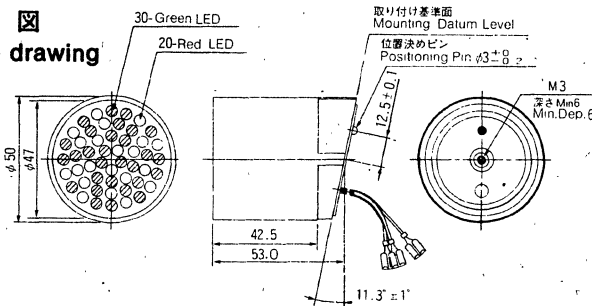
項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
許容損失	Power Dissipation	P _D	Red		1,000		mW
			Green		1,950		mW
			Amber		2,950		mW
順方向電流	Forward Current	I _F	Red	25mA X 2	50		mA
			Green	25mA X 3	75		mA
逆方向電圧	Reverse Voltage	V _R	Red		30		V
			Green		40		V
動作周囲温度	Operating Ambient Temperature	T _{opr}			-25~+60		°C
保存温度	Storage Temperature	T _{stg}			-30~+100		°C

■主なる仕様 Main Specifications (Ta=25°C)

項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
順方向電圧	Forward Voltage	V _F	Red	I _F =20mA	18.0 (Typ.)		V
			Green	I _F =20mA	21.9 (Typ.)		V
逆方向電流	Reverse Current	I _R	Red	V _R =30V	100		μA
			Green	V _R =40V	10		μA
ピーク発光波長	Peak Emission Wavelength	λ _p	Red	I _F =20mA	660		nm
			Green	I _F =20mA	565		nm
光度	Luminous Intensity	I _o	Red	I _F =40mA	7.5 (Typ.)		cd
			Green	I _F =60mA	4.5 (Typ.)		cd
			Amber	I _F =100mA	12.0 (Typ.)		cd
視認角 (1 cd 以上)	Viewing Angle (1 cd up)				±23		度 Degree

■外形図

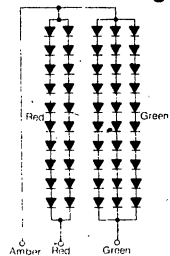
Outline drawing



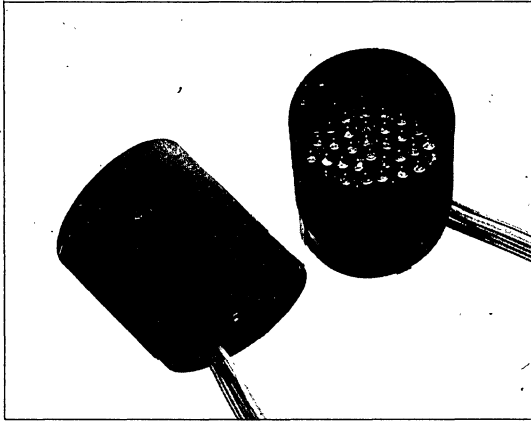
Unit : mm

■結線図

Connection Diagram



φ50 mm LN0501172UN



■特 長

- 高輝度LEDによる多色表示 (赤、緑、橙)
- 低消費電力表示
- 防水構造
- 鮮明な視認性
- 長寿命、メンテナンスフリー
- 取り付け角度20.0°
- フード取り付け可

■用 途

- 道路交通標識用光源
- 市街地での広告用光源 (ビル屋上等)
- 空港、鉄道関係の誘導灯光源

■Features

- Multiple color display (red, green, amber) by high-brightness LEDs
- Low-power-consumption display
- Waterproof structure
- High visibility
- Long life and free from maintenance
- Setting angles (20.0°) available
- Hood mountable

■Applications

- Light source for traffic-control signs
- Light source for advertisement in an urban district (on the roof of a building, etc.)
- Light source for airport and railroad guide lamps

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

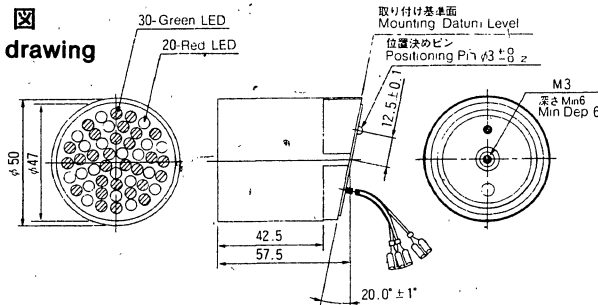
項 目	Item	Symbol	条 件	Conditions	定 格	Ratings	Unit
許 容 損 失	Power Dissipation	P _D	Red		1,000		mW
			Green		1,950		mW
			Amber		2,950		mW
順 方 向 電 流	Forward Current	I _F	Red	25mA×2	50		mA
			Green	25mA×3	75		mA
逆 方 向 電 圧	Reverse Voltage	V _R	Red		30		V
			Green		40		V
動 作 周 囲 温 度	Operating Ambient Temperature	T _{opr}			-25~+60		°C
保 存 温 度	Storage Temperature	T _{stg}			-30~+100		°C

■主なる仕様 Main Specifications (Ta=25°C)

項 目	Item	Symbol	条 件	Conditions	定 格	Ratings	Unit
順 方 向 電 圧	Forward Voltage	V _F	Red	I _F =20mA	18.0 (Typ.)		V
			Green	I _F =20mA	21.9 (Typ.)		V
逆 方 向 電 流	Reverse Current	I _R	Red	V _R =30V	100		μA
			Green	V _R =40V	10		μA
ピーク発光波長	Peak Emission Wavelength	λ _p	Red	I _F =20mA	660		nm
			Green	I _F =20mA	565		nm
光 度	Luminous Intensity	I _o	Red	I _F =40mA	7.5 (Typ.)		cd
			Green	I _F =60mA	4.5 (Typ.)		cd
			Amber	I _F =100mA	12.0 (Typ.)		cd
視認角 (1 cd 以上)	Viewing Angle (1 cd up)				±23		度 Degree

■外形図

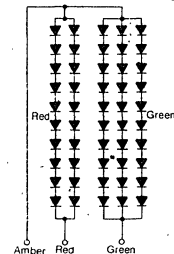
Outline drawing



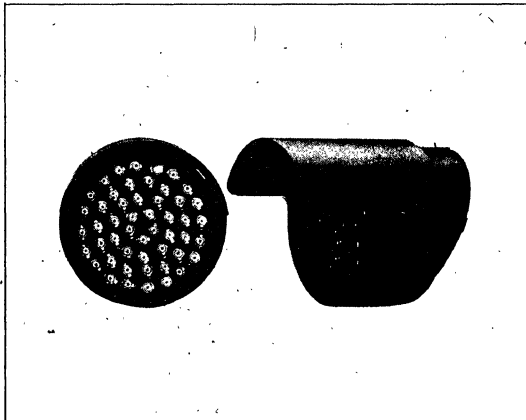
Unit : mm

■結線図

Connection Diagram



φ50 mm LN0501199UN



■特長

- 高輝度LEDによる多色表示 (赤、緑、橙)
- 低消費電力表示
- 防水構造
- 鮮明な視認性
- 長寿命、メンテナンスフリー
- 取り付け角度20.0°
- フード取り付け可

■用途

- 道路交通標識用光源
- 市街地での広告用光源 (ビル屋上等)
- 空港、鉄道関係の誘導灯光源

■Features

- Multiple color display (red, green, amber) by high-brightness LEDs
- Low-power-consumption display
- Waterproof structure
- High visibility
- Long life and free from maintenance
- Setting angles (20.0°) available
- Hood mountable

■Applications

- Light source for traffic-control signs
- Light source for advertisement in an urban district (on the roof of a building, etc.)
- Light source for airport and railroad guide lamps

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

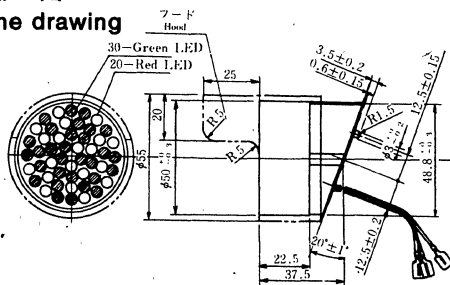
項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
許容損失	Power Dissipation	P _D	Red		1,000		mW
			Green		1,950		mW
			Amber		2,950		mW
順方向電流	Forward Current	I _F	Red	25mA X 2	50		mA
			Green	25mA X 3	75		mA
			Red		30		V
逆方向電圧	Reverse Voltage	V _R	Green		40		V
			Red		30		V
動作周囲温度	Operating Ambient Temperature	Topr			-25~+60		°C
保存温度	Storage Temperature	Tstg			-30~+100		°C

■主なる仕様 Main Specifications (Ta=25°C)

項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
順方向電圧	Forward Voltage	V _F	Red	I _F =20mA	18.0 (Typ.)		V
			Green	I _F =20mA	21.9 (Typ.)		V
逆方向電流	Reverse Current	I _R	Red	V _R =30V	100		μA
			Green	V _R =40V	10		μA
ピーク発光波長	Peak Emission Wavelength	λ _p	Red	I _F =20mA	665		nm
			Green	I _F =20mA	565		nm
光 度	Luminous Intensity	I _o	Red	I _F =40mA	5.0 (Typ.)		cd
			Green	I _F =60mA	4.5 (Typ.)		cd
			Amber	I _F =100mA	9.5 (Typ.)		cd
視認角 (1 cd 以上)	Viewing Angle (1 cd up)				±36.5		度 Degree

■外形図

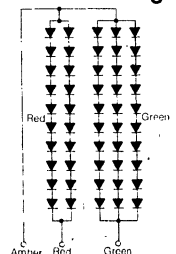
Outline drawing



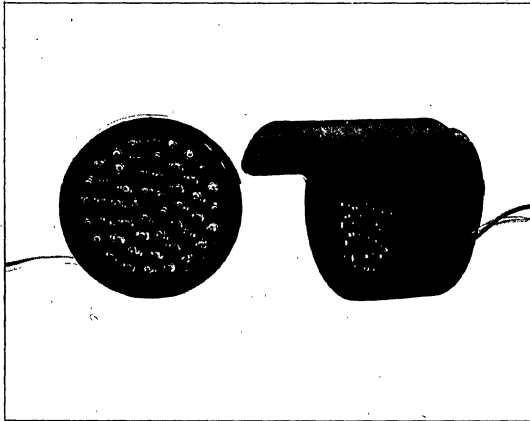
Unit: mm

■結線図

Connection Diagram



φ50 mm LN0501229UN



■特 長

- 高輝度LEDによる多色表示 (赤、緑、橙)
- 低消費電力表示
- 防水構造
- 鮮明な視認性
- 長寿命、メンテナンスフリー
- 取り付け角度10.0°
- フード取り付け可

■用 途

- 道路交通標識用光源
- 市街地での広告用光源 (ビル屋上等)
- 空港、鉄道関係の誘導灯光源

■Features

- Multiple color display (red, green, amber) by high-brightness LEDs
- Low-power-consumption display
- Waterproof structure
- High visibility
- Long life and free from maintenance
- Setting angles (10.0°) available
- Hood mountable

■Applications

- Light source for traffic-control signs
- Light source for advertisement in an urban district (on the roof of a building, etc.)
- Light source for airport and railroad guide lamps

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

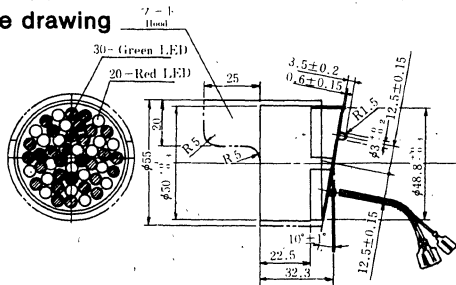
項 目	Item	Symbol	条 件	Conditions	定 格	Ratings	Unit
許 容 損 失	Power Dissipation	Pd	Red		1,000		mW
			Green		1,950		mW
			Amber		2,950		mW
順 方 向 電 流	Forward Current	If	Red	25mA X 2	50		mA
			Green	25mA X 3	75		mA
逆 方 向 電 圧	Reverse Voltage	Vr	Red		30		V
			Green		40		V
動 作 周 圍 温 度	Operating Ambient Temperature	Topr			-25~+60		°C
保 存 温 度	Storage Temperature	Tstg			-30~+100		°C

■主なる仕様 Main Specifications (Ta=25°C)

項 目	Item	Symbol	条 件	Conditions	定 格	Ratings	Unit
順 方 向 電 圧	Forward Voltage	Vf	Red	If=20mA	18.0 (Typ.)		V
			Green	If=20mA	21.9 (Typ.)		V
逆 方 向 電 流	Reverse Current	Ir	Red	Vr=30V	100		μA
			Green	Vr=40V	10		μA
ピーク発光波長	Peak Emission Wavelength	λp	Red	If=20mA	665		nm
			Green	If=20mA	565		nm
光 度	Luminous Intensity	Io	Red	If=40mA	5.0 (Typ.)		cd
			Green	If=60mA	4.5 (Typ.)		cd
			Amber	If=100mA	9.5 (Typ.)		cd
視認角 (1 cd 以上)	Viewing Angle (1 cd up)				±36.5		度 Degree

■外形図

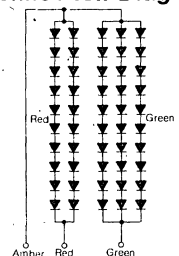
Outline drawing



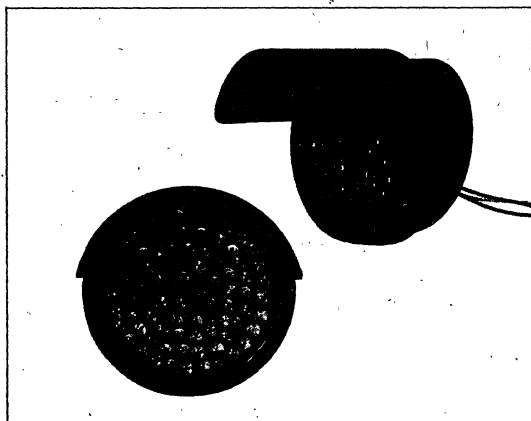
Unit : mm

■結線図

Connection Diagram



φ70 mm LN0801228UN



■特長

- 高輝度LEDによる多色表示 (赤、緑、橙)
- 低消費電力表示
- 防水構造
- 鮮明な視認性
- 長寿命、メンテナンスフリー
- 取り付け角度8:0°
- フード取り付け可

■用途

- 道路交通標識用光源
- 市街地での広告用光源 (ビル屋上等)
- 空港、鉄道関係の誘導灯光源

■Features

- Multiple color display (red, green, amber) by high-brightness LEDs
- Low-power-consumption display
- Waterproof structure
- High visibility
- Long life and free from maintenance
- Setting angles (8.0°) available
- Hood mountable

■Applications

- Light source for traffic-control signs
- Light source for advertisement in an urban district (on the roof of a building, etc.)
- Light source for airport and railroad guide lamps

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

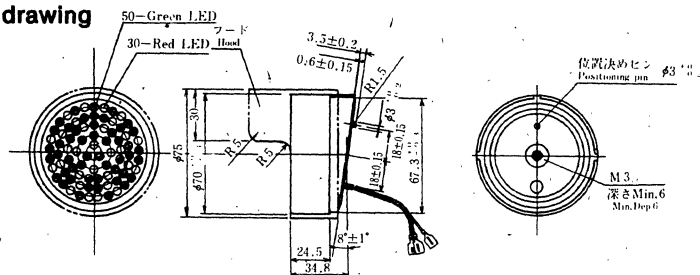
項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
許容損失	Power Dissipation	P _D	Red		1,500		mW
			Green		3,250		mW
			Amber		4,750		mW
順方向電流	Forward Current	I _F	Red	25mA X 3	75		mA
			Green	25mA X 5	125		mA
逆方向電圧	Reverse Voltage	V _R	Red		30		V
			Green		40		V
動作周囲温度	Operating Ambient Temperature	T _{opr}			-25~+60		°C
保存温度	Storage Temperature	T _{stg}			-30~+100		°C

■主な仕様 Main Specifications (Ta=25°C)

項目	Item	Symbol	条件	Conditions	定格	Ratings	Unit
順方向電圧	Forward Voltage	V _F	Red	I _F =20mA	18.0 (Typ.)		V
			Green	I _F =20mA	21.9 (Typ.)		V
逆方向電流	Reverse Current	I _R	Red	V _R =30V	100		μA
			Green	V _R =40V	10		μA
ピーク発光波長	Peak Emission Wavelength	λ _p	Red	I _F =20mA	665		nm
			Green	I _F =20mA	565		nm
光度	Luminous Intensity	I _o	Red	I _F =60mA	4.5 (Typ.)		cd
			Green	I _F =100mA	5.0 (Typ.)		cd
			Amber	I _F =160mA	9.5 (Typ.)		cd
視認角 (1 cd 以上)	Viewing Angle (1 cd up)				±38.5		度Degree

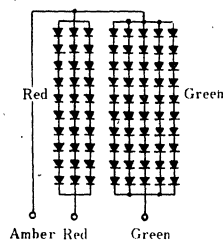
■外形図

Outline drawing



■結線図

Connection Diagram







ユニット商品／UNIT PRODUCTS



LED ライン光源


LED Line Light Source

LED読み取り用光源 LED READING LIGHT SOURCE

B6 size	A6 size
	
LN322114ALUN	LN483126UN

A4 size	
	
LN803169UNA-A4	LN803108UN-A4

B4 size	
	
LN963185UNA-B4	LN963106UN-B4

A3 size

LN1123107UN-A3

概要

GENERAL DESCRIPTION

目指ましく成長を成し遂げているOA機器のニーズに応え、照明用光源として可視発光ダイオードの応用商品であるLEDライン光源が活躍しています。ファクシミリ、デジタルコピー、ハンディースキャナなど画像入力デバイスの原稿照明用光源として、また複写機やプリンタなど感光ドラムの静電消去用光源として用いることにより機器の小型化、高機能化が図れます。

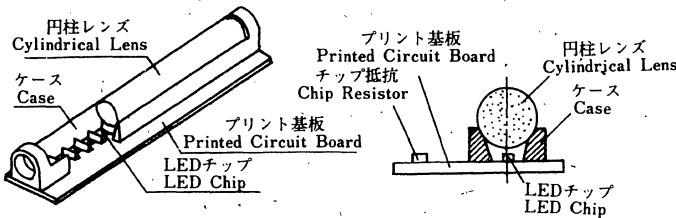
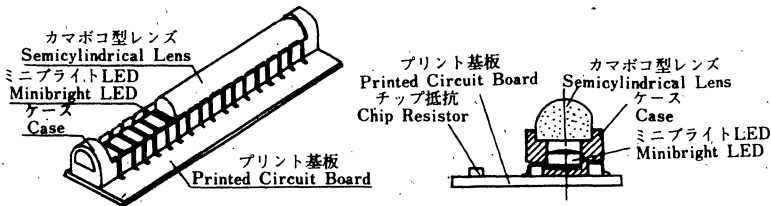
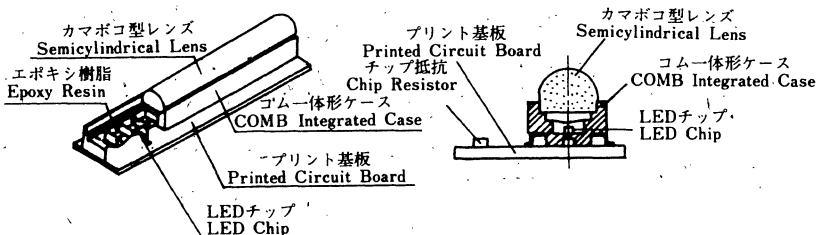
Meeting needs of office automation equipment which has made remarkable growth, visible LED applied LED line light sources are used more widely as light sources for illumination. Equipment can be miniaturized and given high functions by using them as manuscript illuminating light sources for image input devices such as facsimile, digital copying machine, handy scanner, etc. or as static electricity erasing light sources for sensitive drums of copying machine, printer, etc.

画像読み取り用LED光源

IMAGE READING LED LIGHT SOURCE

画像読み取り用LED光源は高輝度発光ダイオードをライン状に配置し特殊なロッドレンズを組み合わせた製品です。ハンディースキャナやファクシミリまでの画像読み取り用として、原稿サイズ(B8~A3サイズ)、イメージスキャナ部レンズ系(縮小系、等倍系、密着型)、センサ(CCD、CdS、CdSe)等の用途機種に応じチップオンボード(COB)タイプ、挿入タイプ、一体成形タイプのLED光源を開発しました。

An image reading LED light source is high-brightness LEDs arranged in a line combined with a special rod lens. Chip-on-board (COB) type, insertion type and integral type LED light sources have been developed in accordance with their purposes of use such as manuscript sizes (B8 to A3), image scanner lens system (reduction system, equimultiple system, contact type), sensors (CCD, CdS, CdSe) as image reading LED light sources.

■構造
Structure●COBタイプ
COB Type●挿入タイプ
Insertion Type●一体成形タイプ
Integral Type

用途・機能 Use・Function	Type	COB Type	挿入 Type Insertion Type	一体成形 Type Integral Type
原稿サイズ Manuscript Size	B8～A6サイズ B8 to A6 size	●		
	A4～A3サイズ A4 to A3 size		●	●
イメージスキャナ部レンズ系 Image Scanner Lens System	縮小系 Reduction system	●		
	等倍系（密着） Equimultiple system (Contact)	●	●	●
センサ Sensor	CCD	●	●	●
	CdS・CdSe		●	●

■特長

●COBタイプ

任意の照度分布が得られるため縮小系、等倍系（密着型）の画像入力デバイスの照明光源として対応可能。

●一体成形タイプ

ローコスト化対応品。特性は挿入タイプに準ずる。

●挿入タイプ

完全拡散面に近いミニブライต์LEDとカメラボコ型レンズ組み合わせにより集光照射幅が広く照射面の直線性に優れている。そのため長尺タイプの画像入力デバイスへの取り付け調整が容易。

■Features

●COB type

Available as an illuminating light source for image input devices with the reduction/equimultiple (contact type) system because an arbitrary illumination distribution can be obtained.

●Integral type

Product for realizing a low cost. Characteristics conform to those of the insertion type.

●Insertion type

Wide condensing irradiation width and superior linearity of an irradiation surface due to a combination of a minibright LED close to a complete diffusing surface and a semicylindrical lens.

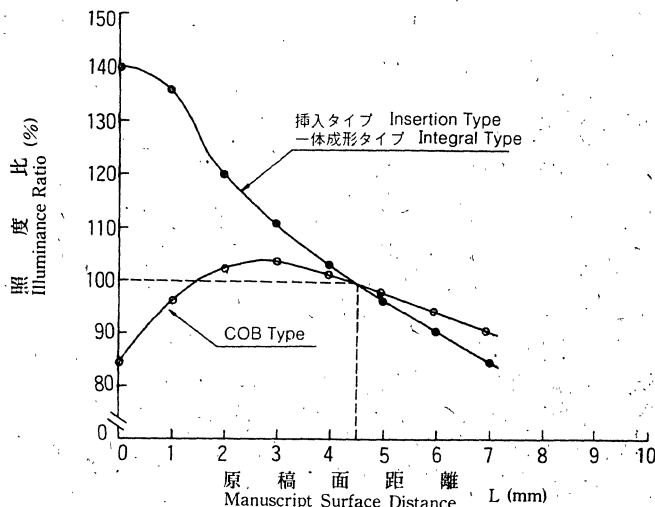
Easily mountable to long type image input devices.

■標準特性

Standard Characteristics

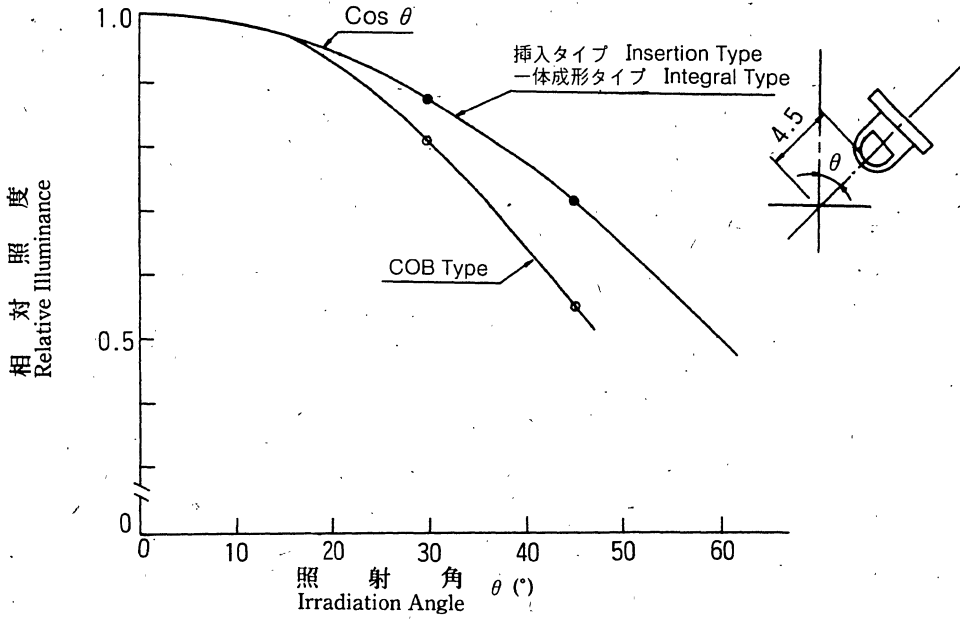
●照度特性

Illuminance Characteristic



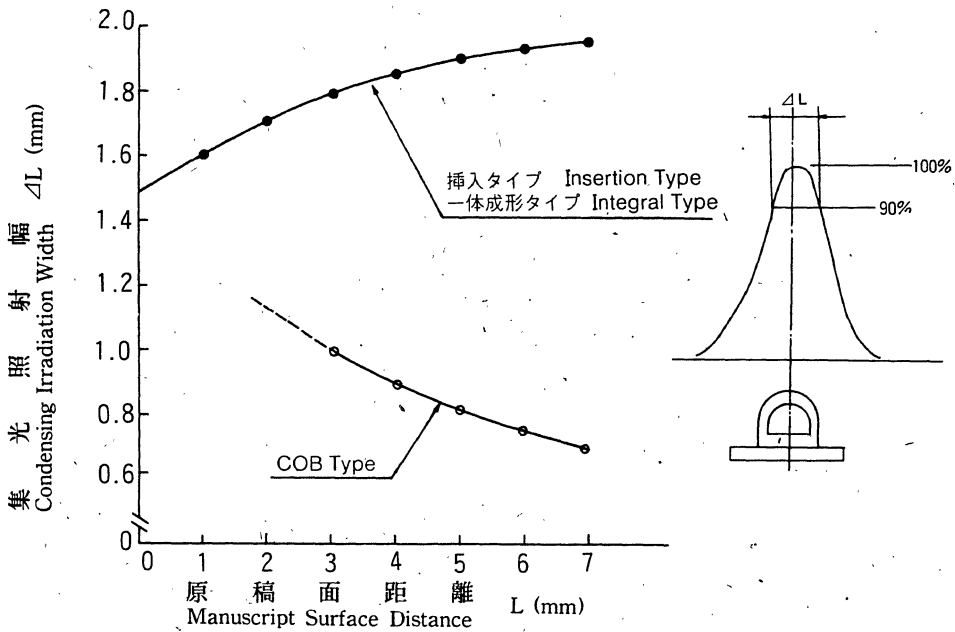
●照射角度特性

Irradiation Angle Characteristic

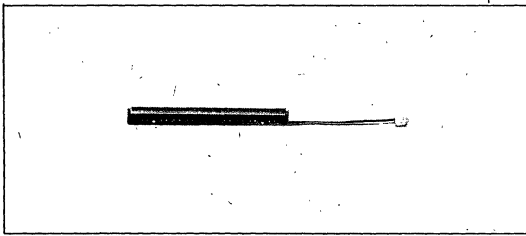


●集光幅

Condensing Width



B8 Size LN322114ALUN



■特 長

- 密着型、縮小系どちらでも対応可能。
- 発光波長565nm～660nm まで対応可能。
- 原稿面照度バラツキが少なく均一な照度が得られる。
- 高輝度で消費電力が少ない。
- COBタイプ構造(発光部)である。

■Features

- Capable of coping with both contact type and reduction system.
- Capable of coping with an emission wavelength of 565 nm to 660 nm.
- Little illuminance variation of the manuscript surface to provide uniform illuminance.
- High brightness and low power consumption.
- COB type structure (light emitting section)

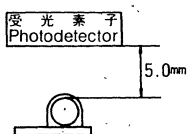
■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

項 目	Item	Symbol	定 格	Ratings	Unit
電 源 電 圧	Supply Voltage	Vcc	12.6		V
逆 方 向 電 圧	Reverse Voltage	V _R	12.0		V
消 費 電 力	Power Consumption	P	1.75		W
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	0～+40		°C
保 存 温 度	Storage Temperature	Tstg	-20～+60		°C

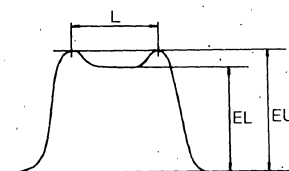
■電気的・光学的特性 Electrical and Optical Characteristics (Ta=25°C)

項 目	Item	Symbol	Condition	min.	typ.	max.	Unit
電 源 電 圧	Supply Voltage	Vcc		11.4	12.0	12.6	V
全 順 方 向 電 流	Total Forward Current	I _{Ft}	Vcc=12.0V		110		mA
有 効 照 明 長	Effective Illumination Length	L	Vcc=12.0V		62		mm
原 稿 面 放 射 照 度	Radiant Illuminance on Manuscript	E	Vcc=12.0V	1500			μW/cm ²
照 度 分 布	Illuminance Distribution	ΔEB	Vcc=12.0V		125		%
集 光 照 射 幅	Range of Collecting and Spreading Light	ΔL	Vcc=12.0V		0.8		mm
ピーク発光波長	Peak Emission Wavelength	λ _P	1chip IF=20mA		660		nm
スペクトル半値幅	Spectral Band Width	Δλ	1chip IF=20mA		20		nm

原稿面放射照度
Radiant Illuminance on Manuscript

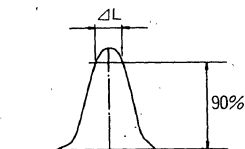


照度分布
Illuminance Distribution



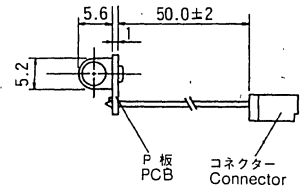
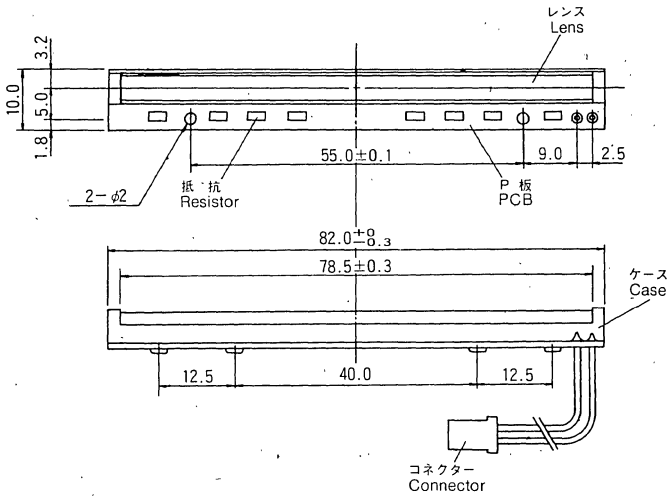
$$\Delta E = EU / EL \times 100\%$$

集光照射幅
Range of Collecting and Spreading Light

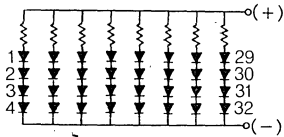


■外形図
Outline Drawing

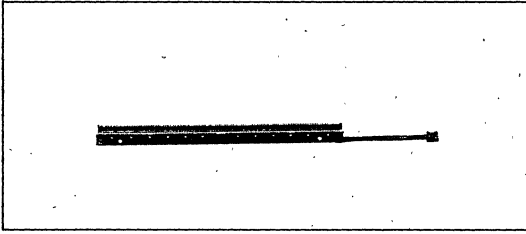
Unit : mm



■結線図
Connection Diagram



A6 Size LN483126UN



■特 長

- 密着型、縮小系どちらでも対応可能。
- 発光波長565nm～660nmまで対応可能。
- 原稿面照度バラツキが少なく均一な照度が得られる。
- 高輝度で消費電力が少ない。
- COBタイプ構造(発光部)である。

■Features

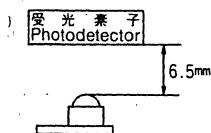
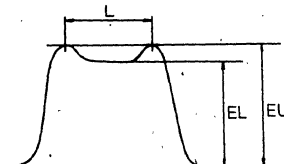
- Capable of coping with both contact type and reduction system.
- Capable of coping with an emission wavelength of 565 nm to 660 nm.
- Little illuminance variation of the manuscript surface to provide uniform illuminance.
- High brightness and low power consumption.
- COB type structure (light emitting section)

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

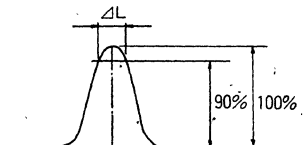
項 目	Item	Symbol	定 格	Unit
電 源 電 圧	Supply Voltage	V _{cc}	12.6	V
逆 方 向 電 圧	Reverse Voltage	V _R	16.0	V
消 費 電 力	Power Consumption	P	4.35	W
動 作 周 囲 温 度	Operating Ambient Temperature	T _{opr}	0～+40	°C
保 存 温 度	Storage Temperature	T _{stg}	-20～+60	°C

■電氣的・光学的特性 Electrical and Optical Characteristics (Ta=25°C)

項 目	Item	Symbol	Condition	min.	typ.	max.	Unit
電 源 電 圧	Supply Voltage	V _{cc}		11.4	12.0	12.6	V
全 順 方 向 電 流	Total Forward Current	I _{Ft}	V _{cc} =12.0V			300	mA
有 効 照 明 長	Effective Illumination Length	L	V _{cc} =12.0V		105		mm
原 稿 面 照 度	Illuminance on Manuscript	E	V _{cc} =12.0V	750			lx
照 度 分 布	Illuminance Distribution	ΔEB	V _{cc} =12.0V		125		%
集 光 照 射 幅	Range of Collecting and Spreading Light	ΔL	V _{cc} =12.0V		0.8		mm
ピーク発光波長	Peak Emission Wavelength	λ _P	1chip IF=20mA		565		nm
スペクトル半値幅	Spectral Band Width	Δλ	1chip IF=20mA		30		nm

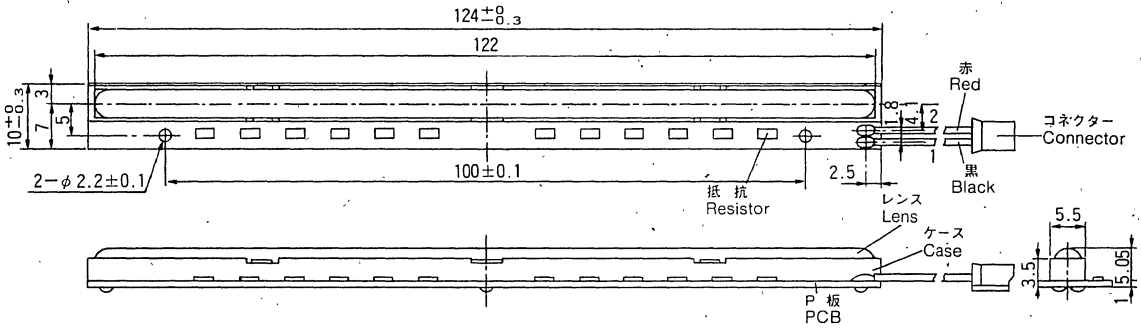
原稿面照度
Illuminance on Manuscript照度分布
Illuminance Distribution

$$\Delta EB = EU / EL \times 100\%$$

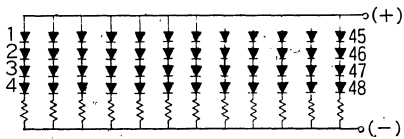
集光照射幅
Range of Collecting and Spreading Light

■外形図
Outline Drawing

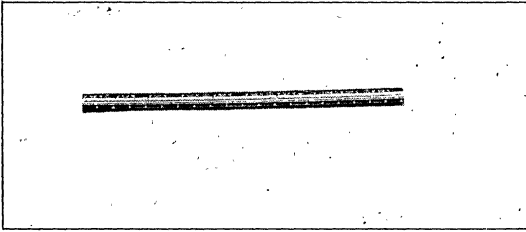
Unit : mm



■結線図
Connection Diagram



A4 Size LN803169UNA-A4



■特 長

- 集光照射幅が広く直線性に優れているためセッティングが容易。
- 発光波長 565nm～660nm まで対応可能。
- 原稿面照度バラツキが少なく均一な照度が得られる。
- 高輝度で消費電力が少ない。
- 一体成形タイプ構造 (発光部) である。

■Features

- Easy setting due to wide condensing irradiation width and superior linearity.
- Capable of coping with an emission wavelength of 565 nm to 660 nm.
- Little illuminance variation of the manuscript surface to provide uniform illuminance.
- High brightness and low power consumption.
- Integral type structure (light emitting section)

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

項 目	Item	Symbol	定 格 Ratings	Unit
電 源 電 圧	Supply Voltage	Vcc	12.6	V
逆 方 向 電 圧	Reverse Voltage	V _R	16.0	V
消 費 電 力	Power Consumption	P	6.0 (Vcc MAX, IF MAX)	W
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	-10~+50	°C
保 存 温 度	Storage Temperature	Tstg	-30~+75	°C

※グリスを裏面に塗布し放熱板へ全面接触固定のこと。After spreading grease on the back, full face to face set to a plate which discharges heat.

■推奨動作条件 Recommendable Operating Conditions

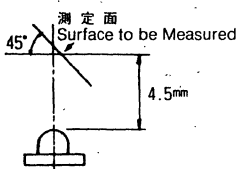
項 目	Item	Symbol	動 作 条 件 Operating Condition	Unit
電 源 電 圧	Supply Voltage	Vcc	12.0	V
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	0~+45	°C

■電気的・光学的特性 Electrical and Optical Characteristics (Ta=25°C)

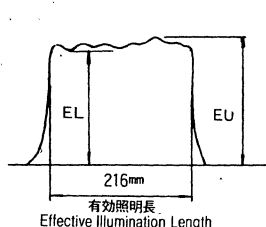
項 目	Item	Symbol	Condition	min.	typ.	max.	Unit
全 順 方 向 電 流	Total Forward Current	I _{Ft}	Vcc=12.0V		400	476	mA
有 効 照 明 長	Effective Illumination Length	L	Vcc=12.0V	216			mm
原 稿 面 照 度	Illuminance on Manuscript	E	Within 1 (min) after operation	$\frac{1400}{1000} \theta = 0.7$			lx
照 度 偏 差	Illuminance Deviation	ΔEH				±13	%
集 光 照 射 幅	Range of Collecting and Spreading Light	ΔL		1.2			mm
ピーク発光波長	Peak Emission Wavelength	λ _P	1chip IF=20mA		565		nm
スペクトル半値幅	Spectral Band Width	Δλ	1chip IF=20mA		30		nm

※放熱板付き With a plate which discharges heat.

原稿面照度
Illuminance on Manuscript

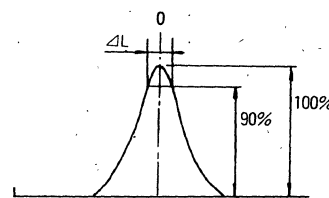


照度偏差
Illuminance Deviation

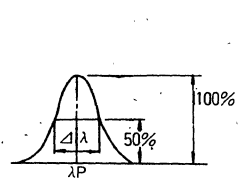


$$\Delta EH = \frac{|(EU - EL) - (EU + EL)|}{(EU + EL)} \times 100 (\%)$$

集光照射幅
Range of Collecting and Spreading Light

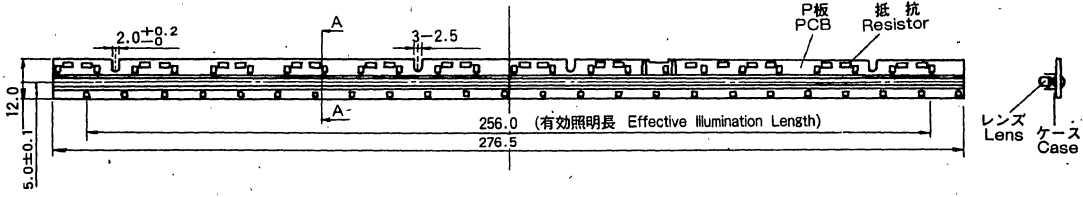


ピーク発光波長
Peak Emission Wavelength



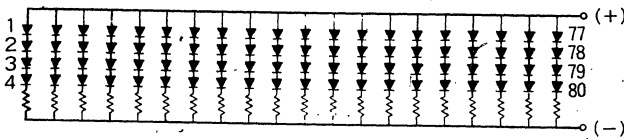
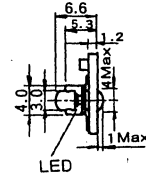
■外形図
Outline Drawing

Unit : mm.

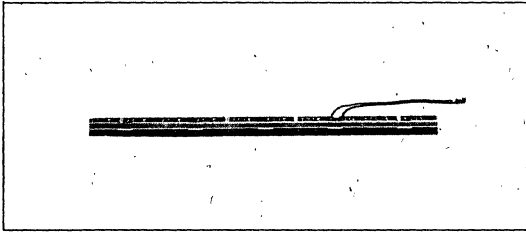


■結線図
Connection Diagram

■A-A断面図
A-A Sectional View



A4 Size LN803108UN-A4



■特 長

- 集光照射幅が広く直線性に優れているためセッティングが容易。
- 発光波長 565nm～660nm まで対応可能。
- 原稿面照度バラツキが少なく均一な照度が得られる。
- 高輝度で消費電力が少ない。
- 一体成形タイプ構造(発光部)である。

■Features

- Easy setting due to wide condensing irradiation width and superior linearity.
- Capable of coping with an emission wavelength of 565 nm to 660 nm.
- Little illuminance variation of the manuscript surface to provide uniform illuminance.
- High brightness and low power consumption.
- Integral type structure (light emitting section)

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

項 目	Item	Symbol	定 格	Ratings	Unit
電 源 電 圧	Supply Voltage	Vcc	12.6		V
逆 方 向 電 圧	Reverse Voltage	V _R	16.0		V
消 費 電 力	Power Consumption	P	6.0 (Vcc MAX, IF MAX)		W
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	-10～+50		°C
保 存 温 度	Storage Temperature	Tstg	-30～+75		°C

*ガラスを裏面に塗布し放熱板へ全面接触固定のこと。After spreading grease on the back, full face to face set to a plate which discharges heat.

■推奨動作条件 Recommendable Operating Conditions

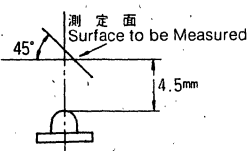
項 目	Item	Symbol	動 作 条 件	Operating Condition	Unit
電 源 電 圧	Supply Voltage	Vcc	12.0		V
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	0～+45		°C

■電気的・光学的特性 Electrical and Optical Characteristics (Ta=25°C)

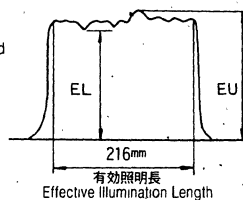
項 目	Item	Symbol	Condition	min.	typ.	max.	Unit
全 順 方 向 電 流	Total Forward Current	I _{FT}	Vcc=12.0V		400	476	mA
有 効 照 明 長	Effective Illumination Length	L	Vcc=12.0V	216			mm
原 稿 面 照 度	Illuminance on Manuscript	E	Within 1 (min) after operation	$\frac{1400}{1000} (\theta = 0^\circ)$			lx
照 度 偏 差	Illuminance Deviation	ΔEH				±13	%
集 光 照 射 幅	Range of Collecting and Spreading Light	ΔL		1.2			mm
ピーク発光波長	Peak Emission Wavelength	λP	1chip IF=20mA		565		nm
スペクトル半値幅	Spectral Band Width	$\Delta \lambda$	1chip IF=20mA		30		nm

*放熱板付き With a plate which discharges heat.

原稿面照度
Illuminance on Manuscript

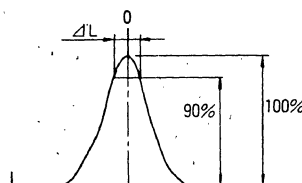


照度偏差
Illuminance Deviation

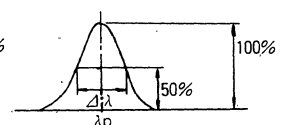


$$\Delta EH = (EU - EL) / (EU + EL) \times 100 (\%)$$

集光照射幅
Range of Collecting and Spreading Light



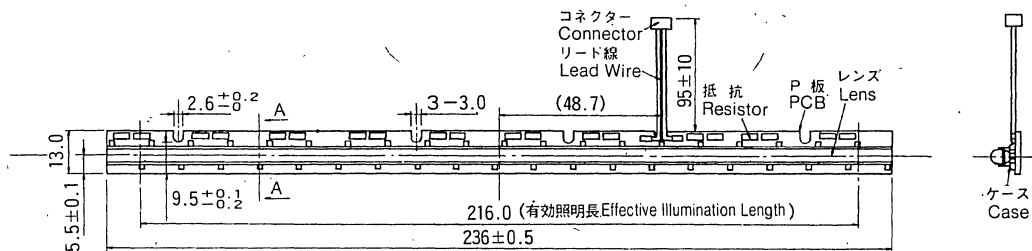
ピーク発光波長
Peak Emission Wavelength



外形図

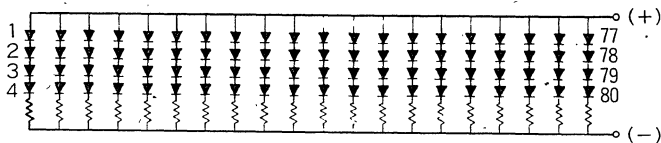
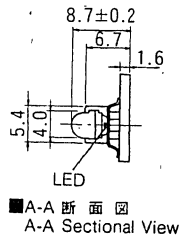
Outline Drawing

Unit : mm

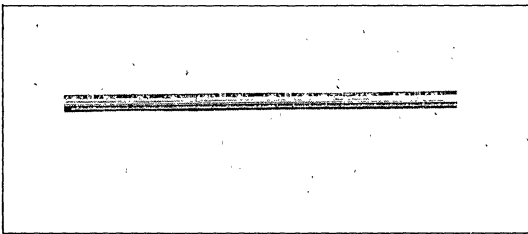


結線図

Connection Diagram



B4 Size LN963185UNA-B4



■特 長

- 集光照射幅が広く直線性に優れているためセッティングが容易。
- 発光波長 565nm~660nm まで対応可能。
- 原稿面照度バラツキが少なく均一な照度が得られる。
- 高輝度で消費電力が少ない。
- 一体成形タイプ構造(発光部)である。

■Features

- Easy setting due to wide condensing irradiation width and superior linearity.
- Capable of coping with an emission wavelength of 565 nm to 660 nm.
- Little illuminance variation of the manuscript surface to provide uniform illuminance.
- High brightness and low power consumption.
- Integral type structure (light emitting section)

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

項 目	Item	Symbol	定 格 Ratings	Unit
電 源 電 圧	Supply Voltage	Vcc	12.6	V
逆 方 向 電 圧	Reverse Voltage	V _R	16.0	V
消 費 電 力	Power Consumption	P	7.2 (Vcc MAX, IF MAX)	W
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	-10~+50	°C
保 存 温 度	Storage Temperature	Tstg	-30~+75	°C

※グリスを裏面に塗布し放熱板へ全面接触固定のこと。After spreading grease on the back, full face to face set to a plate which discharges heat.

■推奨動作条件 Recommendable Operating Conditions

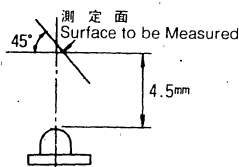
項 目	Item	Symbol	動 作 条 件 Operating Condition	Unit
電 源 電 圧	Supply Voltage	Vcc	12.0	V
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	0~+45	°C

■電氣的・光学的特性 Electrical and Optical Characteristics (Ta=25°C)

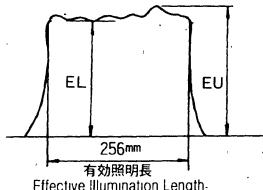
項 目	Item	Symbol	Condition	min.	typ.	max.	Unit
全 順 方 向 電 流	Total Forward Current	I _{FT}	Vcc=12.0V		480	572	mA
有 効 照 明 長	Effective Illumination Length	L	Vcc=12.0V	256			mm
原 稿 面 照 度	Illuminance on Manuscript	E	Within 1(min) after operation	$\frac{1400(\theta=0)}{1000(\theta=45)}$			lx
照 度 偏 差	Illuminance Deviation	ΔEH				±13	%
集 光 照 射 幅	Range of Collecting and Spreading Light	ΔL		1.2			mm
ピーク発光波長	Peak Emission Wavelength	λP	1chip IF=20mA		565		nm
スペクトル半値幅	Spectral Band Width	Δλ	1chip IF=20mA		30		nm

※放熱板付き With a plate which discharges heat.

原稿面照度
Illuminance on Manuscript

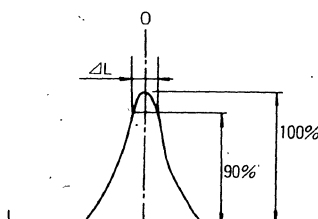


照度偏差
Illuminance Deviation

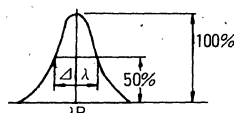


$\Delta EH = \{(EU - EL) / (EU + EL)\} \times 100 (\%)$

集光照射幅
Range of Collecting and Spreading Light



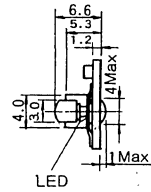
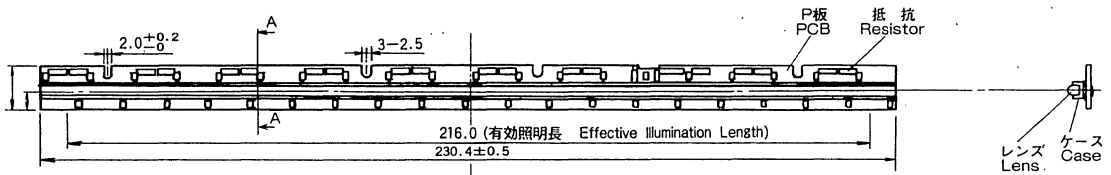
ピーク発光波長
Peak Emission Wavelength



LED読み取り用光源 **LED READING LIGHT SOURCE**

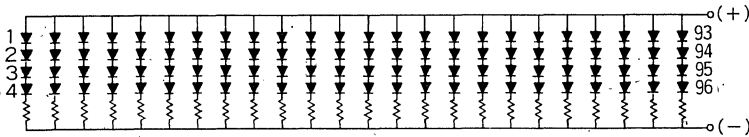
■外形図
Outline Drawing

Unit : mm

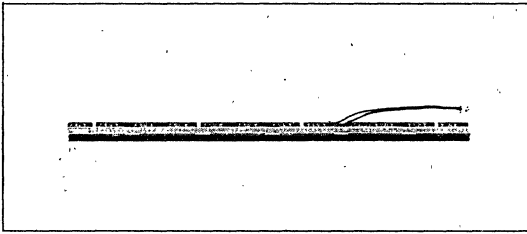


■A-A断面図
A-A Sectional View

■結線図
Connection Diagram



B4 Size LN963106UN-B4



■特 長

- 集光照射幅が広く直線性に優れているためセッティングが容易。
- 発光波長 565nm～660nm まで対応可能。
- 原稿面照度バラツキが少なく均一な照度が得られる。
- 高輝度で消費電力が少ない。
- 一体成形タイプ構造(発光部)である。

■Features

- Easy setting due to wide condensing irradiation width and superior linearity.
- Capable of coping with an emission wavelength of 565 nm to 660 nm.
- Little illuminance variation of the manuscript surface to provide uniform illuminance.
- High brightness and low power consumption.
- Integral type structure (light emitting section)

■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

項 目	Item	Symbol	定 格 Ratings	Unit
電 源 電 圧	Supply Voltage	Vcc	12.6	V
逆 方 向 電 圧	Reverse Voltage	V _R	16.0	V
消 費 電 力	Power Consumption	P	7.2 (Vcc MAX, IF MAX)	W
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	-10~+50	°C
保 存 温 度	Storage Temperature	Tstg	-30~+75	°C

*グリスを裏面に塗布し放熱板へ全面接触固定のこと。After spreading grease on the back, full face to face set to a plate which discharges heat.

■推奨動作条件 Recommendable Operating Conditions

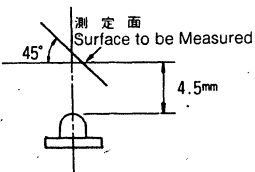
項 目	Item	Symbol	動 作 条 件 Operating Condition	Unit
電 源 電 圧	Supply Voltage	Vcc	12.0	V
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	0~+45	°C

■電氣的・光学的特性 Electrical and Optical Characteristics (Ta=25°C)

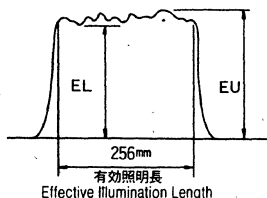
項 目	Item	Symbol	Condition	min.	typ.	max.	Unit.
全 順 方 向 電 流	Total Forward Current	I _{FT}	Vcc=12.0V		480	572	mA
有 効 照 明 長	Effective Illumination Length	L	Vcc=12.0V	256			mm
原 稿 面 照 度	Illuminance on Manuscript	E	Within 1(min) after operation	1400(±9%)			lx
照 度 偏 差	Illuminance Deviation	ΔEH				±13	%
集 光 照 射 幅	Range of Collecting and Spreading Light	ΔL		1.2			mm
ピーク発光波長	Peak Emission Wavelength	λP	1chip IF=20mA		565		nm
スペクトル半値幅	Spectral Band Width	Δλ	1chip IF=20mA		30		nm

*放熱板付き With a plate which discharges heat.

原稿面照度
Illuminance on Manuscript

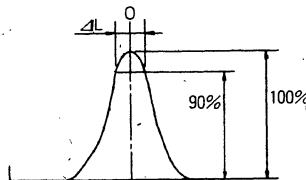


照度偏差
Illuminance Deviation

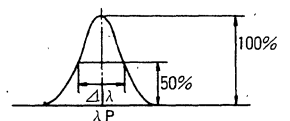


$$\Delta EH = \frac{|EU - EL|}{(EU + EL)} \times 100 (\%)$$

集光照射幅
Range of Collecting and Spreading Light

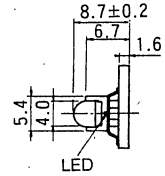
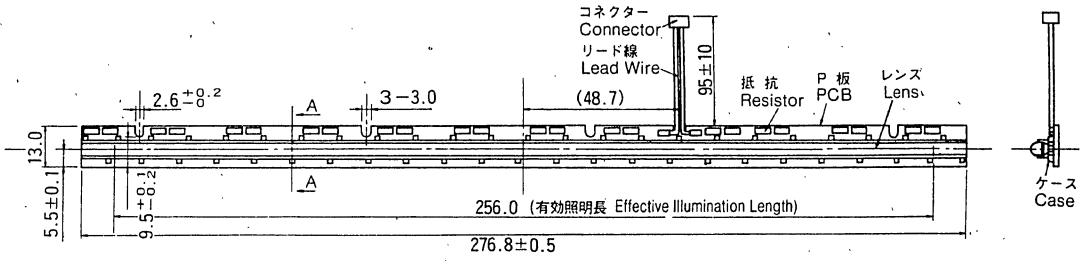


ピーク発光波長
Peak Emission Wavelength



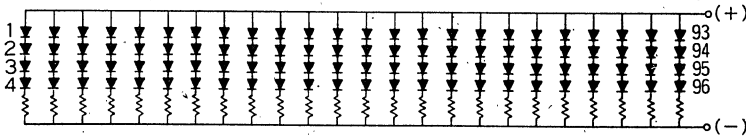
■外形図
Outline Drawing

Unit : mm

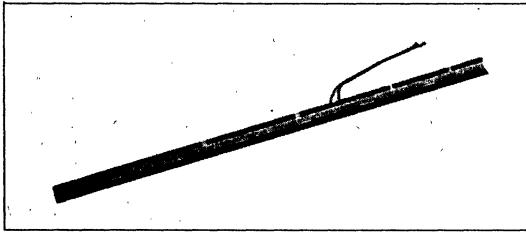


■A-A断面図
A-A Sectional View

■結線図
Connection Diagram



A3 Size LN1123107UN-A3



■特 長

- 集光照射幅が広く直線性に優れているためセッティングが容易。
- 発光波長 565nm~660nm まで対応可能。
- 原稿面照度バラツキが少なく均一な照度が得られる。
- 高輝度で消費電力が少ない。
- 一体成形タイプ構造(発光部)である。

■Features

- Easy setting due to wide condensing irradiation width and superior linearity.
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■絶対最大定格 Absolute Maximum Ratings (Ta=25°C)

項 目	Item	Symbol	定 格 Ratings	Unit
電 源 電 圧	Supply Voltage	Vcc	12.6	V
逆 方 向 電 圧	Reverse Voltage	V _R	16.0	V
消 費 電 力	Power Consumption	P	8.4 (Vcc MAX, IF MAX)	W
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	-10~+50	°C
保 存 温 度	Storage Temperature	Tstg	-30~+75	°C

*ガラスを裏面に塗布し放熱板へ全面接触固定のこと。After spreading grease on the back,full face to face set to a plate which discharges heat.

■推奨動作条件 Recommendable Operating Conditions

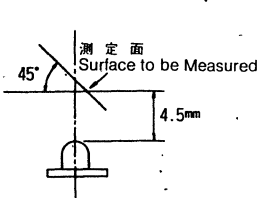
項 目	Item	Symbol	動 作 条 件 Operating Condition	Unit
電 源 電 圧	Supply Voltage	Vcc	12.0	V
動 作 周 囲 温 度	Operating Ambient Temperature	Topr	0~+45	°C

■電気的・光学的特性 Electrical and Optical Characteristics (Ta=25°C)

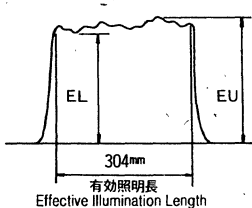
項 目	Item	Symbol	Condition	min.	typ.	max.	Unit
全 順 方 向 電 流	Total Forward Current	I _{FT}	Vcc=12.0V		560	667	mA
有 効 照 明 長	Effective Illumination Length	L	Vcc=12.0V	304			mm
原 稿 面 照 度	Illuminance on Manuscript	E	Within 1 (min) after operation	1400 (θ=0°)			lx
照 度 偏 差	Illuminance Deviation	ΔEH				±13	%
集 光 照 射 幅	Range of Collecting and Spreading Light	ΔL		1.2			mm
ピーク発光波長	Peak Emission Wavelength	λ _P	1chip IF=20mA		565		nm
スペクトル半値幅	Spectral Band Width	Δλ	1chip IF=20mA		30		nm

*放熱板付き With a plate which discharges heat.

原稿面照度
Illuminance on Manuscript

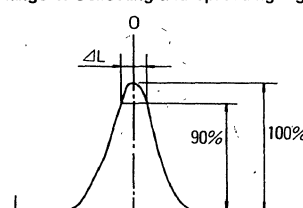


照度偏差
Illuminance Deviation

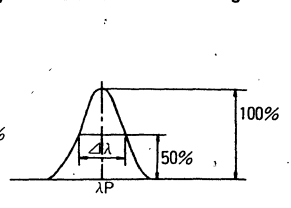


$$\Delta EH = |(EU - EL) / (EU + EL)| \times 100 (\%)$$

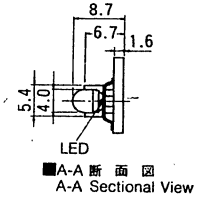
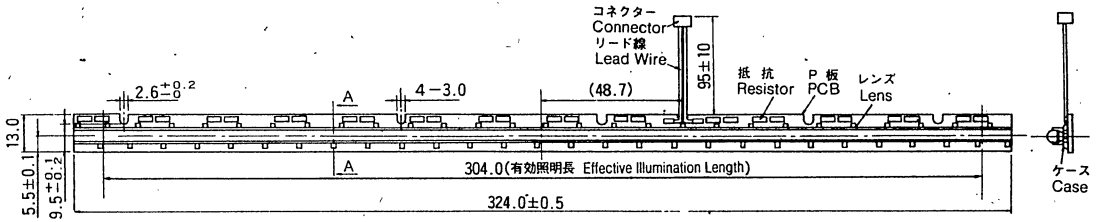
集光照射幅
Range of Collecting and Spreading Light



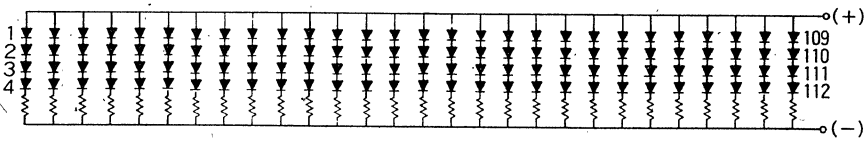
ピーク発光波長
Peak Emission Wavelength



■外形図
Outline Drawing



■結線図
Connection Diagram



消去用LED光源

消去用LEDは、複写機やプリンタなど感光ドラムの静電除去の光源として開発した製品です。(カスタム品として数多くの製品を開発)全面露光による一括消去用、コピーサイズ毎に部分点灯可能なズーム用、更には任意の範囲でフレア光のない均一な光量分布が得られるトリミング用など機能に応じた消去用LED光源の対応が可能です。

ERASING LED LIGHT SOURCE

An erasing LED light source is a product developed as a light source for erasing static electricity of sensitive drums of copying machines and printers (many products developed as custom-made ones).

Different types of erasing LED light sources are available in accordance with functions such as for collective erasure by full exposure, zooming which allows partial illumination per copy size, and trimming which provides uniform light quantity distribution without flare light within an arbitrary range.

■特長

●COBタイプ

高精度実装技術 (LEDチップ精度 $\pm 50\mu\text{m}$) に加え、マイクロレンズの採用によりフレア光のない均一な光量分布が得られます。ズーム、トリミング機能 (精度 2.5mm) 用として最適であり更にLEDドライバー内蔵によりトリミングモードを直列入力することにより制御が容易です。

●挿入タイプ

感光ドラムの分光感度に適した各種発光波長 ($\lambda_p=555\text{nm}, 565\text{nm}, 610\text{nm}, 630\text{nm}, 660\text{nm}$) の光源を提供します。全面露光用には完全拡散面に近いLEDの採用により均一な光量分布が得られます。また高精度で光度分類されたLEDとドライバー内蔵によりズーム、トリミング用光源も対応可能です。

■Features

●COB Type

Uniform light quantity distribution can be obtained without flare light due to employment of microlens in addition to high accuracy mounting know-how (LED chip accuracy : $\pm 50\mu\text{m}$).

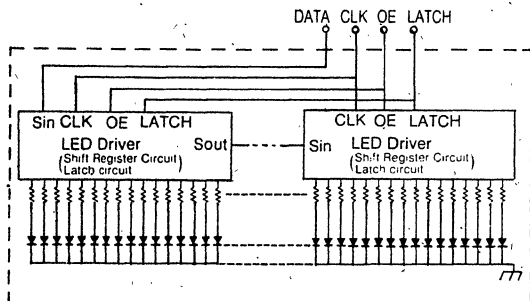
This type is optimum for zooming and trimming functions (accuracy : 2.5mm) and can be easily controlled by serially inputting a trimming mode by incorporating LED drivers.

●Insertion Type

Light sources are provided for various emission wavelengths ($\lambda_p=555\text{nm}, 565\text{nm}, 610\text{nm}, 630\text{nm}, 660\text{nm}$) suitable for spectral sensitivities of sensitive drums. For full exposure, uniform light quantity distribution can be obtained by adopting LEDs which are close to a complete diffusing surface. Also, zooming and trimming light sources are available by means of LEDs with luminous intensity classified at high accuracy and built-in LED drivers.

■LEDドライバー基本回路例

LED Driver Basic Circuit Example



- DATA : LED点灯用直列データ信号
LED illuminating serial data signal
- CLK : データシフト用クロック信号
Data shifting clock signal
- OE : アウトプットイネーブル信号
Output enable signal
- LATCH : データラッチ信号
Data latch signal

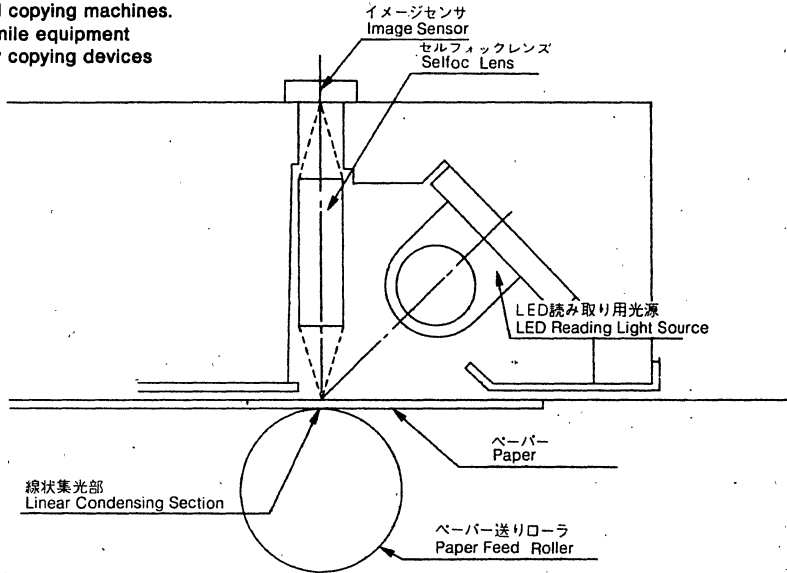
応用例
APPLIED EXAMPLES

■画像読み取り用LED光源

Image Reading LED Light Source

- 用途 ● デジタル複写機
● ファクシミリ
● ハンドコピー

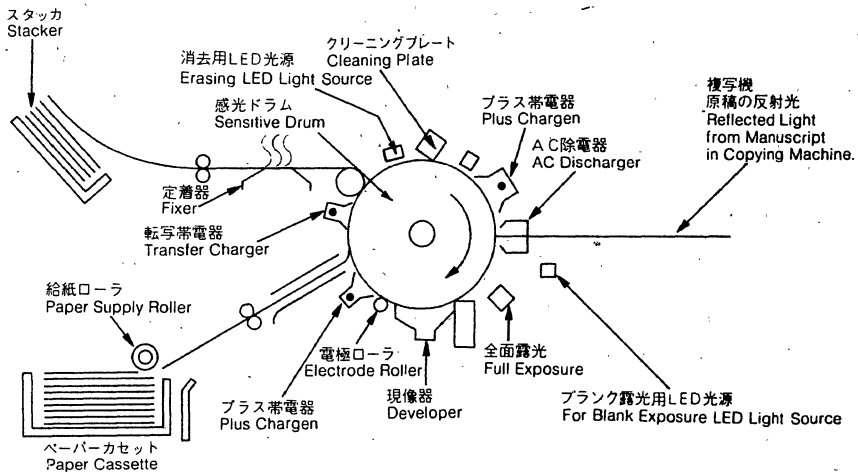
- Applications ● Digital copying machines.
● Facsimile equipment
● Handy copying devices



■消去用LED光源

Erasing LED Light Source

- 用途 ● 複写機
Applications ● copying machines





ユニット商品／UNIT PRODUCTS

ホトセンサユニット

透過形

反射形

Photo Sensor Units

Transmittive Type

Reflective Type



ON1501, ON1501S

■概要

ON1501, ON1501Sは、ハイブリッド技術により、ホトインタラプタにアンプを内蔵した小型、軽量、高精度、高信頼性のホトセンサユニットです。小型ながら大電流を直接開閉できるなど、機器装置の自動制御化に対応した位置検知用のホトセンサとして広く応用できます。

■特長

- アンプ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力：50mA
- 大電流を直接開閉できる。
- 接続端子は小形コネクタを使用。

■用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Yテーブルの位置検知
- エンコーダ

■Outline

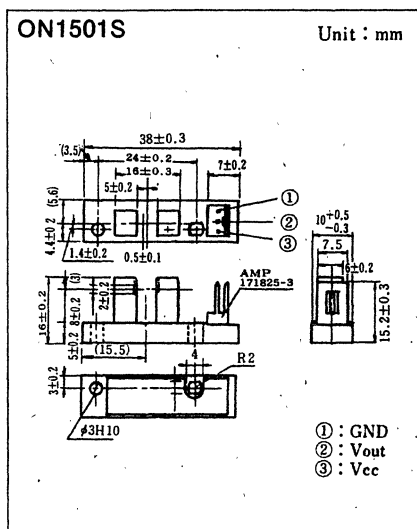
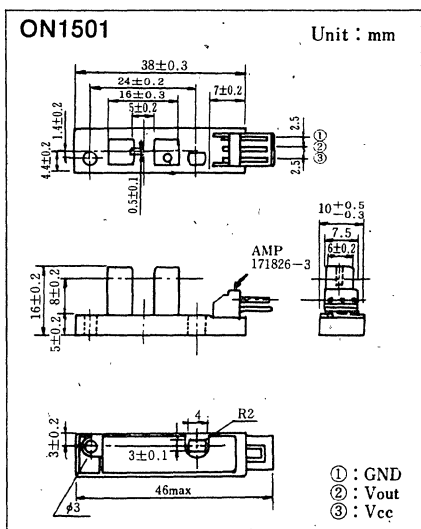
The ON1501, ON1501S is a small, light weight, high precision, high reliability photo sensor unit which amplifier built in a plastic housing. It is small, however, switches large current directly and widely applied as sensors for position detection used for automatic controlling apparatus.

■Features

- Small size and high reliability
- High positional resolution
- Open-collector output
- Large output current (50mA)
- Power supply, output connection with small connector

■Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder



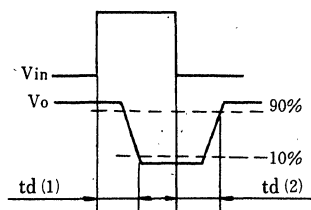
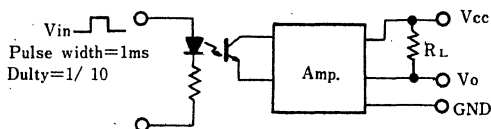
■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit	
電源電圧	Supply Voltage	V _{CC}	30	V
出力電圧	Output Voltage	V _{O (max.)}	40	V
出力電流	Output Current	I _{O (max.)}	50	mA
動作周囲温度	Operating Ambient Temperature	T _{opr}	0~+65	°C
保存温度	Storage Temperature	T _{stg}	-20~+75	°C

■ 電気的特性 / Electrical Characteristics (Ta=25°C)

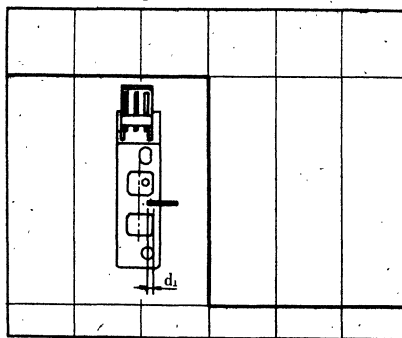
Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		21	24	26	V
"L" 出力電圧 "L" Output Voltage	V_{OL}	$V_{CC}=24V, I_o=50mA$ (投光時 / at projection)		0.2	0.6	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	$V_{CC}=26V, R_L=10k\Omega$ (しき光時 / at cutoff lighting)	25.8			V
遅れ時間 Delay Time	$t_d(1)$	$V_{CC}=24V, R_L=470\Omega$		100		μs
遅れ時間 Delay time	$t_d(2)$			200		μs

*遅れ時間試験回路 / Delay time measuring circuit



(1) 検知位置特性
Detecting Position Characteristics

最終段Tr ON
Output Transistor ON

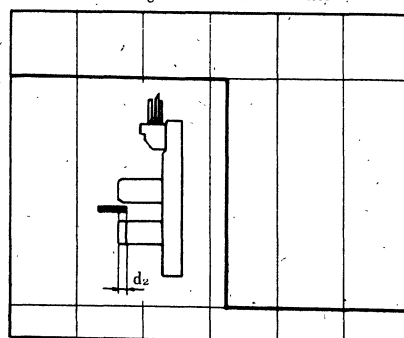


最終段Tr OFF
Output Transistor OFF

距離
Distance d_1 (mm)

(2) 検知位置特性
Detecting Position Characteristics

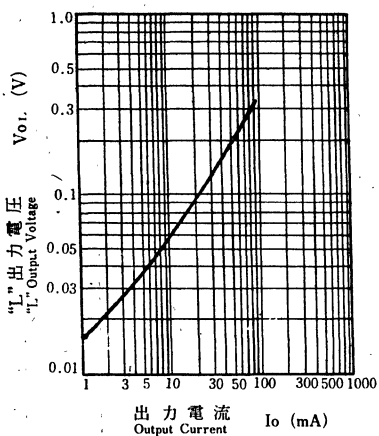
最終段Tr ON
Output Transistor ON



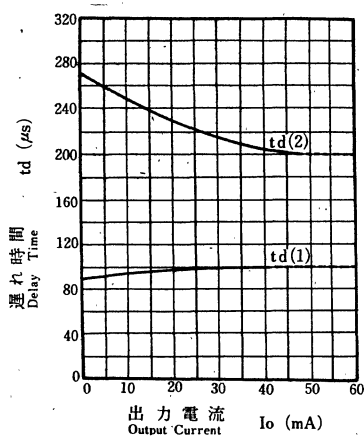
最終段Tr OFF
Output Transistor OFF

距離
Distance d_2 (mm)

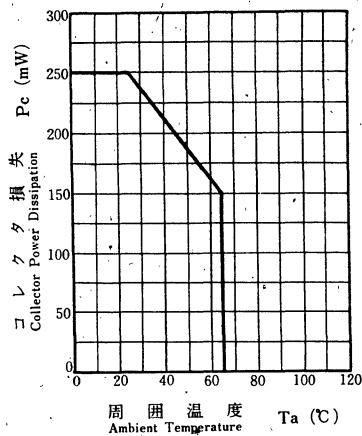
$V_{OL} - I_o$



$t_d - I_o$



$P_c - T_a$



ON1503

■概要

ON1503は、ハイブリッド技術により、ホトインタラプタにアンプを内蔵した小型、軽量、高精度、高信頼性のホトセンサユニットです。
小型ながら大電流を直接開閉できるなど、機器装置の自動制御化に対応した位置検知用のホトセンサとして広く応用できます。

■特長

- アンプ内蔵形で小型、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 大電流を直接開閉できる：100mA。
- 小型コネクタを使用。
- 5Vと10Vの2電源が使用できる。

■用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Yテーブルの位置検知
- エンコーダ

■Outline

The ON1503 is a small, light weight, high precision and high reliability photo sensor unit incorporating amplifier in a plastic housing. It can switch large current and widely applied as sensors used for position detection of automatic controlled equipment.

■Features

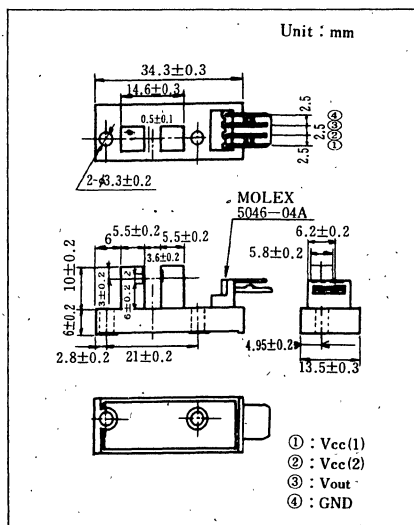
- Small size and high reliability
- High positional resolution
- Open-collector output
- Large output current :100mA
- Power supply, output connection with small connector
- 5 or 10V power supply is available

■Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit	
電源電圧(1)	Supply Voltage (1)	$V_{CC(1)}$	12	V
電源電圧(2)	Supply Voltage (2)	$V_{CC(2)}$	6	V
出力電圧	Output Voltage	V_O (max.)	20	V
出力電流	Output Current	I_O (max.)	100	mA
動作周囲温度	Operating Ambient Temperature	T_{opr}	0 ~ +65	°C
保存温度	Storage Temperature	T_{stg}	-20 ~ +75	°C



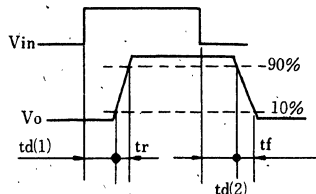
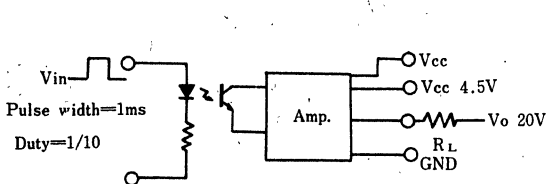
■電気的特性/Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧(1)	Supply Voltage (1)	$V_{CC(1)}$	9	10	11	V
電源電圧(2)	Supply Voltage (2)	$V_{CC(2)}$	4.5	5.0	5.5	V
"L" 出力電圧	"L" Output Voltage	V_{OL}		0.3	0.6	V
"H" 出力電圧(1)	"H" Output Voltage (1)	$V_{OH(1)}$	19.8			V
"H" 出力電圧(2)	"H" Output Voltage (2)	$V_{OH(2)}$	19.8			V
上昇時間	Rise Time (Emission, Light Current)	t_r^*		1		μs
下降時間	Fall time (Emission, Light Current)	t_f^*		1		μs
遅れ時間	Delay Time	$t_d(1r)$		50		μs
遅れ時間	Delay time	$t_d(2r)$		100		μs
応答周波数	Response Characteristics	f^*		2		kHz

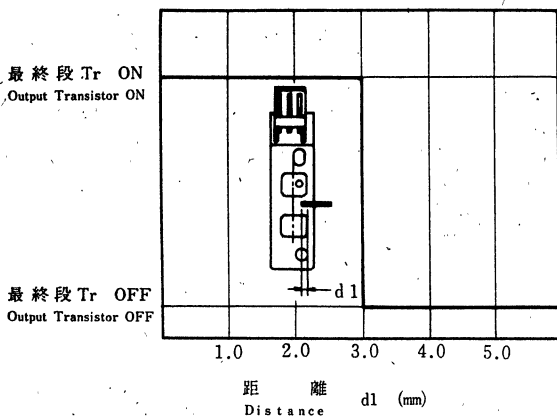
$V_{CC(2)}=4.5V, V_O=20V, R_L=200\Omega$

ホトセンサユニット(透過形) Photosensor Units (Transmittive Type)

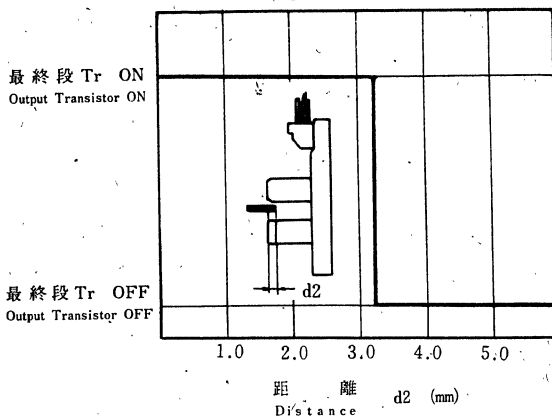
*スイッチングタイム測定回路/Switching Time Measuring Circuit



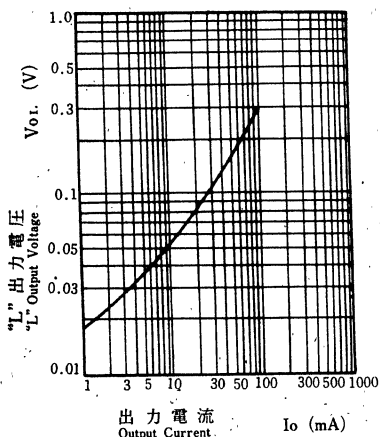
(1) 検知位置特性
Detecting Position Characteristics



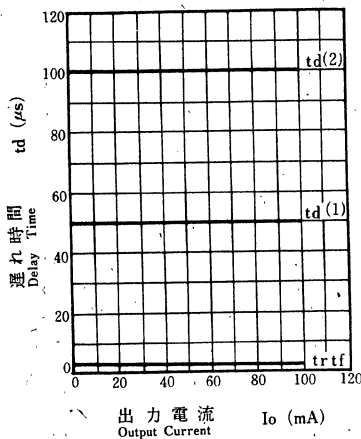
(2) 検知位置特性
Detecting Position Characteristics



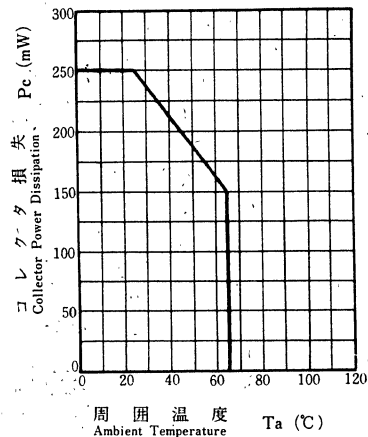
$V_{OL} - I_o$



$t_d - I_o$



$P_c - T_a$



ON1517HA-(A), ON1517LA-(A)

■ 概要

ON1517HA-(A), ON1517LA-(A) は、発光素子に高効率の GaAs 赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を 1 チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■ 特長

- アンブ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- 光照射時に出力トランジスタが ON, OFF する (2 種類)。
ON1517HA-(A) : 投光 OFF タイプ
ON1517LA-(A) : 投光 ON タイプ

■ 用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- N C 工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Y テーブルの位置検知
- エンコーダ

■ Outline

The ON1517HA-(A) and ON1517LA-(A) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■ Features

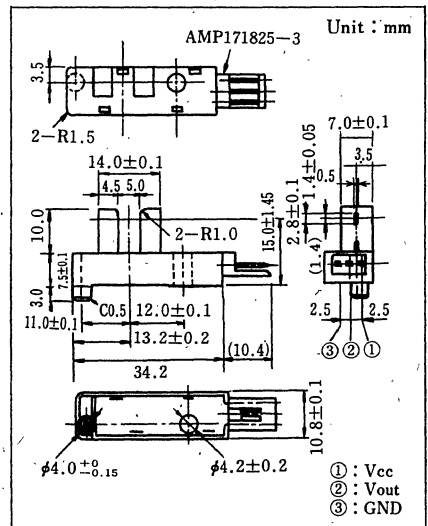
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- ON1517HA-(A) : Normally OFF type
ON1517LA-(A) : Normally ON type

■ Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

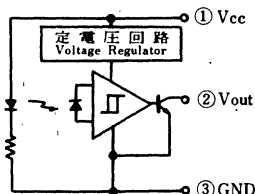
■ 絶対最大定格 / Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0 ~ +65 °C
保存温度	Storage Temperature	T _{stg}	-10 ~ +75 °C

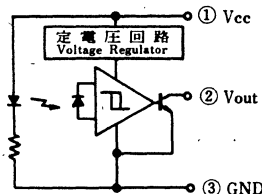


■ ピン接続図 / Pin Connections

ON1517HA-(A)
(投光 OFF タイプ / Normally OFF type)



ON1517LA-(A)
(投光 ON タイプ / Normally ON type)



■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		4.5	5.0	5.5	V
消費電流 Current Consumption	I_{CCH}	物体検知時 (物体非検知時) Object at Detection (Object at Non Detection)			35	mA
	I_{CCL}	物体非検知時 (物体検知時) Object at Non Detection (Object at Detection)			35	mA
"H" 出力電圧 "H" Output Voltage	V_{OH}	{ 物体検知時 (物体非検知時) $V_{CC}=5V, R_L=4.7k\Omega$ Object at Detection (Object at Non Detection) $V_{CC}=5V, R_L=4.7k\Omega$	4.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	{ 物体非検知時 (物体検知時) $V_{CC}=5V, I_O=10mA$ Object at Non Detection (Object at Detection) $V_{CC}=5V, I_O=10mA$		0.2	0.4	V
応答周波数 Response Characteristics	f^*		3000			Hz

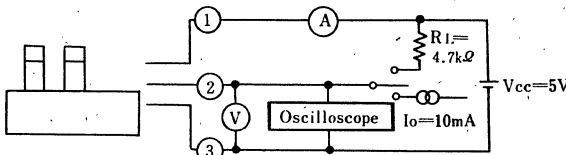
注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

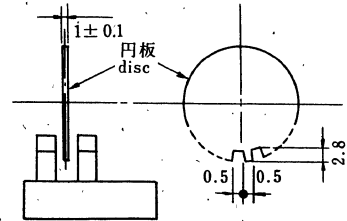
Test circuit



2. 応答周波数測定装置

Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
Measured by rotating disc in the figure.

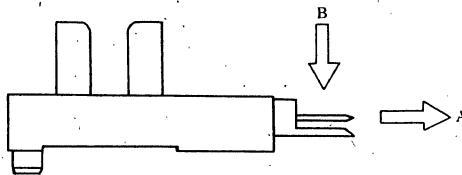


■ 端子強度 / Mechanical Strength of Connectors

Item	試験方法	Test Method	備考	Remarks
端子強度 Terminal Strength	引張り Pulling	方向 Direction	下図A方向 Figure below A direction	電気特性および箔ハゲなど異常なきこと。 After each test, electrical characteristics are normal and Cu foil does not come off.
		荷重 Load	2 kg / 1回 2 kg / 1 time	
		時間 Time	5 秒 5 seconds	
	押し Pushing	方向 Direction	下図B方向 Figure below B direction	
		荷重 Load	1 kg / 1回 1 kg / 1 time	
		時間 Time	5 秒 5 seconds	

試験方法

Test Method

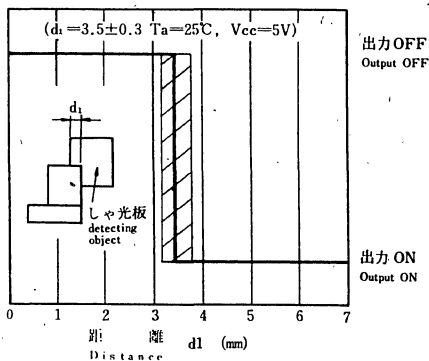


■ ご使用上の注意 / Handling caution

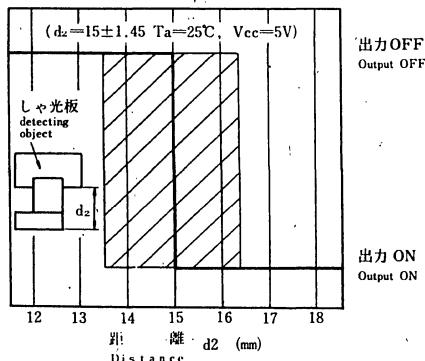
- 1) 洗浄の際、薬品の使用は避けて下さい。 / Chemicals should be avoided when washing.
- 2) 取付け時のビス締め強度は 6 kg/cm以下にして下さい。 / Screw crasping intensity of fixing is less than 6 kg/cm.

ON1517HA-(A) (投光 OFF タイプ)
Normally OFF type

(1)
検知位置特性
Detecting Position Characteristics

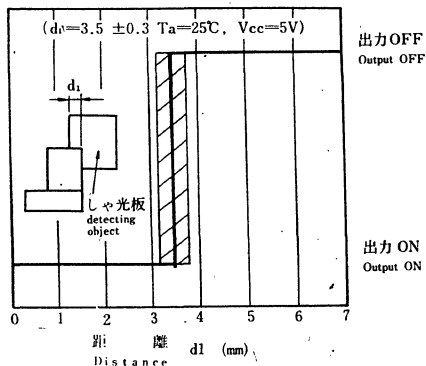


(2)
検知位置特性
Detecting Position Characteristics

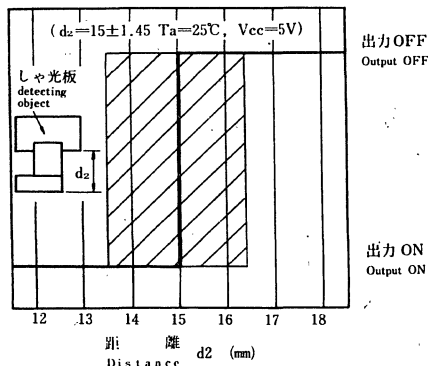


ON1517LA-(A) (投光 ON タイプ)
Normally ON type

(1)
検知位置特性
Detecting Position Characteristics

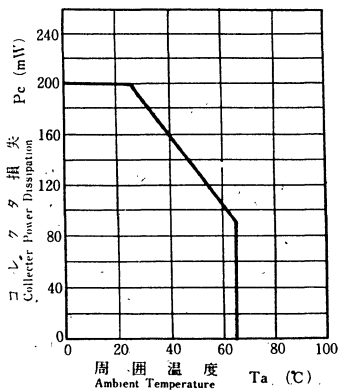


(2)
検知位置特性
Detecting Position Characteristics

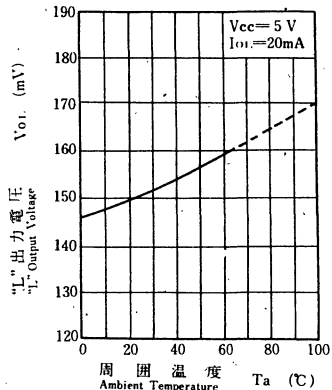


共通特性図
Common characteristics

$P_c - T_a$



$V_{OL} - T_a$



ON1517HA2-(J), ON1517LA2-(J)

■ 概要

ON1517HA2-(J), ON1517LA2-(J) は、発光素子に高効率の GaAs 赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を 1 チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■ 特長

- アンブ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- 光照射時に出力トランジスタが ON, OFF する (2 種類)。
ON1517HA2-(J) : 投光 OFF タイプ
ON1517LA2-(J) : 投光 ON タイプ

■ 用途

- 複写機の紙検知, 位置検知
- シーケンス制御のセンサ
- NC 工作機械のリミット位置検知
- 回転数, 回転速度検知
- X-Y テーブルの位置検知
- エンコーダ

■ Outline

The ON1517HA2-(J) and ON1517LA2-(J) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■ Features

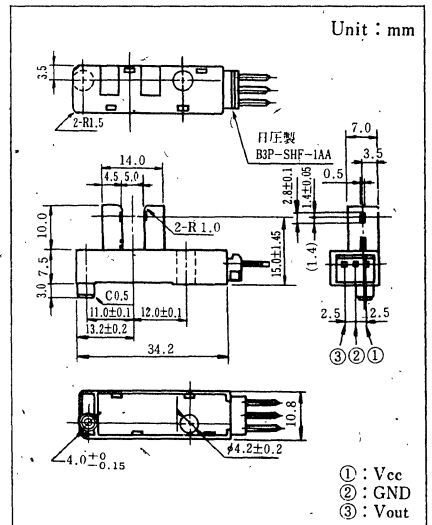
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- ON1517HA2-(J) : Normally OFF type
ON1517LA2-(J) : Normally ON type

■ Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

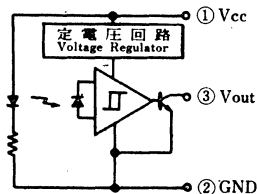
■ 絶対最大定格 / Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0 ~ +65 °C
保存温度	Storage Temperature	T _{stg}	-10 ~ +75 °C

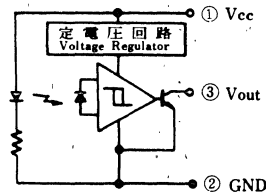


■ ピン接続図 / Pin Connections

ON1517HA2-(J)
(投光 OFF タイプ / Normally OFF type)



ON1517LA2-(J)
(投光 ON タイプ / Normally ON type)



ホトセンサユニット(透過形) Photosensor Units (Transmittive Type)

電气的特性/Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		4.75	5.00	5.25	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	{ 物体検知時 (物体非検知時) $V_{CC}=5V, R_L=10k\Omega$ { Object at Detection (Object at Non Detection) $V_{CC}=5V, R_L=10k\Omega$	4.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	{ 物体非検知時 (物体検知時) $V_{CC}=5V, I_O=10mA$ { Object at Non Detection (Object at Detection) $V_{CC}=5V, I_O=10mA$		0.2	0.4	V
応答周波数 Response Characteristics	f^*		3000			Hz

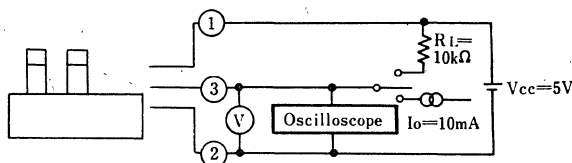
注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
 Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

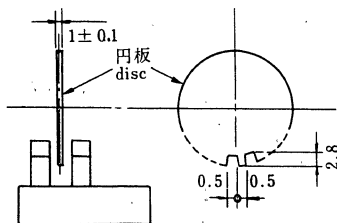
Test circuit



2. 応答周波数測定装置

Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
 Measured by rotating disc in the figure.

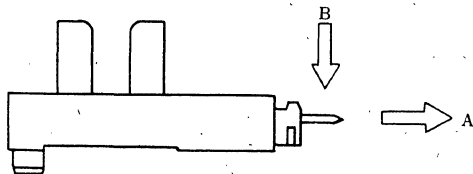


端子強度/Mechanical Strength of Connectors

Item	試験方法		Test Method		備考	Remarks
端子強度 Terminal Strength	引張り Pulling	方向	Direction	下図A方向	Figure below A direction	電気特性および箔ハゲなど異常なきこと。 After each test, electrical characteristics are normal and Cu foil does not come off.
		荷重	Load	2kg/1回	2 kg/1 time	
		時間	Time	5秒	5 seconds	
	押し Pushing	方向	Direction	下図B方向	Figure below B direction	
		荷重	Load	1kg/1回	1 kg/1 time	
		時間	Time	5秒	5 seconds	

試験方法

Test Method



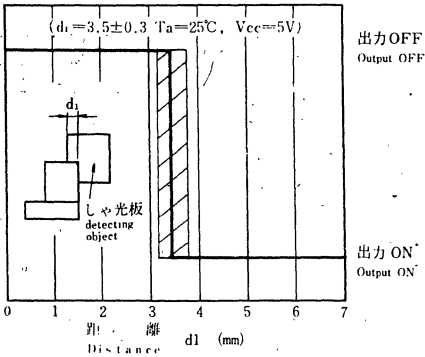
ご使用上の注意/Handling caution

- 1) 洗浄の際、薬品の使用は避けて下さい。/Chemicals should be avoided when washing.
- 2) 取付け時のビス締め強度は 6 kg/cm以下にして下さい。/Screw crasping intensity of fixing is less than 6 kg/cm.

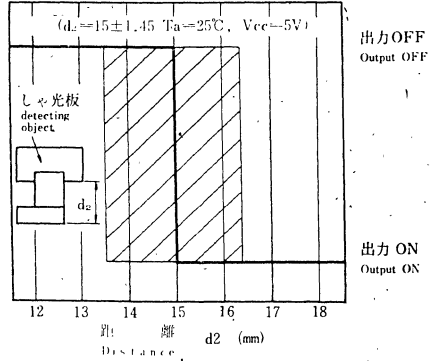
ON1517HA2-(J) [投光 OFF タイプ]

Normally OFF type

(1) 検知位置特性
Detecting Position Characteristics



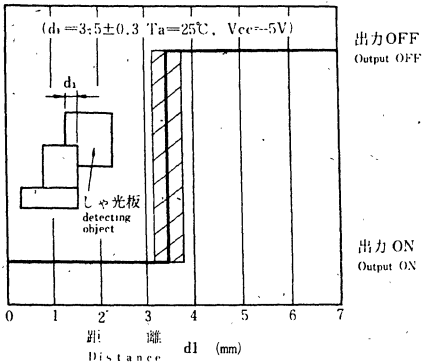
(2) 検知位置特性
Detecting Position Characteristics



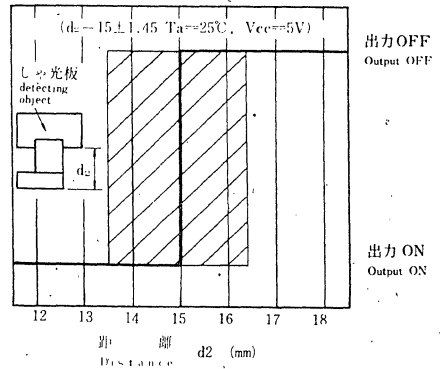
ON1517LA2-(J) [投光 ON タイプ]

Normally ON type

(1) 検知位置特性
Detecting Position Characteristics



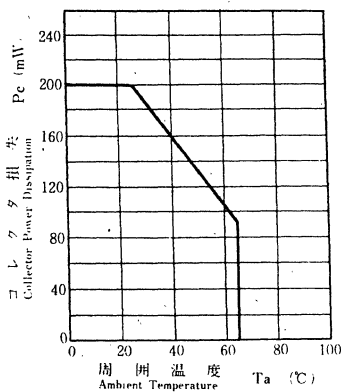
(2) 検知位置特性
Detecting Position Characteristics



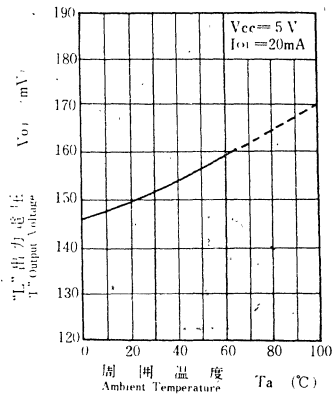
共通特性図

Common characteristics

$P_c - T_a$



$V_{O1} - T_a$



ON1517HH-(A), ON1517LH-(A)

■ 概要

ON1517HH-(A), ON1517LH-(A)は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■ 特長

- アンプ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- 光照射時に出力トランジスタがON, OFFする(2種類)。
ON1517HH-(A): 投光 OFF タイプ
ON1517LH-(A): 投光 ON タイプ

■ 用途

- 複写機の紙検知, 位置検知
- シーケンス制御のセンサ
- NC工作機械のリミット位置検知
- 回転数, 回転速度検知
- X-Yテーブルの位置検知
- エンコーダ

■ Outline

The ON1517HH-(A) and ON1517LH-(A) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■ Features

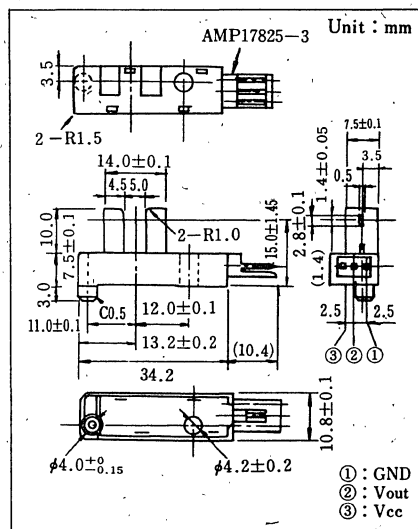
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply,output connection with small connector
- ON1517HH-(A): Normally OFF type
ON1517LH-(A): Normally ON type

■ Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

■ 絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

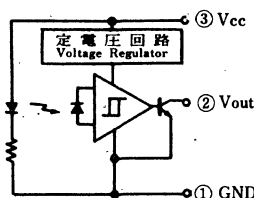
Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0~+65 °C
保存温度	Storage Temperature	T _{stg}	-10~+75 °C



■ ピン接続図/Pin Connections

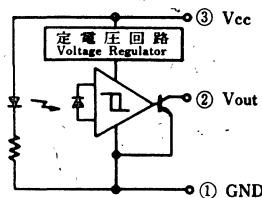
ON1517HH-(A)

(投光 OFF タイプ/Normally OFF type)



ON1517LH-(A)

(投光 ON タイプ/Normally ON type)



■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		4.75	5.00	5.25	V
消費電流 Current Consumption	I_{CCH}	物体検知時 (物体非検知時) Object at Detection (Object at Non Detection)			35	mA
	I_{CCL}	物体非検知時 (物体検知時) Object at Non Detection (Object at Detection)			35	mA
"H" 出力電圧 "H" Output Voltage	V_{OH}	物体検知時 (物体非検知時) $V_{CC}=5V, R_L=10k\Omega$ Object at Detection (Object at Non Detection) $V_{CC}=5V, R_L=10k\Omega$	4.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	物体非検知時 (物体検知時) $V_{CC}=5V, I_O=10mA$ Object at Non Detection (Object at Detection) $V_{CC}=5V, I_O=10mA$		0.2	0.4	V
応答周波数 Response Characteristics	f^*		3000			Hz

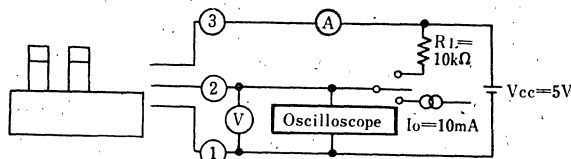
注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

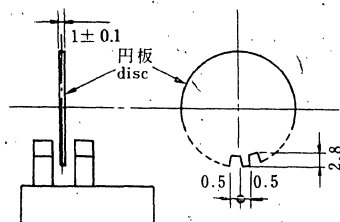
Test circuit



2. 応答周波数測定装置

Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
Measured by rotating disc in the figure.

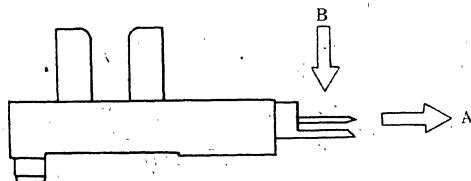


■ 端子強度 / Mechanical Strength of Connectors

Item	試験方法	Test Method	備考	Remarks
端子強度 Terminal Strength	引張り Pulling	方向 Direction	下図A方向	Figure below A direction
		荷重 Load	2 kg/1回	2 kg/1 time
		時間 Time	5 秒	5 seconds
	押し Pushing	方向 Direction	下図B方向	Figure below B direction.
		荷重 Load	1 kg/1回	1 kg/1 time
		時間 Time	5 秒	5 seconds
			電気特性および箔ハゲなど異常なきこと。 After each test, electrical characteristics are normal and Cu foil does not come off.	

試験方法

Test Method



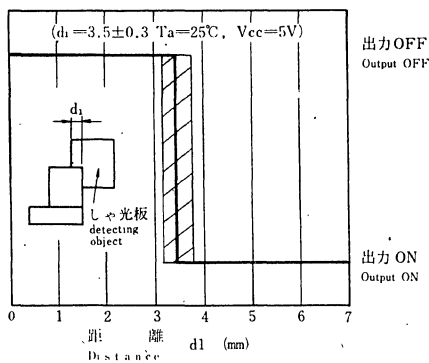
■ ご使用上の注意 / Handling caution

- 1) 洗浄の際、薬品の使用は避けて下さい。 / Chemicals should be avoided when washing.
- 2) 取り付け時のビス締め強度は6kg/cm以下にして下さい。 / Screw crasping intensity of fixing is less than 6 kg/cm.

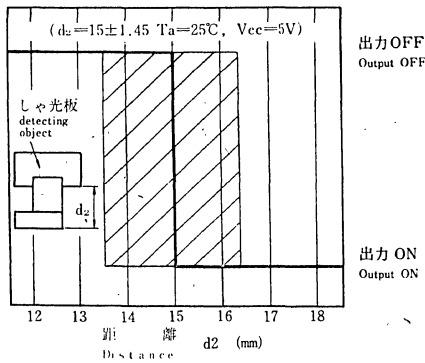
ON1517HH-(A) [投光 OFF タイプ]

Normally OFF type

(1) 検知位置特性
Detecting Position Characteristics



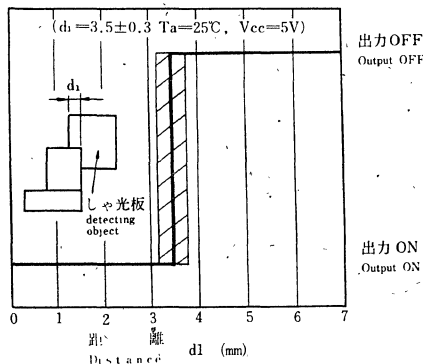
(2) 検知位置特性
Detecting Position Characteristics



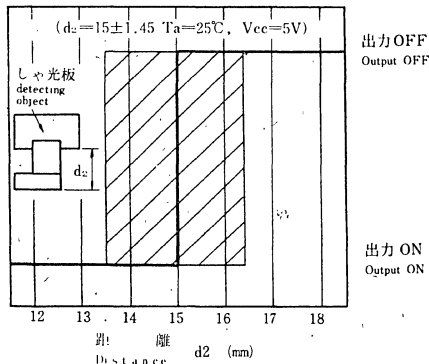
ON1517LH-(A) [投光 ON タイプ]

Normally ON type

(1) 検知位置特性
Detecting Position Characteristics



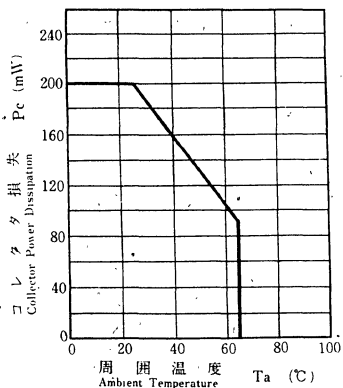
(2) 検知位置特性
Detecting Position Characteristics



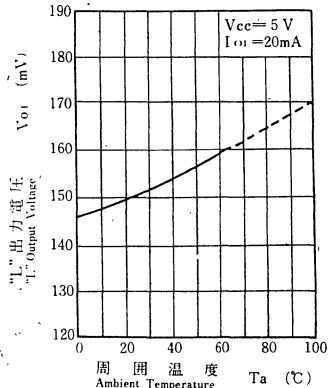
共通特性図

Common characteristics

P_c-T_a



V_{OL}-T_a



ON1517HO-(J)2, ON1517LO-(J)2

■ 概要

ON1517HO-(J)2, ON1517LO-(J)2は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■ 特長

- アンブ内蔵形で小形、高信頼性。
- 位置検出精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- 光照射時に出力トランジスタがON, OFFする(2種類)。
ON1517HO-(J)2: 投光OFFタイプ
ON1517LO-(J)2: 投光ONタイプ

■ 用途

- 複写機の紙検出, 位置検出
- シーケンス制御のセンサ
- NC工作機械のリミット位置検出
- 回転数, 回転速度検出
- X-Yテーブルの位置検出
- エンコーダ

■ Outline

The ON1517HO-(J)2 and ON1517LO-(J)2 are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■ Features

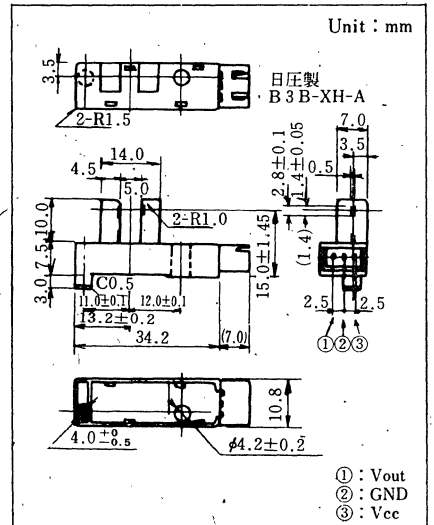
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- ON1517HO-(J)2 : Normally OFF type
ON1517LO-(J)2 : Normally ON type

■ Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

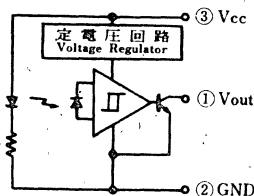
■ 絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0~+65 °C
保存温度	Storage Temperature	T _{stg}	-10~+75 °C

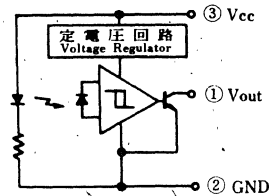


■ ピン接続図/Pin Connections

ON1517HO-(J)2
(投光OFFタイプ/Normally OFF type)



ON1517LO-(J)2
(投光ONタイプ/Normally ON type)



■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V _{CC}		4.75	5.00	5.25	V
"H" 出力電圧 "H" Output Voltage	V _{OH}	{ 物体検知時 (物体非検知時) V _{CC} =5V, R _L =10kΩ { Object at Detection (Object at Non Detection) V _{CC} =5V, R _L =10kΩ	4.0			V
"L" 出力電圧 "L" Output Voltage	V _{OL}	{ 物体非検知時 (物体検知時) V _{CC} =5V, I _O =10mA { Object at Non Detection (Object at Detection) V _{CC} =5V, I _O =10mA		0.2	0.4	V
応答周波数 Response Characteristics	f*		3000			Hz

注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
Note) Normally ON type characteristics is shown, () shows Normally OFF type.

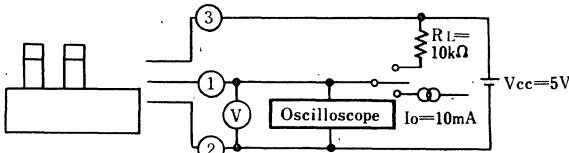
* 応答周波数試験条件

Response time test condition

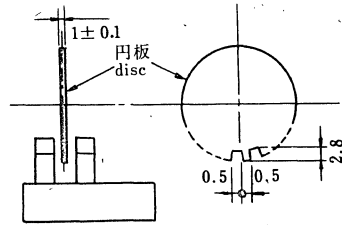
1. 試験回路
Test circuit

2. 応答周波数測定装置

Measuring equipment of response frequency



下図の円板を回転させ測定を行う。
Measured by rotating disc in the figure.

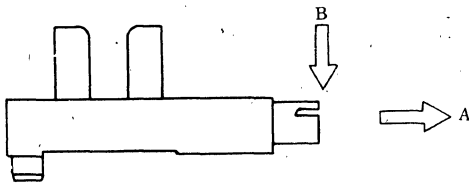


■ 端子強度 / Mechanical Strength of Connectors

Item	試験方法	Test Method	備考	Remarks
端子強度 Terminal Strength	引張り Pulling	方向 Direction	下図A方向 Figure below A direction	電気特性および箔ハゲなど異常なきこと。 After each test, electrical characteristics are normal and Cu foil does not come off.
		荷重 Load	2 kg/1回 2 kg/1 time	
		時間 Time	5 秒 5 seconds	
	押し Pushing	方向 Direction	下図B方向 Figure below B direction	
		荷重 Load	1 kg/1回 1 kg/1 time	
		時間 Time	5 秒 5 seconds	

試験方法

Test Method

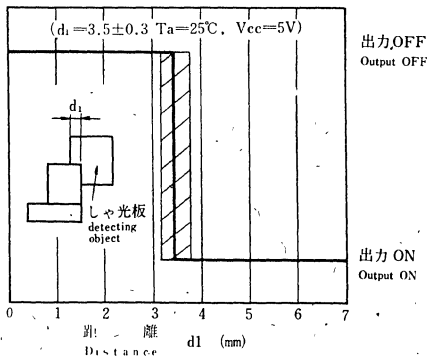


■ ご使用上の注意 / Handling caution

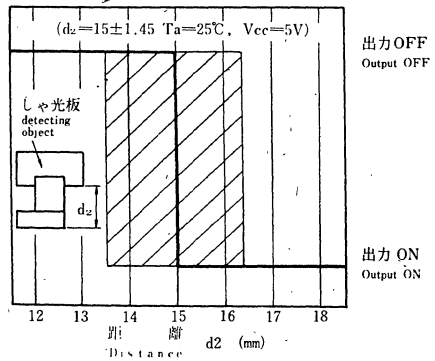
- 1) 洗浄の際、薬品の使用は避けて下さい。 / Chemicals should be avoided when washing.
- 2) 取り付け時のビス締め強度は6kg/cm以下にして下さい。 / Screw crasping intensity of fixing is less than 6 kg/cm.

ON1517HO-(J)2(投光 OFF タイプ)
Normally OFF type

(1) 検知位置特性
Detecting Position Characteristics

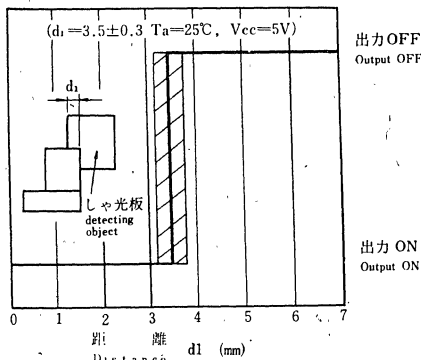


(2) 検知位置特性
Detecting Position Characteristics

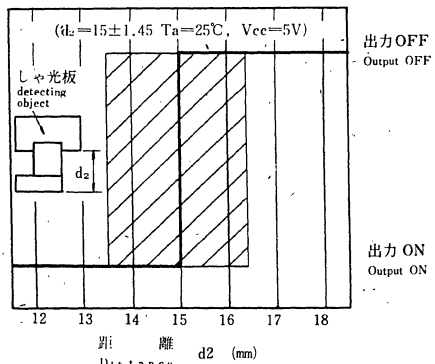


ON1517LO-(J)2(投光 ON タイプ)
Normally ON type

(1) 検知位置特性
Detecting Position Characteristics

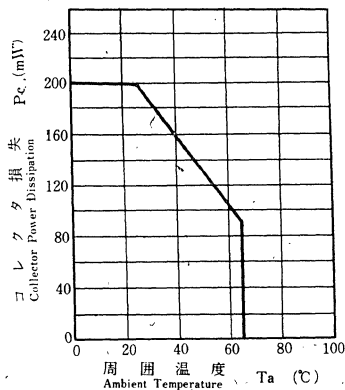


(2) 検知位置特性
Detecting Position Characteristics

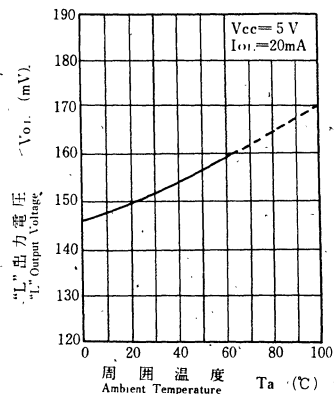


共通特性
Common characteristics

$P_c - T_a$



$V_{OL} - T_a$



ON1517HO-(M), ON1517LO-(M)

概要

ON1517HO-(M), ON1517LO-(M)は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

特長

- アンプ内蔵で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- 光照射時に出力トランジスタがオン、オフする(2種類)。
ON1517HO-(M) : 投光 OFF タイプ
ON1517LO-(M) : 投光 ON タイプ

用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC 工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Y テーブルの位置検知
- エンコーダ

絶対最大定格 / Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V_{CC}	6 V
出力電圧	Output Voltage	V_O	30 V
出力電流	Output Current	I_O	20 mA
コレクタ損失	Collector Power Dissipation	P_C	200 mW
動作周囲温度	Operating Ambient Temperature	T_{opr}	0 ~ +65 °C
保存温度	Storage Temperature	T_{stg}	-10 ~ +75 °C

Outline

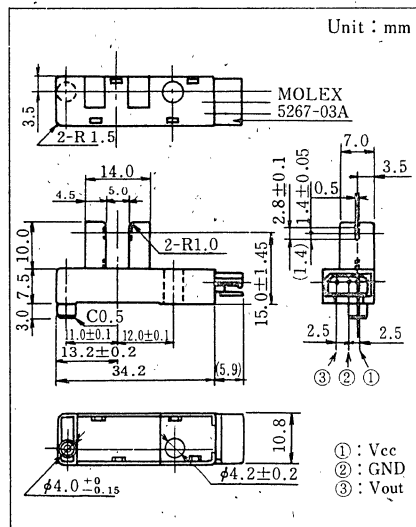
The ON1517HO-(M) and ON1517LO-(M) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

Features

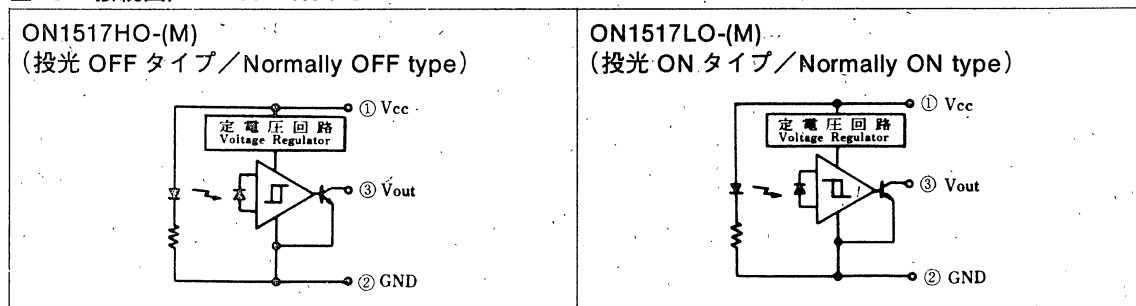
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- ON1517HO-(M) : Normally OFF type
ON1517LO-(M) : Normally ON type

Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder



ピン接続図 / Pin Connections



■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}	-	4.75	5.00	5.25	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	物体検知時 (物体非検知時) $V_{CC}=5V, R_L=10k\Omega$ Object at Detection (Object at Non Detection) $V_{CC}=5V, R_L=10k\Omega$	4.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	物体非検知時 (物体検知時) $V_{CC}=5V, I_O=10mA$ Object at Non Detection (Object at Detection) $V_{CC}=5V, I_O=10mA$	0.2	0.4		V
応答周波数 Response Characteristics	f		3000			Hz

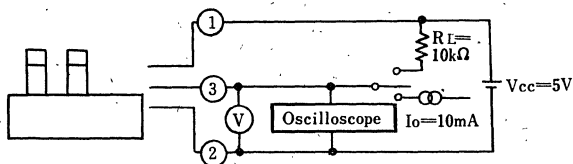
注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
 Note) Normally ON type characteristics is shown, () shows Normally-OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

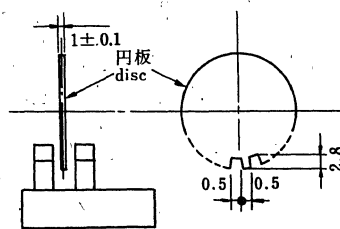
Test circuit



2. 応答周波数測定装置

Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
 Measured by rotating disc in the figure.

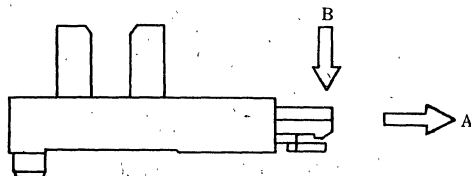


■ 端子強度 / Mechanical Strength of Connectors

Item	試験方法	Test Method	備考
端子強度 Terminal Strength	引張り Pulling	方向 Direction	下図A方向 Figure below A direction
		荷重 Load	2kg/1回 2kg/1 time
		時間 Time	5秒 5 seconds
	押し Pushing	方向 Direction	下図B方向 Figure below B direction
		荷重 Load	1kg/1回 1kg/1 time
		時間 Time	5秒 5 seconds
			電気特性および箔ハゲなど異常なきこと。 After each test, electro-optical characteristics are normal and Cu foil does not come off.

試験方法

Test Method

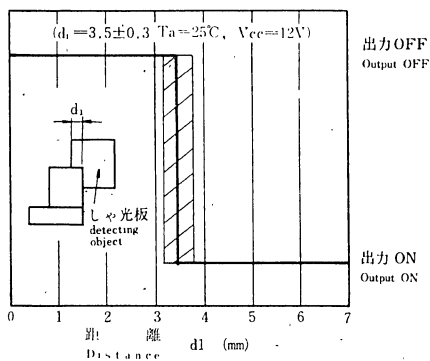


■ ご使用上の注意 / Handling caution

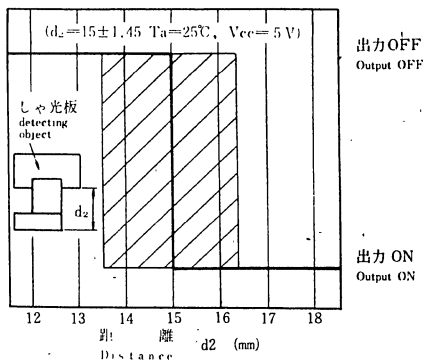
- 1) 洗浄の際、薬品の使用は避けて下さい。 / Chemicals should be avoided when washing.
- 2) 取り付け時のビス締め強度は 6 kg/cm 以下にして下さい。 / Screw crasping intensity of fixing is less than 6kg/cm.

ON1517HO-(M) [投光 OFF タイプ]

[Normally OFF type]



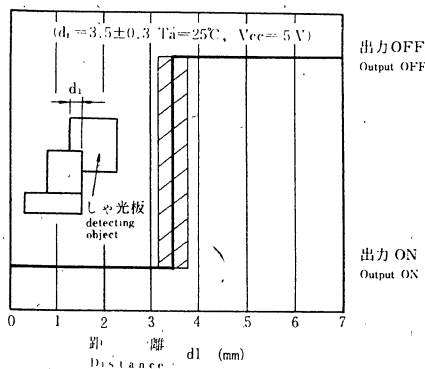
(2) 検知位置特性
Detecting Position Characteristics



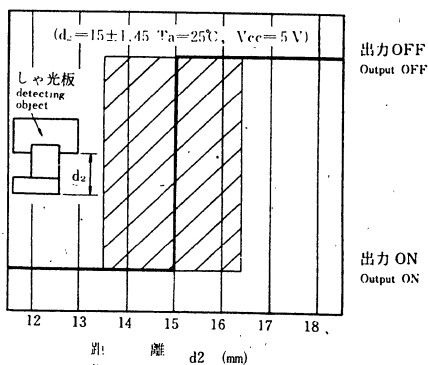
ON1517LO-(M) [投光 ON タイプ]

[Normally ON type]

(1) 検知位置特性
Detecting Position Characteristics



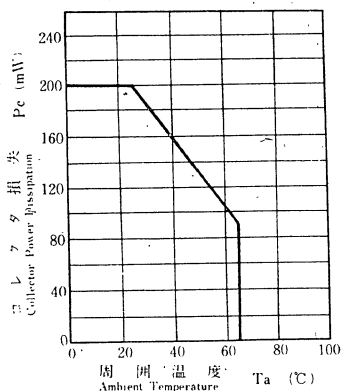
(2) 検知位置特性
Detecting Position Characteristics



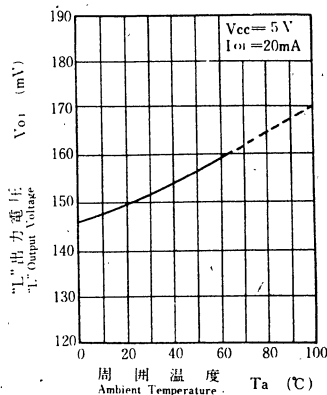
共通特性図

Common characteristics

Pc-Ta



VoL-Ta



ON1531HA-(A), ON1531LA-(A)

概要

ON1531HA-(A), ON1531LA-(A)は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

特長

- ・アンプ内蔵形で小形、高信頼性。
- ・位置検知精度が高い。
- ・オープンコレクタ出力。
- ・接続端子は小形コネクタを使用。
- ・ワンタッチ取り付けタイプ。
- ・光照射時に出力トランジスタがON, OFFする(2種類)。
ON1531HA-(A): 投光 OFF タイプ
ON1531LA-(A): 投光 ON タイプ

用途

- ・複写機の紙検知, 位置検知
- ・シーケンス制御のセンサ
- ・NC工作機械のリミット位置検知
- ・回転数, 回転速度検知
- ・X-Yテーブルの位置検知
- ・エンコーダ

Outline

The ON1531HA-(A) and ON1531LA-(A) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

Features

- ・Small size and high reliability
- ・High positional resolution
- ・Open-collector output
- ・Power supply, output connection with small connector
- ・Easy to fix
- ・ON1531HA-(A): Normally OFF type
ON1531LA-(A): Normally ON type

Use

- ・Paper detection of copying machine, position detection
- ・Sensor of sequence control
- ・Limit position detection of NC equipment
- ・Detection of rotary positioning and speed
- ・Position detection of X-Y table
- ・Encoder

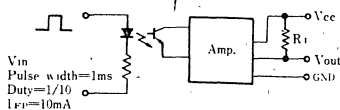
絶対最大定格 / Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	0.30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0 ~ +65 °C
保存温度	Storage Temperature	T _{stg}	-10 ~ +75 °C

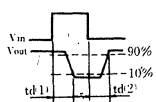
電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧	Supply Voltage	V _{CC}	4.75	5.00	5.25	V
"H" 出力電圧	"H" Output Voltage	V _{OH} { 物体検知時 (物体非検知時) V _{CC} =5V, R _L =10kΩ { Object at Detection { Object at Non Detection) V _{CC} =5V, R _L =10kΩ	4.0			V
"L" 出力電圧	"L" Output Voltage	V _{OL} { 物体非検知時 (物体検知時) V _{CC} =5V, I _O =10mA { Object at Non Detection { (Object at Detection) V _{CC} =5V, I _O =10mA		0.2	0.4	V
遅れ時間 (1)	Delay time (1)	t _{d(1)} *		10		μs
遅れ時間 (2)	Delay time (2)	t _{d(2)} *		20		μs

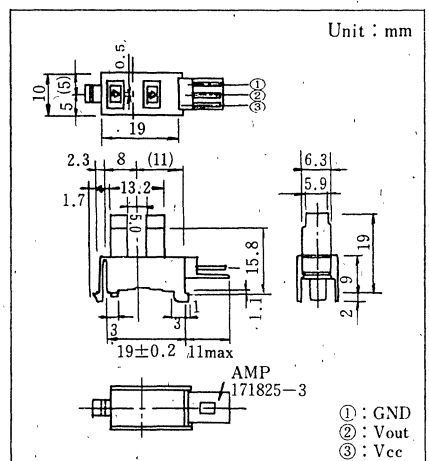
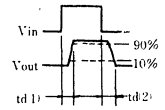
* 試験回路 (LED 強制パルス駆動)
Test circuit (LED forced pulse driving)



投光 ON タイプ: ON1531LA-(A)
Normally ON type: ON1531LA-(A)



投光 OFF タイプ: ON1531HA-(A)
Normally OFF type: ON1531HA-(A)

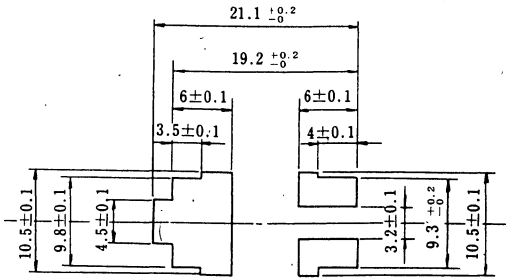
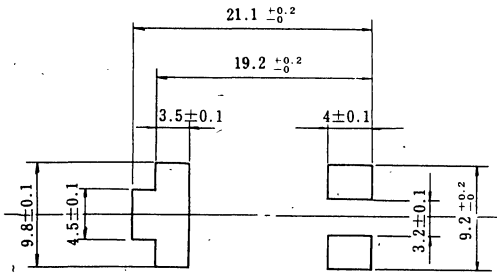


■ 推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)

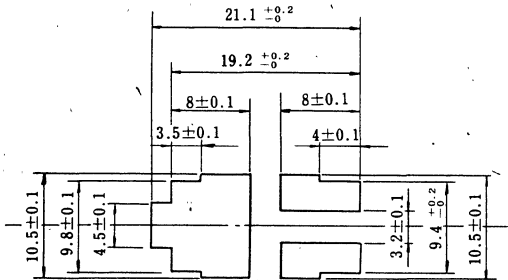
Recommendation figure for fixing hole (Figure from the press side)

(1) For $t = 0.9 \sim 1.1$ mm

(2) For $t = 1.2 \sim 1.4$ mm

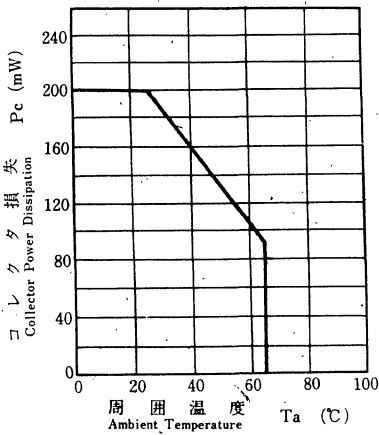


(3) For $t = 1.5 \sim 1.7$ mm

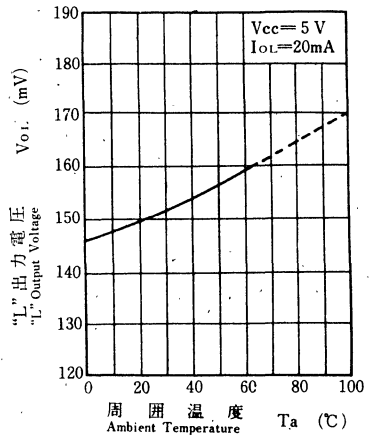


プレス側からの
挿入取り付け推奨穴図です

$P_c - T_a$



$V_{OL} - T_a$



ON1531HA-(M), ON1531LA-(M)

■ 概要

ON1531HA-(M), ON1531LA-(M)は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■ 特長

- ・アンプ内蔵形で小形、高信頼性。
- ・位置検知精度が高い。
- ・オープンコレクタ出力。
- ・接続端子は小形コネクタを使用。
- ・ワンタッチ取り付けタイプ。
- ・光照射時に出力トランジスタがON, OFFする(2種類)。
ON1531HA-(M) : 投光OFFタイプ
ON1531LA-(M) : 投光ONタイプ

■ 用途

- ・複写機の紙検知, 位置検知
- ・シーケンス制御のセンサ
- ・NC工作機械のリミット位置検知
- ・回転数, 回転速度検知
- ・X-Yテーブルの位置検知
- ・エンコーダ

■ Outline

The ON1531HA-(M) and ON1531LA-(M) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■ Features

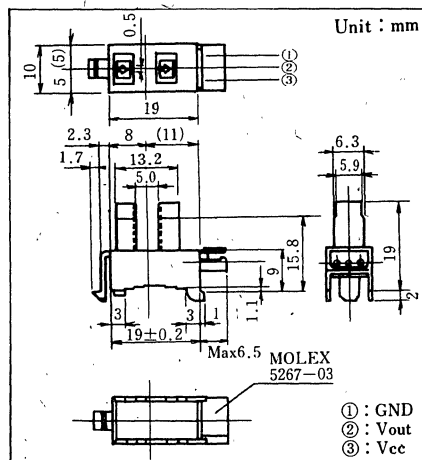
- ・Small size and high reliability
- ・High positional resolution
- ・Open-collector output
- ・Power supply, output connection with small connector
- ・Easy to fix
- ・ON1531HA-(M) : Normally OFF type
ON1531LA-(M) : Normally ON type

■ Use

- ・Paper detection of copying machine, position-detection
- ・Sensor of sequence control
- ・Limit position detection of NC equipment
- ・Detection of rotary positioning and speed
- ・Position detection of X-Y table
- ・Encoder

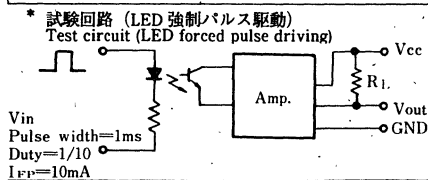
■ 絶対最大定格 / Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit	
電源電圧	Supply Voltage	V _{CC}	6	V
出力電圧	Output Voltage	V _O	30	V
出力電流	Output Current	I _O	20	mA
コレクタ損失	Collector Power Dissipation	P _C	200	mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0 ~ +65	°C
保存温度	Storage Temperature	T _{stg}	-10 ~ +75	°C

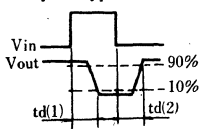


■ 電気的特性 / Electrical Characteristics (Ta=25°C)

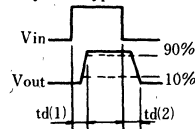
Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧	Supply Voltage	V _{CC}	4.75	5.00	5.25	V
"H" 出力電圧	"H" Output Voltage	V _{OH} { 物体検知時 (物体非検知時) V _{CC} =5V, R _L =10kΩ Object at Detection (Object at Non Detection) V _{CC} =5V, R _L =10kΩ	4.0			V
"L" 出力電圧	"L" Output Voltage	V _{OL} { 物体非検知時 (物体検知時) V _{CC} =5V, I _O =10mA Object at Non Detection (Object at Detection) V _{CC} =5V, I _O =10mA		0.2	0.4	V
遅れ時間 (1)	Delay time (1)	t _{d(1)} * V _{CC} =5V, R _L =1.5kΩ		10		μs
遅れ時間 (2)	Delay time (2)	t _{d(2)} *		20		μs



投光 ON タイプ: ON1531LA-(M)
Normally ON type: ON1531LA-(M)



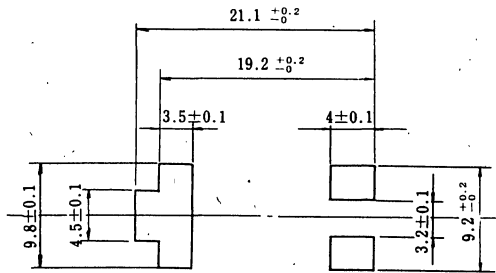
投光 OFF タイプ: ON1531HA-(M)
Normally OFF type: ON1531HA-(M)



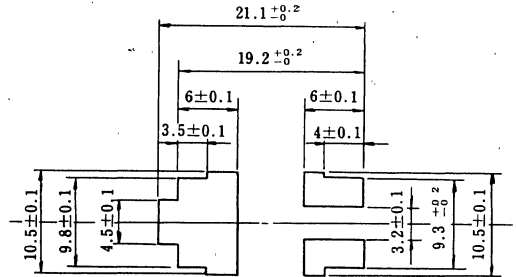
■ 推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)

Recommendation figure for fixing hole (Figure from the press side)

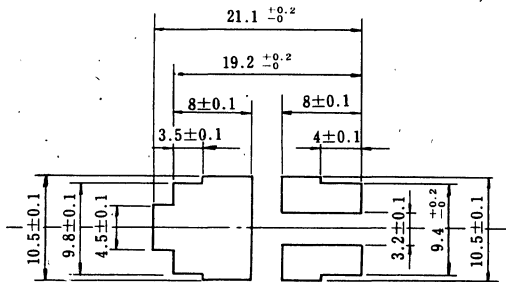
(1) For $t = 0.9 \sim 1.1 \text{ mm}$



(2) For $t = 1.2 \sim 1.4 \text{ mm}$



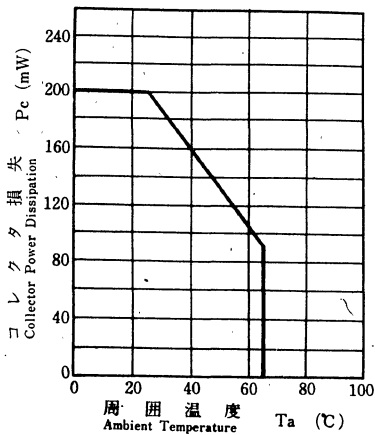
(3) For $t = 1.5 \sim 1.7 \text{ mm}$



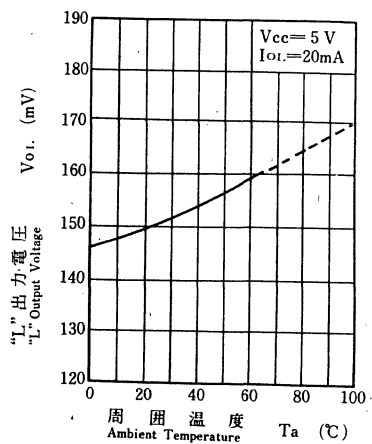
プレス側からの
挿入取り付け推奨穴図です

共通特性図
Common characteristics

$P_c - T_a$



$V_{OL} - T_a$



ON1531HA2-(A)4, ON1531LA2-(A)4

■ 概要

ON1531HA2-(A)4, ON1531LA2-(A)4 は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■ 特長

- アンブ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- ワンタッチ取り付けタイプ。
- 光照射時に出力トランジスタがON, OFFする(2種類)。
ON1531HA2-(A)4: 投光OFFタイプ
ON1531LA2-(A)4: 投光ONタイプ

■ 用途

- 複写機の紙検知, 位置検知
- シーケンス制御のセンサ
- NC工作機械のリミット位置検知
- 回転数, 回転速度検知
- X-Yテーブルの位置検知
- エンコーダ

■ Outline

The ON1531HA2-(A)4 and ON1531LA2-(A)4 are small, light weight, high precision and high reliability photosensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■ Features

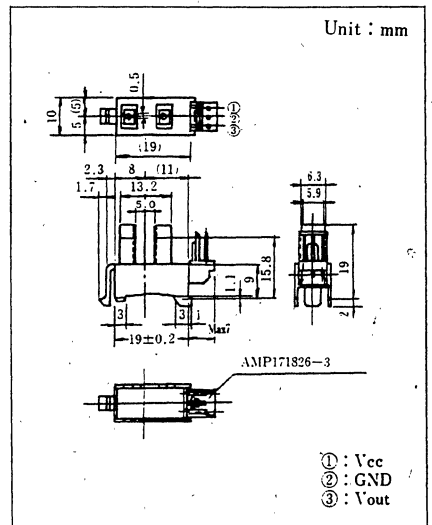
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- Easy to fix
- ON1531HA2-(A)4: Normally OFF type
ON1531LA2-(A)4: Normally ON type

■ Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

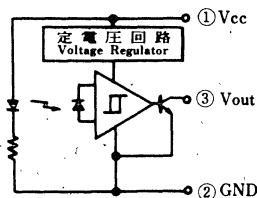
■ 絶対最大定格 / Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0 ~ +65 °C
保存温度	Storage Temperature	T _{stg}	-10 ~ +75 °C

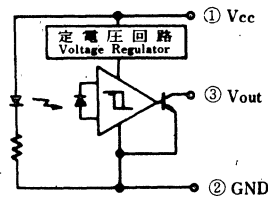


■ ピン接続図 / Pin Connections

ON1531HA2-(A)4
(投光 OFF タイプ / Normally OFF type)



ON1531LA2-(A)4
(投光 ON タイプ / Normally ON type)



電気的特性/Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		4.5	5.00	5.5	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	物体検知時 (物体非検知時) $V_{CC}=5V, R_L=4.7k\Omega$ Object at Detection (Object at Non Detection) $V_{CC}=5V, R_L=4.7k\Omega$	4.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	物体非検知時 (物体検知時) $V_{CC}=5V, I_O=10mA$ Object at Non Detection (Object at Detection) $V_{CC}=5V, I_O=10mA$		0.2	0.4	V
応答周波数 Response Characteristics	f^*		3000			Hz

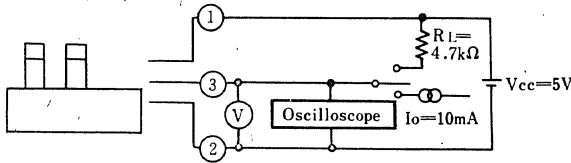
注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。/Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

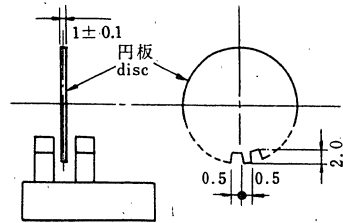
Test circuit



2. 応答周波数測定装置

Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
Measured by rotating disc in the figure.

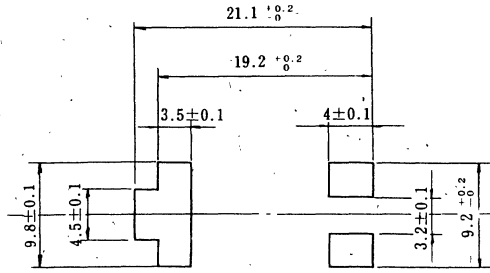


ご使用上の注意/Handling caution

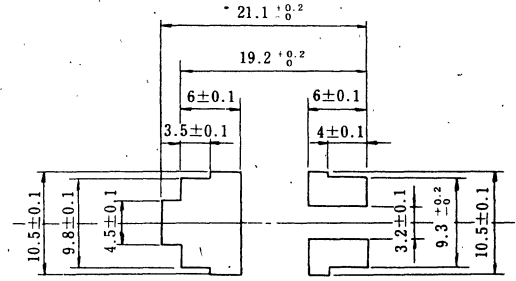
- 洗浄の際、薬品の使用は避けて下さい。/Chemicals should be avoided when washing.

■ 推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)
 Recommendation figure for fixing hole (Figure from the press side)

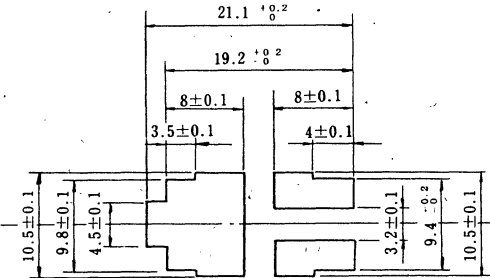
(1) For $t = 0.9 \sim 1.1 \text{ mm}$



(2) For $t = 1.2 \sim 1.4 \text{ mm}$



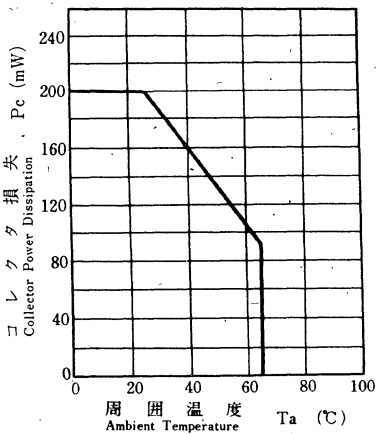
(3) For $t = 1.5 \sim 1.7 \text{ mm}$



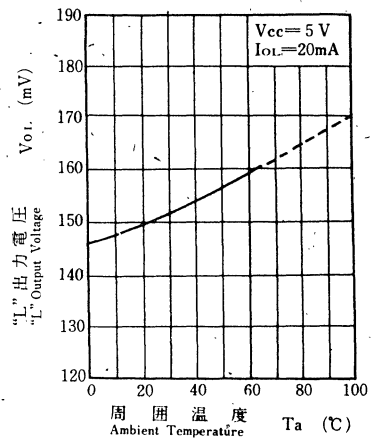
プレス側からの
挿入取り付け推奨穴図です

共通特性図
 Common characteristics

$P_c - T_a$



$V_{OL} - T_a$



ON1531HC-(A), ON1531LC-(A)

■概要

ON1531HC-(A), ON1531LC-(A)は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■特長

- アンプ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- ワンタッチ取り付けタイプ。
- 光照射時に出力トランジスタがON, OFFする(2種類)。
ON1531HC-(A): 投光 OFF タイプ
ON1531LC-(A): 投光 ON タイプ

■用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Yテーブルの位置検知
- エンコーダ

■Outline

The ON1531HC-(A) and ON1531LC-(A) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■Features

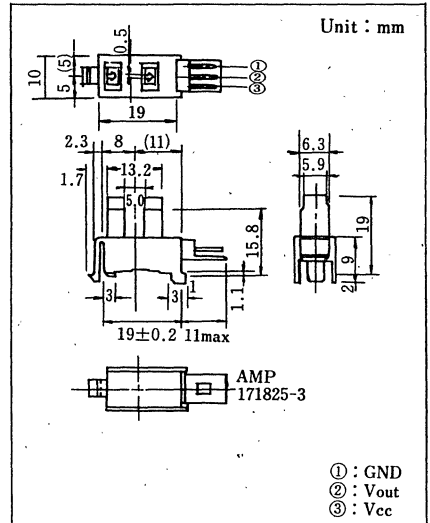
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- Easy to fix
- ON1531HC-(A): Normally OFF type
ON1531LC-(A): Normally ON type

■Use

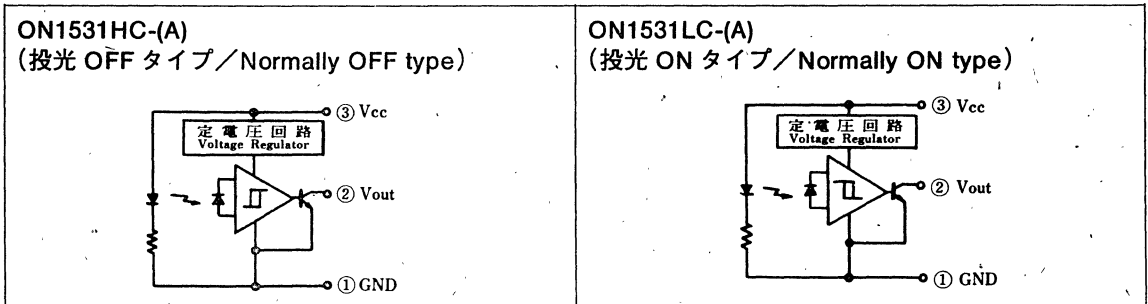
- Paper detection of copying machine, position detection
- Limit position detection of NC equipment
- Position detection of X-Y table
- Sensor of sequence control
- Detection of rotary positioning and speed
- Encoder

■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	15 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	Topr	-0~+65 °C
保存温度	Storage Temperature	Tstg	-10~+75 °C



■ピン接続図/ Pin Connections



■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		11.5	12.0	12.5	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	物体検知時 (物体非検知時) $V_{CC}=12V, R_L=10k\Omega$ Object at Detection (Object at Non Detection) $V_{CC}=12V, R_L=10k\Omega$	11.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	物体非検知時 (物体検知時) $V_{CC}=12V, I_O=10mA$ Object at Non Detection (Object at Detection) $V_{CC}=12V, I_O=10mA$		0.2	0.4	V
応答周波数 Response Characteristics	f		3000			Hz

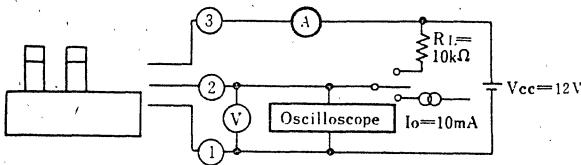
注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
 Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

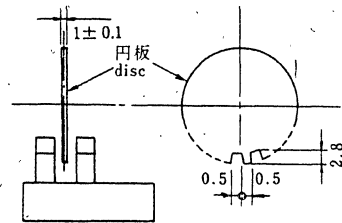
Test circuit



2. 応答周波数測定装置

Measuring equipment of response frequency

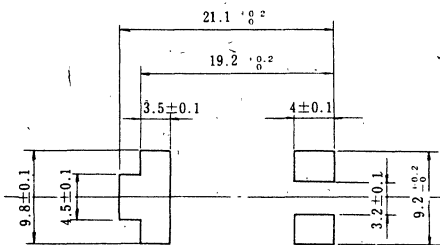
下図の円板を回転させ測定を行う。
 Measured by rotating disc in the figure.



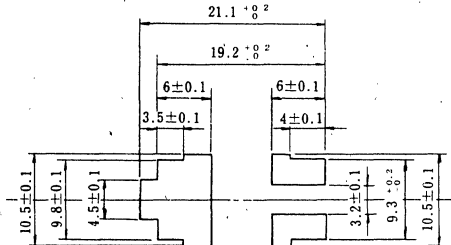
■ 推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)

Recommendation figure for fixing hole (Figure from the press side)

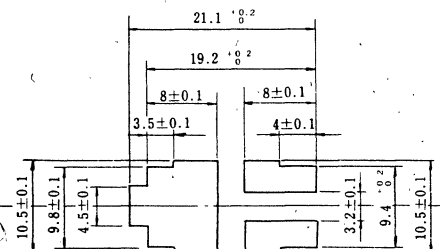
(1) For t = 0.9~1.1mm



(2) For t = 1.2~1.4mm

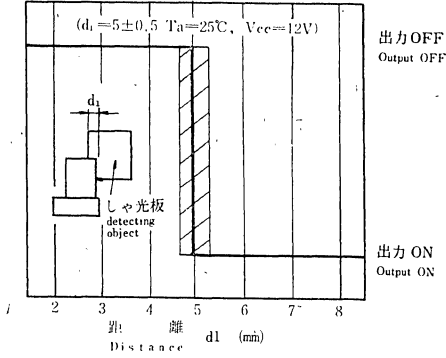


(3) For t = 1.5~1.7mm

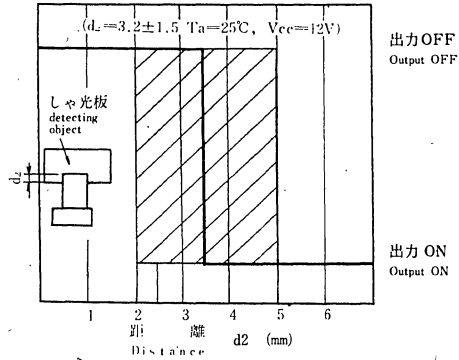


ON1531HC-(A) (投光 OFF タイプ)
[Normally OFF type]

(1) 検知位置特性
Detecting Position Characteristics

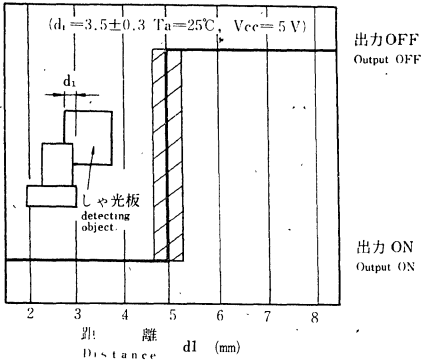


(2) 検知位置特性
Detecting Position Characteristics

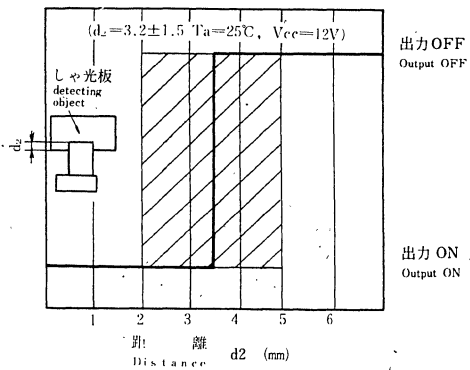


ON1531LC-(A) (投光 ON タイプ)
[Normally ON type]

(1) 検知位置特性
Detecting Position Characteristics

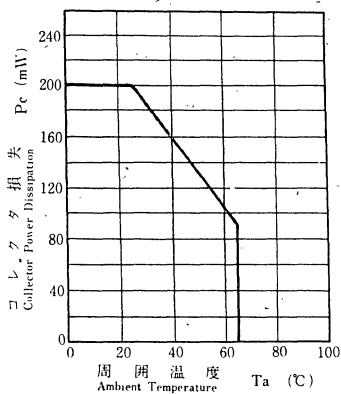


(2) 検知位置特性
Detecting Position Characteristics

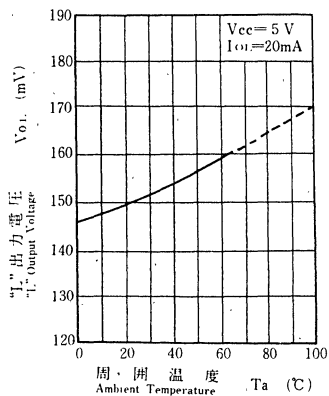


共通特性図
Common characteristics

Pc-Ta



VOL-Ta



ON1531HD-(A), ON1531LD-(A)

■概要

ON1531HD-(A), ON1531LD-(A)は、発光素子に高効率のGaAs赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■特長

- アンプ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- ワンタッチ取り付けタイプ。
- 照射時に出力トランジスタがON, OFFする(2種類)。

ON1531HD-(A): 投光 OFF タイプ

ON1531LD-(A): 投光 ON タイプ

■用途

- 複写機の紙検知, 位置検知
- シーケンス制御のセンサ
- NC工作機械のリミット位置検知
- 回転数, 回転速度検知
- X-Y テーブルの位置検知
- エンコーダ

■Outline

The ON1531HD-(A) and ON1531LD-(A) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■Features

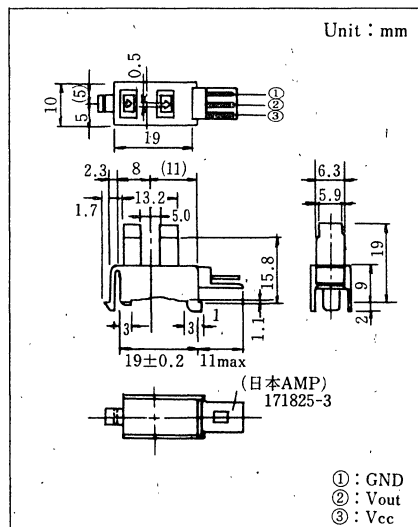
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- Easy to fix
- ON1531HD-(A): Normally OFF type
- ON1531LD-(A): Normally ON type

■Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

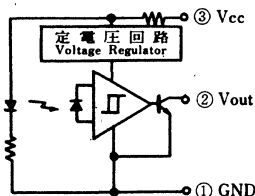
■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V_{CC}	30 V
出力電圧	Output Voltage	V_O	30 V
出力電流	Output Current	I_O	20 mA
コレクタ損失	Collector Power Dissipation	P_C	200 mW
動作周囲温度	Operating Ambient Temperature	T_{opr}	0~+65 °C
保存温度	Storage Temperature	T_{stg}	-10~+75 °C

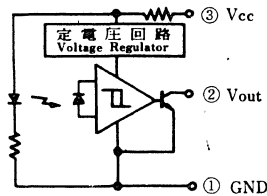


■ピン接続図/Pin Connections

ON1531HD-(A)
(投光 OFF タイプ/Normally OFF type)



ON1531LD-(A)
(投光 ON タイプ/Normally ON type)



ホトセンサユニット(透過形) Photosensor Units (Transmittive Type)

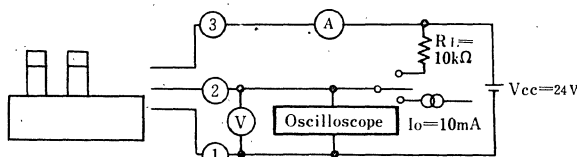
■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		22	24	26	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	{ 物体検知時 (物体非検知時) $V_{CC}=24V, R_L=10k\Omega$ { Object at Detection { Object at Non Detection $V_{CC}=24V, R_L=10k\Omega$	23			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	{ 物体非検知時 (物体検知時) $V_{CC}=24V, I_O=10mA$ { Object at Non Detection { Object at Detection $V_{CC}=24V, I_O=10mA$		0.2	0.6	V
応答周波数 Response Characteristics	f^*		3000			Hz

注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
 Note) Normally ON type characteristics is shown, () shows Normally OFF type.

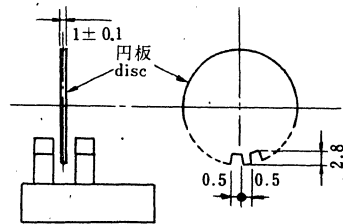
* 応答周波数試験条件
 Response time test condition

1. 試験回路
 Test circuit



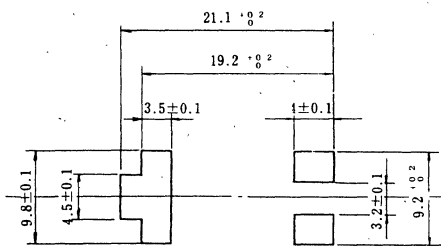
2. 応答周波数測定装置
 Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
 Measured by rotating disc in the figure.

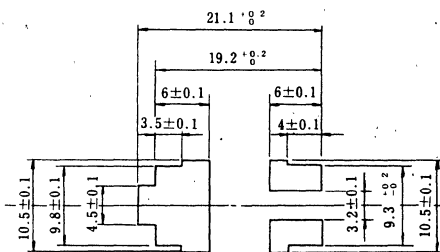


■ 推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)
 Recommendation figure for fixing hole (Figure from the press side)

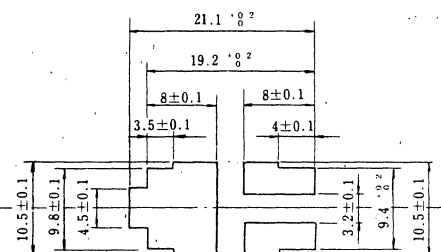
(1) For $t=0.9\sim 1.1mm$



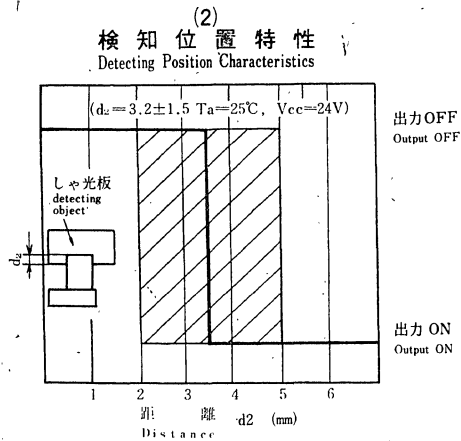
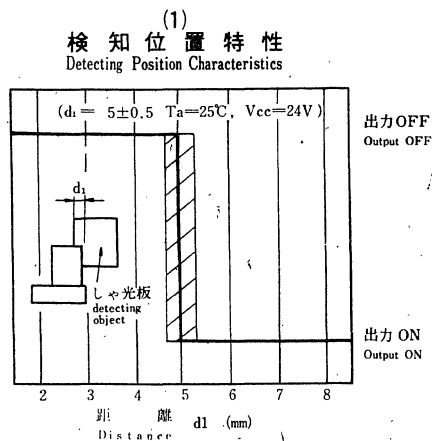
(2) For $t=1.2\sim 1.4mm$



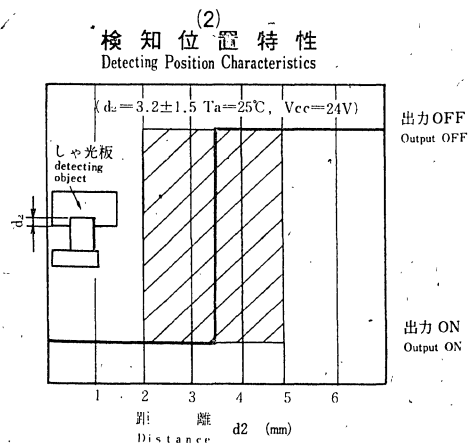
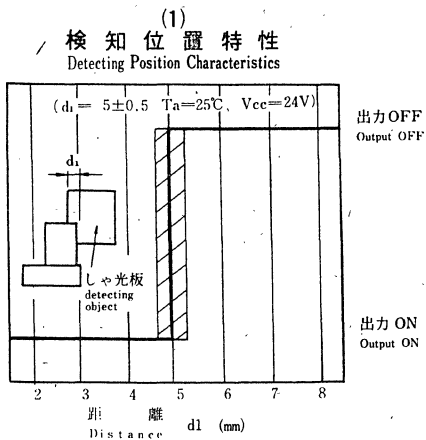
(3) For $t=1.5\sim 1.7mm$



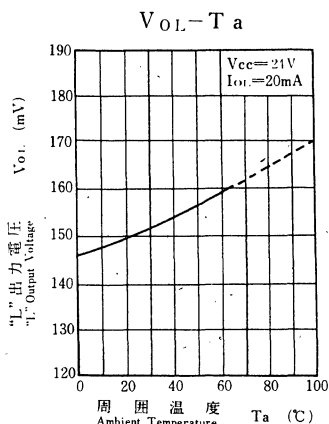
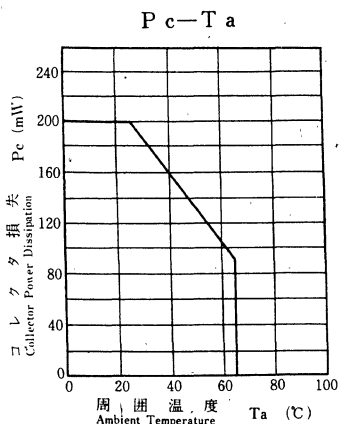
ON1531HD-(A) [投光 OFF タイプ]
[Normally OFF type]



ON1531LD-(A) [投光 ON タイプ]
[Normally ON type]



共通特性図
Common characteristics



ON1542HA3-(J), ON1542LA3-(J)

概要

ON1542HA3-(J), ON1542LA3-(J) は、発光素子に高効率の GaAs 赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

特長

- アンプ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- ワンタッチ取り付けタイプ。
- 光照射時に出力トランジスタが ON, OFF する(2種類)。
ON1542HA3-(J) : 投光 OFF タイプ
ON1542LA3-(J) : 投光 ON タイプ

用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC 工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Y テーブルの位置検知
- エンコーダ

Outline

The ON1542HA3-(J) and ON1542LA3-(J) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

Features

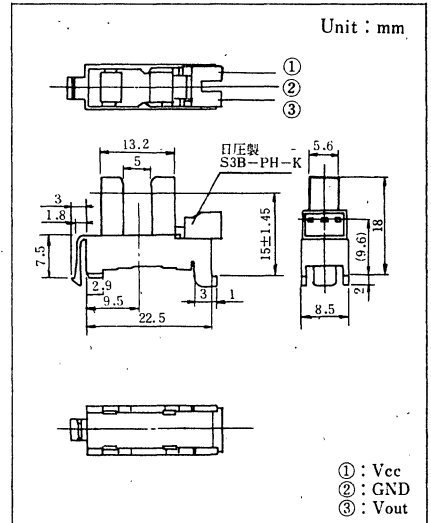
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- Easy to fix
- ON1542HA3-(J) : Normally OFF type
ON1542LA3-(J) : Normally ON type

Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

絶対最大定格 / Absolute Maximum Ratings (Ta=25°C)

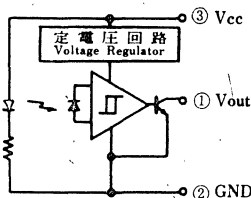
Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0~+65 °C
保存温度	Storage Temperature	T _{stg}	-10~+75 °C



ピン接続図 / Pin Connections

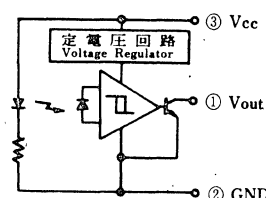
ON1542HA3-(J)

(投光 OFF タイプ / Normally OFF type)



ON1542LA3-(J)

(投光 ON タイプ / Normally ON type)



■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		4.75	5	5.25	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	物体検知時 (物体非検知時) $V_{CC}=5V, R_L=10k\Omega$ Object at Detection (Object at Non Detection) $V_{CC}=5V, R_L=10k\Omega$	4.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	物体非検知時 (物体検知時) $V_{CC}=5V, I_O=10mA$ Object at Non Detection (Object at Detection) $V_{CC}=5V, I_O=10mA$		0.2	0.4	V
応答周波数 Response Characteristics	f		3000			Hz

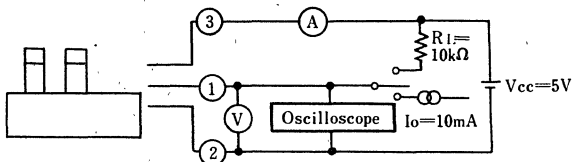
注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
 Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

1. 試験回路

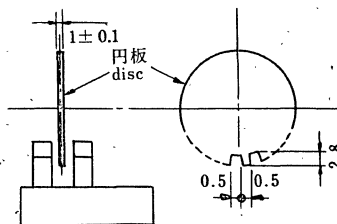
Test circuit



2. 応答周波数測定装置

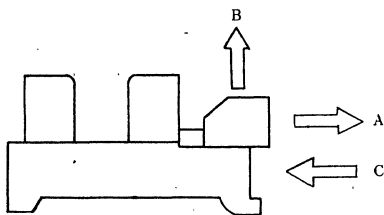
Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
 Measured by rotating disc in the figure.



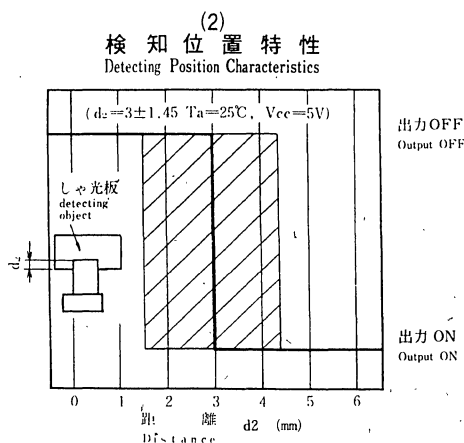
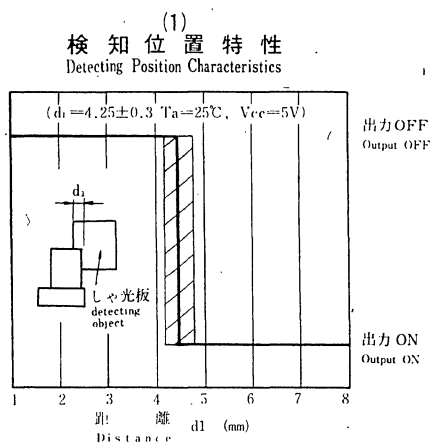
■ 端子強度 / Mechanical Strength of Connectors

Item	試験方法	Test Method	備考	
端子強度 Terminal Strength	引張り Pulling	方向 Direction	下図A方向 Figure below A direction	
		荷重 Load	2kg/1回 2 kg/1 time	
		時間 Time	5秒 5 seconds	
	引張り Pulling	方向 Direction	下図B方向 Figure below B direction	電気特性および箔ハゲなど異常なきこと。 After each test, electro-optical characteristics are normal and Cu foil does not come off.
		荷重 Load	1kg/1回 1 kg/1 time	
		時間 Time	5秒 5 seconds	
押し Pushing	方向 Direction	下図C方向 Figure below C direction		
	荷重 Load	2kg/1回 2 kg/1 time		
	時間 Time	5秒 5 seconds		



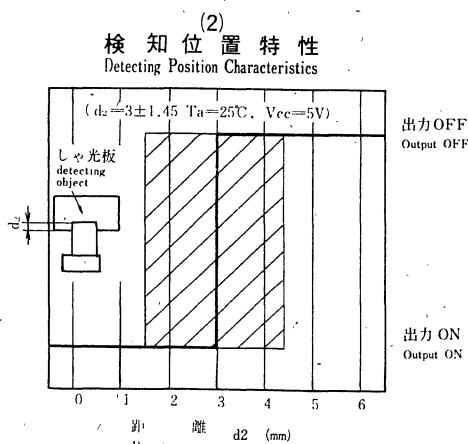
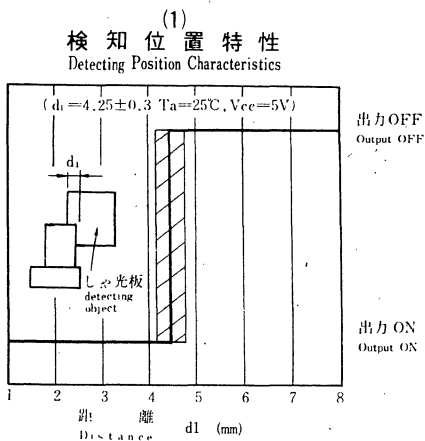
ON1542HA3-(J) [投光 OFF タイプ]

[Normally OFF type]



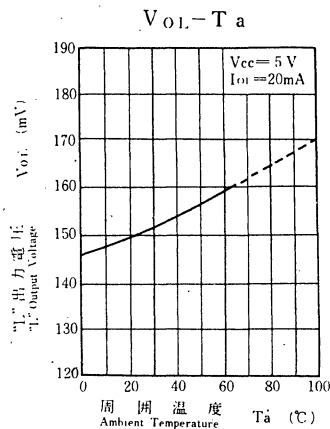
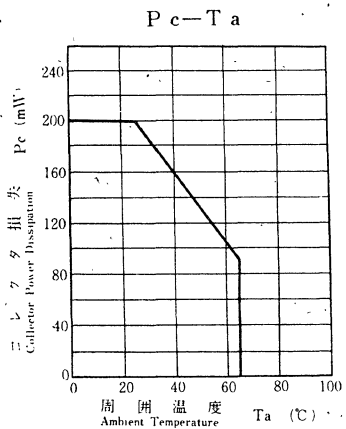
ON1542LA3-(J) [投光 ON タイプ]

[Normally ON type]



共通特性図

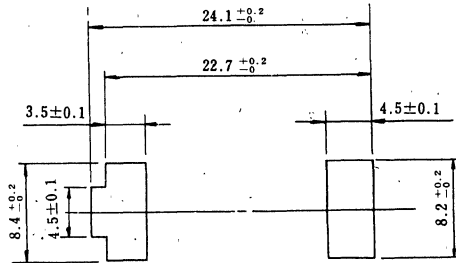
Common characteristics



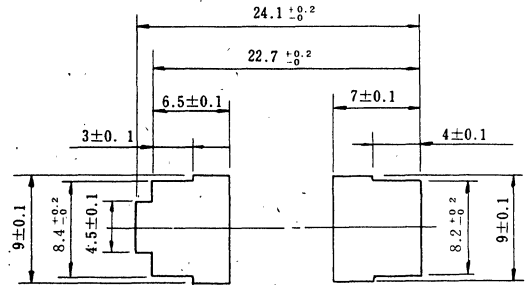
ホトセンサユニット (透過形) Photosensor Units (Transmittive Type)

■推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)
 Recommendation figure for fixing hole (Figure from the press side)

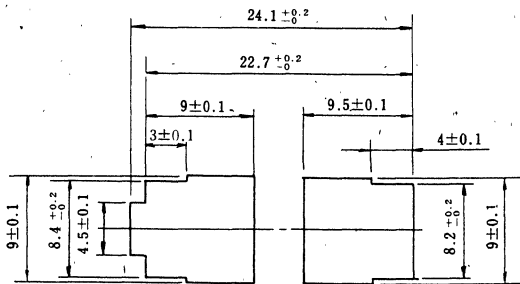
(1) For $t=1.0\text{mm}$



(2) For $t=1.2\text{mm}$



(3) For $t=1.6\text{mm}$



(注) プレス側からの
挿入取り付けは推奨穴図です

ON1542HA5-(H), ON1542LA5-(H)

■概要

ON1542HA5-(H), ON1542LA5-(H) は、発光素子に高効率の GaAs 赤外発光ダイオードを、受光部にホトダイオードと信号処理回路を1チップに集積化した集積化受光素子を使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■特長

- アンプ内蔵形で小形、高信頼性。
- 位置検知精度が高い。
- オープンコレクタ出力。
- 接続端子は小形コネクタを使用。
- ワンタッチ取り付けタイプ。
- 光照射時に出力トランジスタがオン、オフする(2種類)。
ON1542HA5-(H) : 投光 OFF タイプ
ON1542LA5-(H) : 投光 ON タイプ

■用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC 工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Y テーブルの位置検知
- エンコーダ

■Outline

The ON1542HA5-(H), and ON1542LA5-(H) are small, light weight, high precision and high reliability photo sensor units composed of a high effective GaAs infrared light emitting diode and an integrated photodiode and signal processing circuit.

■Features

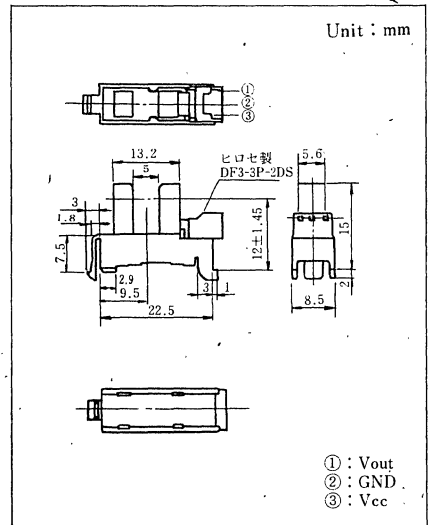
- Small size and high reliability
- High positional resolution
- Open-collector output
- Power supply, output connection with small connector
- Easy to fix
- ON1542HA5-(H) : Normally OFF type
ON1542LA5-(H) : Normally ON type

■Use

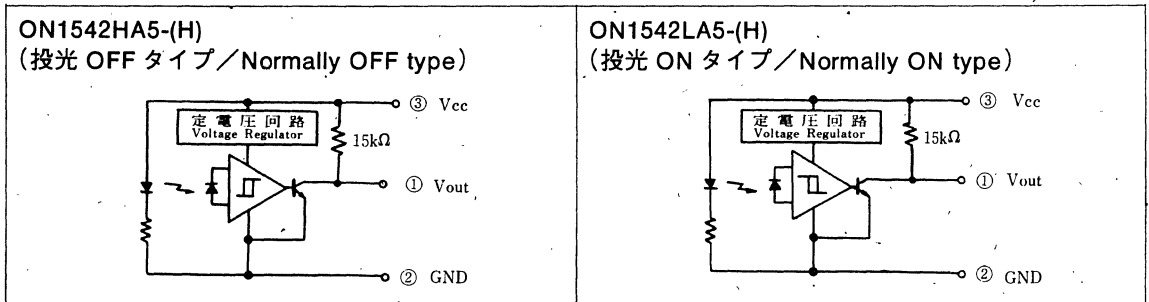
- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V _{CC}	6 V
出力電圧	Output Voltage	V _O	30 V
出力電流	Output Current	I _O	20 mA
コレクタ損失	Collector Power Dissipation	P _C	200 mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0~+65 °C
保存温度	Storage Temperature	T _{stg}	-10~+75 °C



■ピン接続図/Pin Connections



■ 電気的特性 / Electrical Characteristics (Ta=25°C)

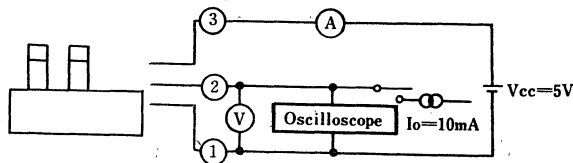
Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		4.75	5	5.25	V
"H" 出力電圧 "H" Output Voltage	V_{OH}	物体検知時 (物体非検知時) $V_{CC}=5V$ Object at Detection (Object at Non Detection) $V_{CC}=5V$	4.0			V
"L" 出力電圧 "L" Output Voltage	V_{OL}	物体非検知時 (物体検知時) $V_{CC}=5V, I_O=10mA$ Object at Non Detection (Object at Detection) $V_{CC}=5V, I_O=10mA$		0.2	0.4	V
応答周波数 Response Characteristics	f^*		3000			Hz

注) 投光 ON タイプの特性を示す。() 内は投光 OFF タイプを示す。
 Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* 応答周波数試験条件

Response time test condition

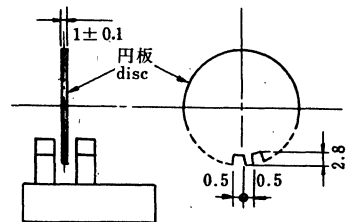
1. 試験回路
Test circuit



2. 応答周波数測定装置

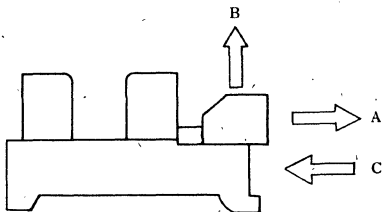
Measuring equipment of response frequency

下図の円板を回転させ測定を行う。
 Measured by rotating disc in the figure.

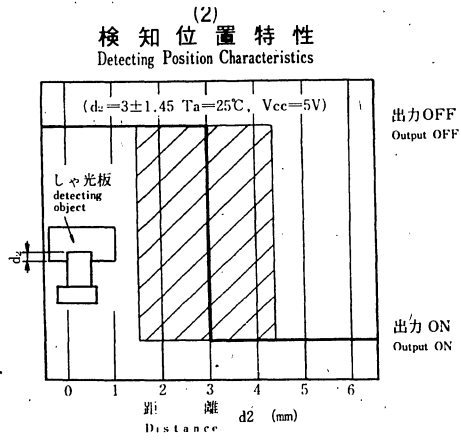
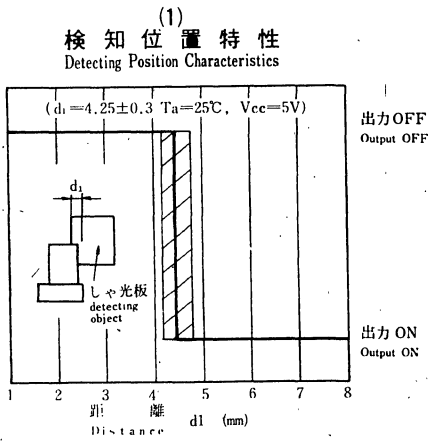


■ 端子強度 / Mechanical Strength of Connectors

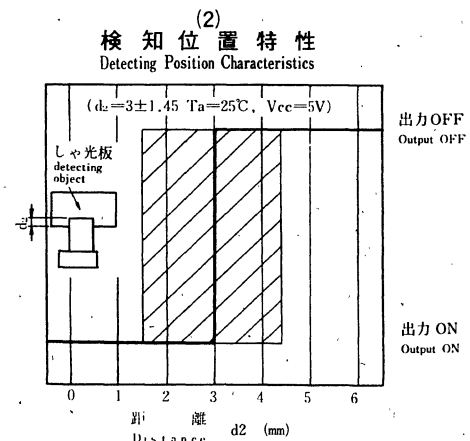
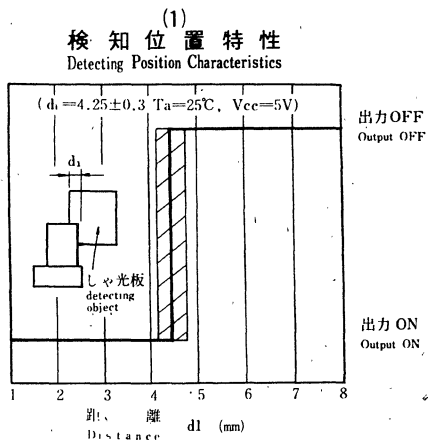
Item	試験方法	Test Method	備考	
端子強度 Terminal Strength	引張り Pulling	方向 Direction	下図A方向 Figure below A direction	
		荷重 Load	2kg / 1回 2kg/1 time	
		時間 Time	5秒 5 seconds	
	引張り Pulling	方向 Direction	下図B方向 Figure below B direction	電気特性および箔ハゲなど異常なきこと。 After each test, electro-optical characteristics are normal and Cu foil does not come off.
		荷重 Load	1kg / 1回 1 kg/1 time	
		時間 Time	5秒 5 seconds	
	押し Pushing	方向 Direction	下図C方向 Figure below C direction	
		荷重 Load	2kg / 1回 2 kg/1 time	
		時間 Time	5秒 5 seconds	



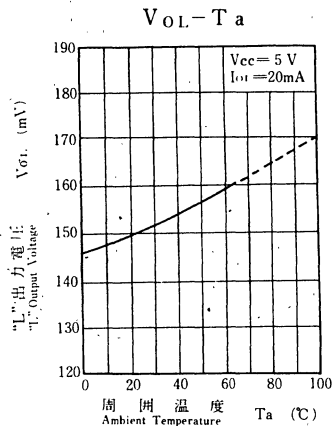
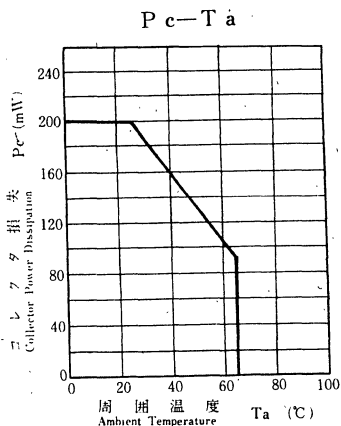
ON1542HA5-(H) [投光 OFF タイプ]
[Normally OFF type]



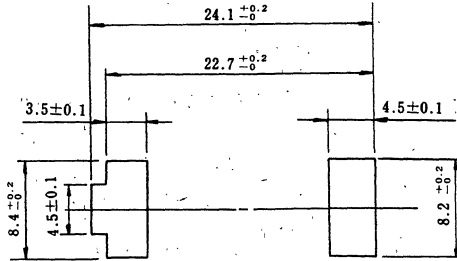
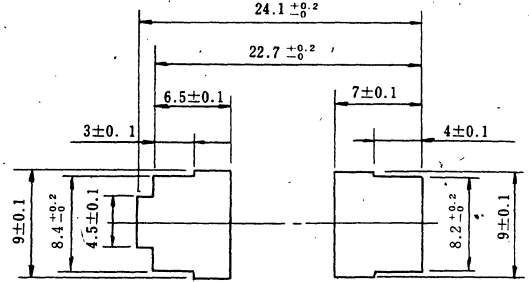
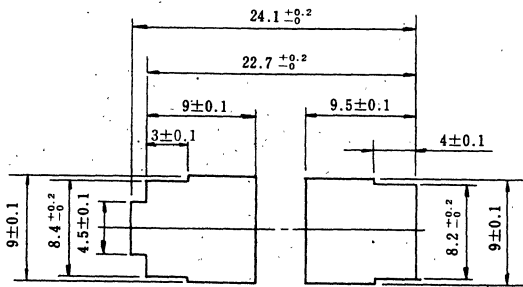
ON1542LA5-(H) [投光 ON タイプ]
[Normally ON type]



共通特性図
Common characteristics



■推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)
 Recommendation figure for fixing hole (Figure from the press side)

(1) For $t = 1.0\text{mm}$ (2) For $t = 1.2\text{mm}$ (3) For $t = 1.6\text{mm}$ 

(注) プレス側からの
挿入取り付け推奨穴図です

ON1541NA-(A)

■概要

ON1541NA-(A)は、発光素子に高効率のGaAs赤外発光ダイオードを、受光素子に高感度のホトトランジスタを使用した小型、軽量、高精度、高信頼性のホトセンサユニットです。

■特長

- 小形、高信頼性。
- 位置検知精度が高い。
- 接続端子は小形コネクタを使用。
- ワンタッチ取り付けタイプ。

■用途

- 複写機の紙検知、位置検知
- シーケンス制御のセンサ
- NC工作機械のリミット位置検知
- 回転数、回転速度検知
- X-Yテーブルの位置検知
- エンコーダ

■Outline

The ON1541NA-(A) are small, light weight, high precision and high reliability photo sensor units composed of high effective GaAs infrared light emitting diode and an phototransistor.

■Features

- Small size and high reliability
- High positional resolution
- Power supply, output connection with small connector
- Easy to fix

■Use

- Paper detection of copying machine, position detection
- Sensor of sequence control
- Limit position detection of NC equipment
- Detection of rotary positioning and speed
- Position detection of X-Y table
- Encoder

■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

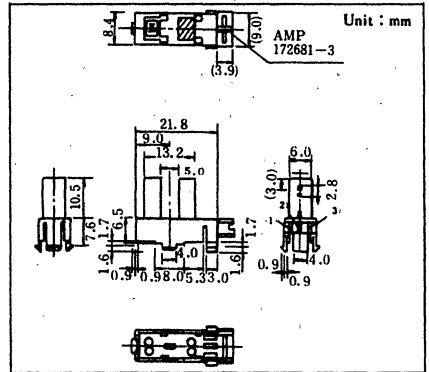
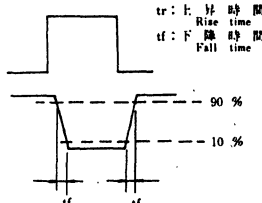
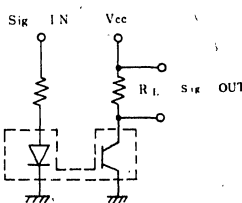
Item	Symbol	Value	Unit
入力(発光ダイオード) Input (Light Emitting Diode)	逆電圧(直流値) Reverse Voltage (DC)	V_R	3 V
	順電流(直流値) Forward Current (DC)	I_F	50 mA
	許容損失 Power Dissipation	P_D^{*1}	75 mW
出力(ホトトランジスタ) Output (Photo Transistor)	コレクタ電流 Collector Current	I_C	20 mA
	コレクタ・エミッタ電圧 Collector to Emitter Voltage	V_{CEO}	20 V
	エミッタ・コレクタ電圧 Emitter to Collector Voltage	V_{ECO}	5 V
	コレクタ損失 Collector Power Dissipation	P_C^{*2}	100 mW
温度 Temperature	動作周囲温度 Operating Ambient Temperature	T_{opr}	-25~+75 °C
	保存温度 Storage Temperature	T_{stg}	-30~+85 °C

*1 入力側の電力低減率は Ta=25°C 以上で 1.0mW/°C /Derate (1.0 mW/°C) above 25°C ambient.
*2 出力側の電力低減率は Ta=25°C 以上で 1.34mW/°C /Derate (1.34 mW/°C) above 25°C ambient.

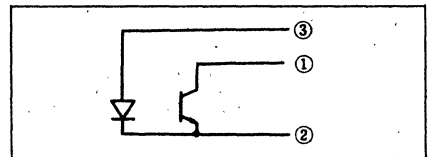
■電気的光学的特性/Electro-Optical Characteristics (Ta=25°C)

Item	Symbol	Value	Unit
入力特性 Input Characteristics	順電圧(直流値) Forward Voltage (DC)	V_F	$I_F=50mA$ 1.5 V
	逆電流(直流値) Reverse Current (DC)	I_R	$V_R=3V$ 10 μA
出力特性 Output Characteristics	コレクタシャ断電流 Collector Cut off Current	I_{CEO}	$V_{CE}=10V$ 0.01 1 μA
伝達特性 Coupled Characteristics	コレクタ出力電流 Collector Output Current	I_C	$V_{CE}=5V, I_F=10mA$ 0.5 7.5 mA
	上昇時間 Rise Time	t_r^*	$V_{CC}=10V, I_C=1mA, R_L=100\Omega$ 6 μs
	下降時間 Fall Time	t_f^*	$V_{CC}=10V, I_C=1mA, R_L=100\Omega$ 6 μs
	コレクタ・エミッタ飽和電圧 Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F=20mA, I_C=1mA$ 0.5 V

*スイッチングタイム測定回路/Switching Time Measuring Circuit



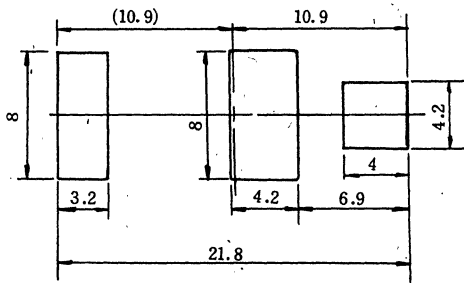
■ピン接続図/Pin Connections



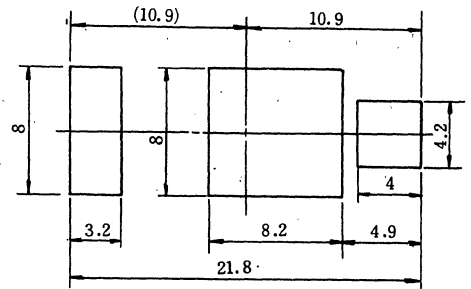
■推奨取り付け穴図 (プレス側からの挿入取り付け推奨穴図)

Recommendation figure for fixing hole (Figure from the press side)

(1) For $t=1.0\text{mm}$



(2) For $t=1.6\text{mm}$



ON2509

■概要

ON2509 は、ハイブリッド技術により、反射形ホトセンサにアンプを内蔵した小型、軽量、高精度、高信頼性のホトセンサユニットです。
物体検知用、無接点スイッチとして特に紙検知用のホトセンサとして最適です。

■特長

- アンプ内蔵形で小形、高信頼性。
- オープンコレクタ出力。
- 検知距離が広い：d=2~7mm。
- 小形コネクタを使用。

■用途

- 複写機の紙検知
- プリンタの紙検知

■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit	
電源電圧	Supply Voltage	V _{CC}	7.2	V
コレクタ損失	Collector Power Dissipation	P _C	360	mW
出力電圧	Output Voltage	V _{O(max)}	24	V
動作周囲温度	Operating Ambient Temperature	T _{opr}	0~+65	°C
保存温度	Storage Temperature	T _{stg}	-20~+75	°C

■電気的特性/Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧	Supply Voltage	V _{CC}	4.5	5.0	5.5	V
電源電流	Supply Current	I _{CC} *1 物体検知時, R _L =∞ Object at Detection, R _L =∞		33		mA
出力吸込電流	Output Sink Current	I _{SINK} *2 物体非検知時, V _O =1.5V Object at Non Detection, V _O =1.5V	6			mA
"L" 出力電圧	"L" Output Voltage	V _{OL} *3 物体非検知時, V _{CC} =5V, I _{SINK} =3mA Object at Non Detection, V _{CC} =5V, I _{SINK} =3mA		0.2	0.4	V
"H" 出力電圧	"H" Output Voltage	V _{OH} *4 物体検知時, R _L =10kΩ V _{CC} =5V, V _O =5V Object at Detection, R _L =10kΩ V _{CC} =5V, V _O =5V	4.7	4.9		V
検知距離	Detection Distance	d*5 V _{CC} =5V		2~7		mm

■Outline

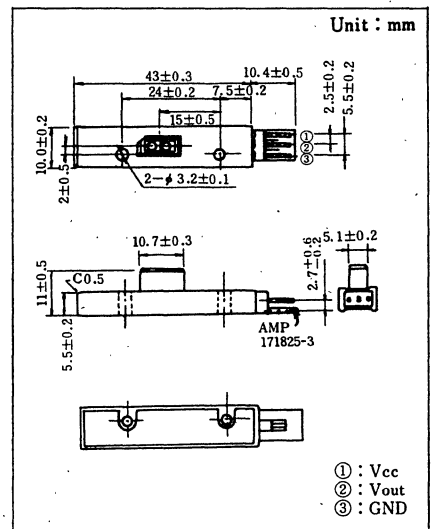
The ON2509 is a small, light weight, highly precise and reliable photo sensor unit incorporating amplifier in the reflective photo sensor by hybrid technique. Widely applied for object detection, contactless switch and especially paper detection.

■Features

- Small size and high reliability
- Open-collector output
- Long detectable distance : d=2~7mm
- Power supply, output connection with small connector

■Use

- Paper detection of copying machine
- Paper detection of printer



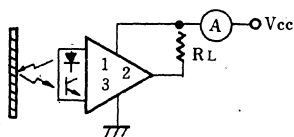
① : Vcc
② : Vout
③ : GND

ホトセンサユニット(反射形)

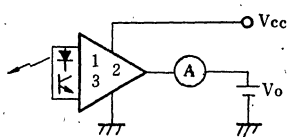
Photosensor Units (Reflective Type)

試験回路
Test circuit

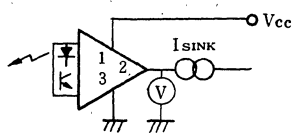
* 1



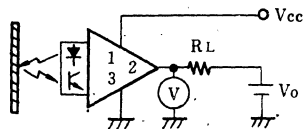
* 2



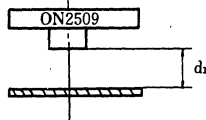
* 3



* 4

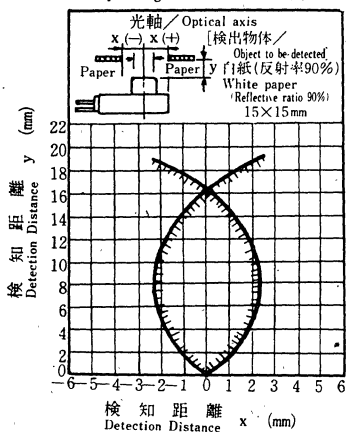


* 5

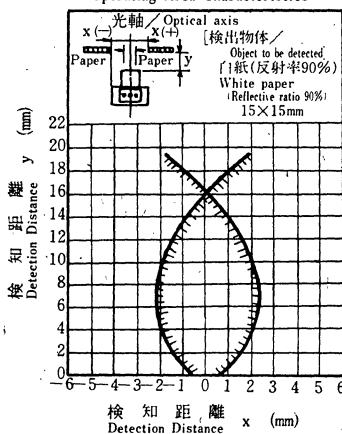


検出対象ペーパー Paper to be detected
 普通紙・OHPシート Ordinary paper・OHP sheet
 トレーシングペーパー tracing paper
 (紙質35GSM以上) (paper quality is more than 35GSM)

(1)
動作領域特性
Operating Area Characteristics



(2)
動作領域特性
Operating Area Characteristics



ON2509 (D)

■概要

ON2509(D)は、ハイブリッド技術により、反射形ホトセンサにアンプを内蔵した小型、軽量、高精度、高信頼性のホトセンサユニットです。物体検知用、無接点スイッチとして特に紙検知用のホトセンサとして最適です。

■特長

- アンプ内蔵形で小形、高信頼性。
- オープンコレクタ出力。
- 検知距離が広い：d=2~5mm。
- 小形コネクタを使用。
- 可視光カットフィルタを装着。

■用途

- 複写機の紙検知
- プリンタの紙検知

■Outline

The ON2509(D) is a small, light weight, highly precise and reliable photo sensor unit incorporating amplifier in the reflective photo sensor by hybrid technique. Widely applied for object detection, contactless switch and especially for paper detection.

■Features

- Small size and and high reliability
- Open-collector output
- Long detectable distance : d=2~5mm
- Power supply, output connection with small connector
- Filter cut visible light

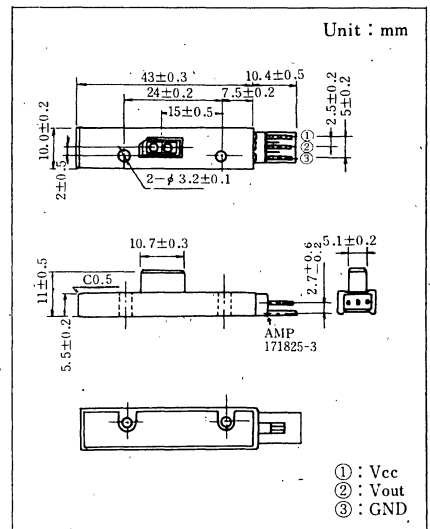
■Use

- Paper detection of copying machine
- Paper detection of printer

■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit	
電源電圧	Supply Voltage	V _{CC}	7.2	V
コレクタ損失	Collector Power Dissipation	P _C	360	mW
出力電圧	Output Voltage	V _{O (max.)}	24	V
動作周囲温度	Operating Ambient Temperature	T _{opr}	*0~+50	°C
保存温度	Storage Temperature	T _{stg}	*-20~+60	°C

*高温雰囲気中では、Ta=60°C, RH=90%, 150H



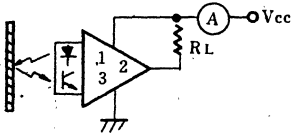
■電気的特性/Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧	Supply Voltage		4.5	5.0	5.5	V
電源電流	Supply Current	物体検知時, R _L =∞ Object at Detection, R _L =∞		33		mA
出力吸込電流	Output Sink Current	物体非検知時, V _O =1.5V Object at Non Detection, V _O =1.5V	6			mA
"L" 出力電圧	"L" Output Voltage	物体非検知時, V _{CC} =5V, I _{SINK} =3mA Object at Non Detection, V _{CC} =5V, I _{SINK} =3mA		0.2	0.4	V
"H" 出力電圧	"H" Output Voltage	物体検知時, R _L =10kΩ V _{CC} =5V, V _O =5V Object at Detection, R _L =10kΩ V _{CC} =5V, V _O =5V	4.7	4.9		V
検知距離	Detection Distance	V _{CC} =5V		2~5		mm

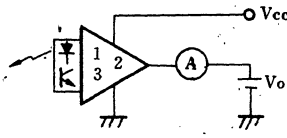
試験回路

Test circuit

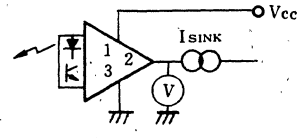
*1



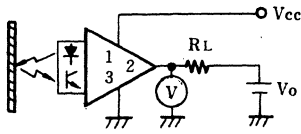
*2



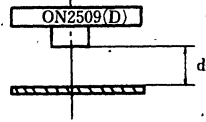
*3



*4



*5



検出対象ペーパー Paper to be detected
 普通紙・OHPシート Ordial paper・OHP sheet
 トレーシングペーパー tracing paper
 (紙質35GSM以上) (paper quality is more than 35GSM)

ON2521LA-(A), ON2521LA-(A)3

■概要

ON2521LA-(A), ON2521LA-(A)3 は、ハイブリッド技術により、反射形ホトセンサにアンプを内蔵した小型、軽量、高精度、高信頼性のホトセンサユニットです。
 物体検知用、無接点スイッチとして特に紙検知用のホトセンサとして最適です。

■特長

- アンプ内蔵形で小形、高信頼性。
- オープンコレクタ出力。
- 検出距離範囲が広い：d=2.5~7.5mm。
- 接続端子は小型コネクタを使用。

■用途

- 複写機の紙検知
- プリンタの紙検知

■Outline

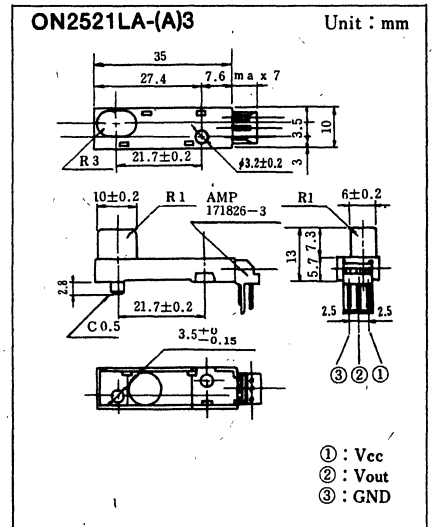
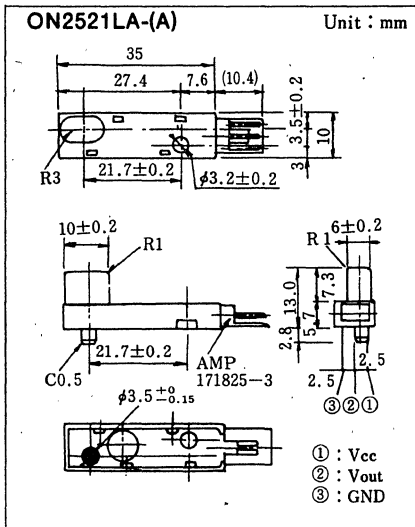
The ON2521LA-(A), ON2521LA-(A)3 is a small, light weight, highly precise and reliable photo sensor unit incorporating amplifier in the reflective photo sensor by hybrid technique.

■Features

- Small size and high reliability
- Open-collector output
- Wide detectable range : d=2.5~7.5mm
- Power supply, output connection with small connector

■Use

- Paper detection of copying machine
- Paper detection of printer



■絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit	
電源電圧	Supply Voltage	V _{CC}	6	V
コレクタ損失	Collector Power Dissipation	P _C	300	mW
動作周囲温度	Operating Ambient Temperature	T _{opr}	0~+60	°C
保存温度	Storage Temperature	T _{stg}	-20~+75	°C

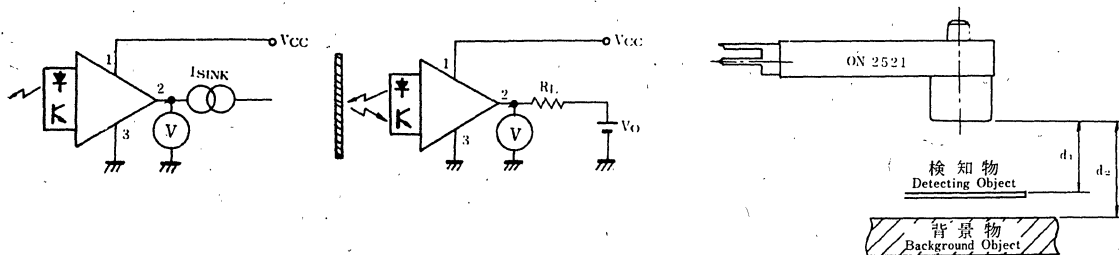
■ご使用上の注意事項/Handling caution

- 1) 洗浄の際、薬品の使用は避けて下さい。/Chemicals should be avoided when washing.
- 2) 取付け時のビス締め強度は 6 kg/cm 以下にして下さい。/Screw crasping intensity of fixing is less than 6 kg/cm.

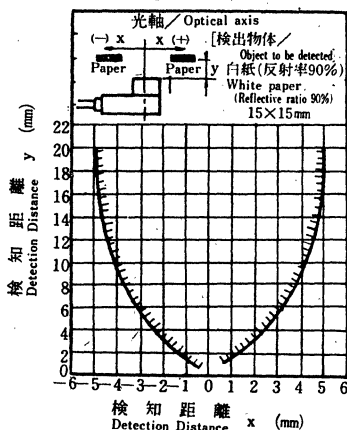
■ 電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧 Supply Voltage	V_{CC}		4.75	5	5.25	V
"L" 出力電圧 "L" Output Voltage	V_{OL}^{*1}	物体非検知時 $V_{CC}=5V, I_{SINK}=3mA$ Object at Non Detection $V_{CC}=5V, I_{SINK}=3mA$			0.4	V
"H" 出力電圧 "H" Output Voltage	V_{OH}^{*2}	物体検知時 $V_{CC}=5V, V_O=5V, R_L=10k\Omega$ Object at Detection $V_{CC}=5V, V_O=5V, R_L=10k\Omega$	4.5			V
検知距離 Detection Distance	d_1^{*3}	$V_{CC}=5V, Ta=0\sim60^\circ C, d_1=2.5\sim7.5mm$ で検知 検知物: トレーシングペーパー Detection at $V_{CC}=5V, Ta=0\sim60^\circ C, d_1=2.5\sim7.5mm$ Objects to be detected: Tracing paper				
検知距離 Detection Distance	d_2^{*3}	$V_{CC}=5V, Ta=0\sim60^\circ C, d_2=10mm$ 以上で非検知 背景物: 導電性ゴムシート (モスパック) $t=10mm$ Non-detection at more than $V_{CC}=5V, Ta=0\sim60^\circ C, d_2=10mm$ Background: Conductive rubber sheet (mospack) $t=10mm$				

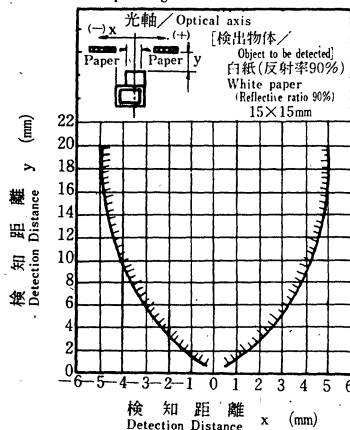
試験回路
Test circuit



(1)
動作領域特性
Operating Area Characteristics



(2)
動作領域特性
Operating Area Characteristics



ON2528

■概要

ON2528は、ハイブリッド技術により、反射形ホトセンサにアンプを内蔵した小型、軽量、高精度、高信頼性のホトセンサユニットです。
物体検知用、無接点スイッチとして特に密着紙検知用のホトセンサとして最適です。

■特長

- アンプ内蔵形で小形、高信頼性。
- オープンコレクタ出力。
- 小形コネクタを使用。

■用途

- 複写機の紙検知
- プリンタの紙検知
- ファクシミリの紙検知

■絶対最大定格 / Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit	
電源電圧	Supply Voltage	V _{CC}	9	V
コレクタ損失	Collector Power Dissipation	P _C	360	mW
出力電圧	Output Voltage	V _{O (max.)}	24	V
動作周囲温度	Operating Ambient Temperature	T _{opr}	-10~+60	°C
保存温度	Storage Temperature	T _{stg}	-20~+75	°C

■電気的特性 / Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧	Supply Voltage.	V _{CC}	4.75	5.00	5.25	V
電源電流	Supply Current	I _{CC} *1			40	mA
		物体検知時, R _L =∞ Object at Detection, R _L =∞				
出力吸込電流	Output Sink Current	I _{SINK} *2	6			mA
		物体検知時, V _O =1.5V Object at Detection, V _O =1.5V				
"L" 出力電圧	"L" Output Voltage	V _{OL} *3		0.2	0.4	V
		物体検知時, V _{CC} =5V, I _{SINK} =3mA Object at Detection, V _{CC} =5V, I _{SINK} =3mA				
"H" 出力電圧	"H" Output Voltage	V _{OH} *4	4.7	4.9		V
		物体非検知時, R _L =10kΩ V _{CC} =5V, V _O =5V Object Non at Detection, R _L =10kΩ V _{CC} =5V, V _O =5V				
検知距離	Detection Distance	d *5		0~2		mm
		V _{CC} =5V				

■使用上の注意事項 / Handling caution

- 1) 洗浄の際薬品の使用は避けて下さい。 / Chemicals should be avoided when washing
- 2) 取り付け時のビス締め強度は 6 kg/cm 以下にして下さい。 / Screw crasping intensity of fixing is less than 6 kg/cm.

■Outline

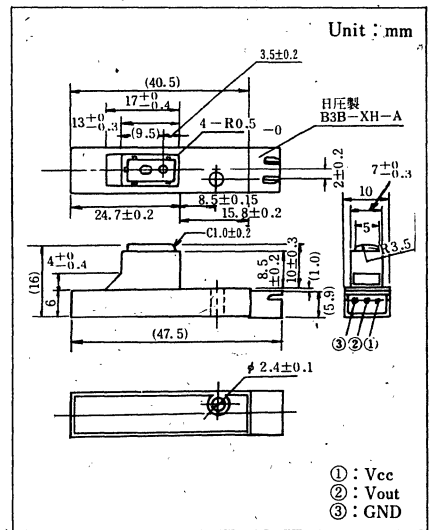
The ON2528 is a small, light weight, highly precise and reliable photo sensor unit incorporating amplifier in the reflective photo sensor by hybrid technique. Widely applied for object detection, contactless switch and especially for paper detection.

■Features

- Small size and reliability
- Open-collector output
- Power supply, output connection with small connector

■Use

- Paper detection of copying machine
- Paper detection of printer
- Paper detection of facsimile

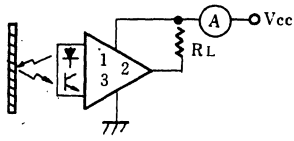


- ① : V_{cc}
- ② : V_{out}
- ③ : GND

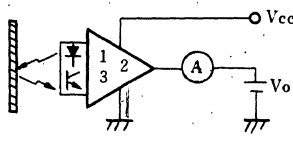
試験回路

Test circuit

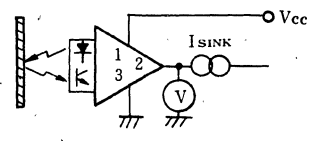
* 1



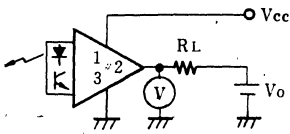
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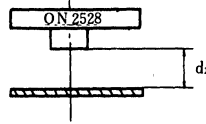
* 3



* 4



* 5



検知対象ペーパー
Paper to be detected
(普通紙等)
(Ordinal paper etc.)

ON2529

■概要

ON2529は、ハイブリッド技術により、反射形ホトセンサにアンプを内蔵した小型、軽量、高精度、高信頼性のホトセンサユニットです。
 物体検知用、無接点スイッチとして特に紙検知用のホトセンサとして最適です。

■特長

- アンプ内蔵形で小形、高信頼性。
- オープンコレクタ出力。
- 検出距離が広い: $d=0\sim 8.5\text{mm}$ 。
- 小形コネクタを使用。

■用途

- 複写機の紙検知
- プリンタの紙検知

■Outline

The ON2529 is a small, light weight, highly precise and reliable photo sensor unit incorporating amplifier in the reflective photo sensor by hybrid technique. Widely applied for object detection, contactless switch and especially for paper detection.

■Features

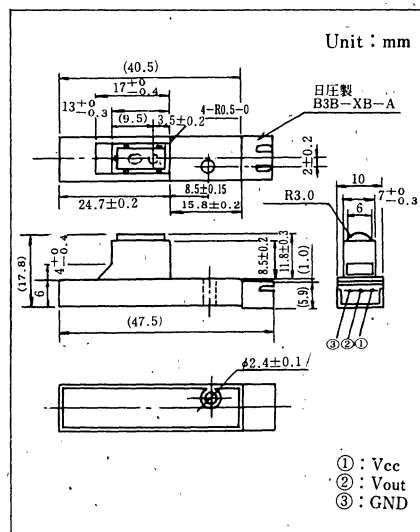
- Small size and high reliability
- Open-collector output
- Long detectable distance : $d=0\sim 8.5\text{mm}$
- Power supply, output connection with small connector

■Use

- Paper detection of copying machine
- Paper detection of printer

■絶対最大定格 / Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Item	Symbol	Value	Unit
電源電圧	Supply Voltage	V_{CC}	9 V
コレクタ損失	Collector Power Dissipation	P_C	.360 mW
出力電圧	Output Voltage	$V_O(\text{max.})$	24 V
動作周囲温度	Operating Ambient Temperature	T_{opr}	$-10\sim +60^\circ\text{C}$
保存温度	Storage Temperature	T_{stg}	$-20\sim +75^\circ\text{C}$



■電気的特性 / Electrical Characteristics ($T_a=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
電源電圧	Supply Voltage	V_{CC}	4.75	5.00	5.25	V
電源電流	Supply Current	I_{CC}^{*1}			40	mA
出力吸込電流	Output Sink Current	I_{SINK}^{*2}	6			mA
"L" 出力電圧	"L" Output Voltage	V_{OL}^{*3}		0.2	0.4	V
"H" 出力電圧	"H" Output Voltage	V_{OH}^{*4}	4.7	4.9		V
検知距離	Detection Distance	d^{*5}		0~8.5		mm

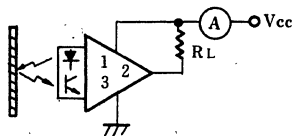
■使用上の注意事項 / Handling caution

- 1) 洗浄の際薬品の使用は避けて下さい。 / Chemicals should be avoided when washing.
- 2) 取付け時のビス締め強度は 6 kg/cm 以下にして下さい。 / Screw crasping intensity of fixing is less than 6 kg/cm

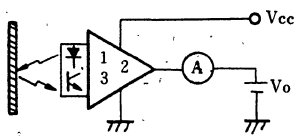
ホトセンサユニット (反射形) Photosensor Units (Reflective Type)

試験回路
Test circuit

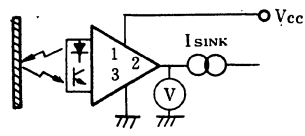
* 1



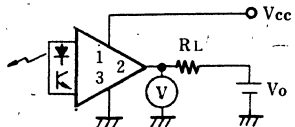
* 2



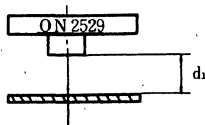
* 3



* 4



* 5



検知対象ペーパー
Paper to be detected
(普通紙等)
(Ordinal paper etc.)

参考資料 / REFERENCE

発光素子・受光素子・光複合素子
・光ファイバユニット

Light-Emitting Diode・Photo Detector・Photo Coupler
・Optical Fiber Unit

参考資料：発光素子・受光素子・光複合素子・光ファイバユニット

■形名一覧表

形名	形名	形名	形名
可視・赤外発光素子	LN193	PN302H	ON1402A/B
LN51F	LN193HK	PN303	ON1403A/B
LN51L	LN671	PN307	ON1501
LN52	LN9705/P	PN312D	ON1503
LN54	LN9705D	PN313	ON1517HH-(A)
LN55	LN9705M	PN313B	ON2152
LN57	LN9705PR	PN316KI/CI	ON2153
LN58	LN9705PSR	PN322D	ON2160
LN59	LN9705S/PS	PN323	ON2170
LN62S	LN9707/P	PN323B	ON2173
LN64	LN9710/P	PN324E	ON2180
LN65	LN9825K	PN328B	ON2253
LN66	LN9830/P	PN330CL	ON2270
LN66(L)	LN9840/P	PN331	ON2280
LN66(NC)	LN9850/P	PN331CL	ON2509
LN66A	受光素子	PN331F	ON2521LA-(A)
LN68	PN101/102	PN332F	ON3100
LN71	PN101F/102F	PN334	ON3105
LN76	PN106	PN335	ON3105V
LN122CAL	PN107/108	PN3105	ON3110
LN122D	PN107F/108F	PN3107	ON3111
LN122DF	PN108CL	PN3107	ON3112
LN122DL	PN109CL	PN3206	ON3113
LN123DF	PN109F	PN3404	ON3131
LN124D	PN109L	PN3405	ON3132
LN124W	PN110	PN3608	ON3133
LN125D	PN111W	PN3608K	ON3134
LN126D	PN115	PN3610	ON3161
LN145W	PN116	PN3613	ON3171
LN151F	PN120S	△PN7202	ON3205
LN151L	PN121S	光複合素子	ON3301
LN152	PN123S	ON1001	ON3401
LN155	PN126S	ON1053	光ファイバユニット
LN162S	PN127	ON1054	△LN125D004
LN166	PN147	ON1102	△LN183-001
LN172	PN150	ON1105	△ON1631
LN174	PN154	ON1108	△ON2631
LN175	PN155	ON1109	ON3631R/T
LN176	PN158	ON1110	ON3633W
LN181	PN168	ON1111	ON3634W
LN181L	PN202S	ON1112	△PN332F001
LN182/(SC)	PN205	ON1113	△PN335-004
LN183	PN207	ON1114	△PN405A004
LN183H	PN208	ON1120	
LN183HK	PN208	ON1122	
LN184	PN268	ON1128	
LN189L	PN268-(NC)	ON1128S	
LN191	PN300	ON1179	
	PN300F	ON1215	

△ 暫定規格

参考資料：発光素子・受光素子・光複合素子・光ファイバユニット

■可視・赤外発光ダイオード(ファイバ用、制御用)

用途	形名	パッケージ No.	IF (mA)	PO min. (mW)	VF max. (V)	λ_p typ. (nm)	θ typ. (deg.)	trif typ. (ns)
制御用	LN171	01	75	0.3	1.5	910	6	40
	LN122DL	01	40	0.2	2.6	660	10	30
	LN122DF	02	40	0.2	2.6	660	32	30
プラスチックファイバ用	LN122CAL	03	40	0.2	2.4	680	80	120
	LN122D	03	40	0.4	2.6	660	80	30
	LN123DF	018	50	0.4	2.6	660	40	30
	LN124D	021	40	0.4	2.6	660	30	30
	LN124W	021	50	1.0	2.6	660	30	30
	LN125D	017	40	0.4	2.6	660	80	30
	LN126D	06	30	0.2	2.6	660	80	130
ガラスファイバ用	LN181*	019	150	50 μ W	2.0	880	5	35MHz
	LN181L*	019	100	3.0	2.0	880	6.5	35MHz
	LN183*	020	75	40 μ W	1.9	880	25	35MHz
	LN183H*	020	150	70 μ W	1.9	880	25	70MHz
	LN183HK*	020	150	50 μ W	1.9	880	25	60MHz
	LN191*	019	100	10 μ W	1.5	1300	5	100MHz
	LN193*	020	100	0.2	1.5	1300	25	100MHz
LN193HK*	020	150	0.35	1.5	1300	25	200MHz	

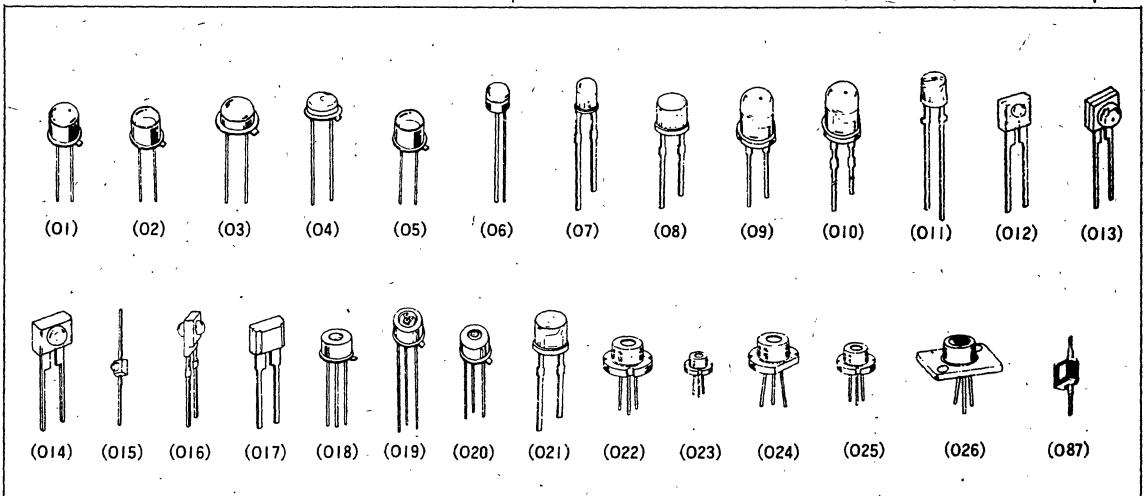
*：赤外発光ダイオード(G150でのファイバ発光出力)、無印は可視発光ダイオード

■半導体レーザ

用途	形名	パッケージ No.	PO max. (mW)	Ith typ. (mA)	Iop typ. (mA)	λ_L typ. (nm)	θ typ. (deg.)	θ_{\perp} typ. (deg.)	VOP typ. (V)
CD・VD用	LN9705/P	022	5	40	50	788,805	10	33	1.8
	LN9705PR	022	5	40	50	788,805	10	33	1.8
	LN9705S/PS	023	5	40	50	788,805	10	33	1.8
	LN9705PSR	023	5	40	50	788,805	10	33	1.8
	LN9705D	024	5	40	50	805	10	33	1.8
	LN9705M	026	5	40	50	788	10	33	1.8
プリンタ用	LN9707/P	022	7	40	55	788,805	10	30	1.8
	LN9710/P	022	10	40	65	788,805	10	35	2.0
メモリ・映像用	LN9825K	026	25	70	125	830	9	27	2.2
	LN9830/P	022	30	40	70	830	9	27	2.0
	LN9840/P	022	40	40	90	830	9	27	2.0
	LN9850/P	022	50	40	110	830	9	27	2.0

■赤外発光ダイオード(リモコン、AF、制御用)

用途	形名	パッケージ No.	IF (mA)	PO (mW)	PO min. (mW)	VF max. (V)	λ_p typ. (nm)	θ typ. (deg.)
リモコン用	LN66	09	100	160	3	1.6	950	25
	LN66A	09	100	160	12	1.6	950	25
	LN66(NC)	09	100	160	3	1.6	950	25
	LN66(L)	010	100	160	5	1.6	950	25
	LN68	07	50	75	2.5	1.5	940	20
	LN76	09	100	180	14	1.8	880	25
	LN166	09	100	160	5	1.6	950	20
AF用	LN64	08	100	160	3.5	1.6	950	45
	LN155	017	100	160	3	1.6	950	80
	LN172	04	100	170	7	1.7	900	100
	LN174	011	100	170	7	1.7	900	120
	LN175	017	100	170	7	1.9	900	115
	LN182/(SC)	05	100	190	3	1.9	880	20
	LN184	05	100	190	3	1.9	880	20
	LN189L	087	100	190	3	1.9	880	20
	LN671	031	70	130	7	1.8	880	50
	制御用	LN51L	01	100	150	3	1.5	950
LN51F		02	100	150	3	1.5	950	32
LN52		03	100	160	3.5	1.6	950	100
LN54		012	50	75	2.5	1.5	950	17
LN55		013	50	75	1.8	1.5	950	35
LN57		015	50	75	3	1.5	950	18
LN58		014	50	75	1.8	1.5	950	35
LN59		016	50	75	1.8	1.5	940	35
LN62S		06	50	75	1.5	1.5	950	80
LN65		013	100	160	4.3	1.6	950	35
LN145W		017	40	120	2.5	2.2	700	80
LN151L		01	100	160	4	1.6	950	8
LN151F		02	100	160	4	1.6	950	32
LN152	03	100	160	5	1.6	950	100	
LN162S	06	50	75	1.5	1.5	950	80	
LN176	09	100	180	6	1.8	900	25	



参考資料：発光素子・受光素子・光複合素子・光ファイバユニット

■PIN ホトダイオード (AF, CD, VD, 光通信、制御用)

用途	形名	パッケージ No.	V _R (V)	I ₀ max. (nA)	I _L min. (μA)	λ _P typ. (nm)	t _{rr} typ. (ns)	θ typ. (deg.)	
AF用	PN3206	031	12	10	2	900	10	65	
	PN312D	030	30	20	8	940	10	65	
	PN322D	031	30	10	3	940	10	65	
	PN3105	030	30	2	14	940	8μ	65	
	PN3107	030	30	2	8	940	5μ	65	
	△PN7202	—	30	30	5	900	10	65	
CD・VD用	PN324E	034	30	50	35	900	30	60	
	PN3404	—	30	10	8	900	20	65	
	PN3405	032	30	10	8	900	20	65	
	PN316K/CI	033	30		1	0.1	900	3	65
					2	0.8			
	PN3608	033	30		1	0.1	900	3	65
					2	0.8			
	PN3608K	033	30		1	0.1	900	3	65
					2	0.8			
	PN3610	033	12		1	0.3	900	3	65
2					1.5				
PN3613	033	12		1	0.1	900	5	65	
				2	1.0				
PF用	PN330CL	03	30	10	7	850	2	70	
	PN331	03	30	10	7	900	2	70	
	PN334	011	30	10	5	850	2	30	
	PN335	017	30	10	5	850	2	70	
GF用	PN331F	018	30	10	4	900	2	40	
	PN332F	018	30	1	4	850	1	40	
制御用	PN300	01	50	10	30	800	1	10	
	PN300F	03	50	10	5	800	1	40	
	PN302H	027	30	30	15	900	10	55	
	PN303	028	30	50	50	900	50	55	
	PN307	016	30	40	5	800	—	24	
	PN313	035	30	50	35	900	50	65	
	PN313B	035	30	50	15	960	50	65	
	PN323	036	30	50	30	900	50	70	
	PN323B	036	30	50	15	960	50	70	
	PN328B	036	30	50	15	960	50	70	
	PN331CL	029	30	30	50	10	900	50	70

PF用=プラスチックファイバ用。
GF用=ガラスファイバ用。△暫定規格。

■ホトトランジスタ

形名	パッケージ No.	V _{CEO} (V)	L (lx)	I _{CE(L)} min. (mA)	I _{CEO} max. (μA)	θ typ. (deg.)
PN101/102*	01/038	30	100	1.5	0.3	10
PN101F/102F*	02/039	30	100	0.1	0.3	40
PN106*	038	30	100	0.3	0.1	10
PN107/108*	01/038	20	100	5	2	10
PN107F/108F*	01/039	20	100	0.4	2	40
PN108CL*	040	20	500	3.5	2	80
PN109L*	01/038	20	100	3.5	2	10
PN109F*	02/039	20	100	0.3	2	40

■ホトトランジスタ (つづき)

形名	パッケージ No.	V _{CEO} (V)	L (lx)	I _{CE(L)} min. (mA)	I _{CEO} max. (μA)	θ typ. (deg.)
PN109CL	038	20	500	2.0	2	80
PN110*	041	20	500	0.8	1	80
PN111W*	041	20	500	4.5	2	80
PN115*	042	20	100	1.5	2	35
PN116*	043	20	100	0.2	2	70
PN120S	037	30	2	3μA	0.5	50
PN121S	037	20	1000	0.12	0.1	30
PN123S	037	20	1000	0.4	0.1	30
PN126S	037	20	1000	1.05	0.1	30
PN127	015	20	1000	0.80	0.1	14
PN147	015	20	2	3μA	0.5	24
PN150	013	20	500	1	1	35
PN154	012	20	100	1	1	27
PN155	016	20	100	1	1	70
PN158	014	20	100	1	1	40
PN168	07	30	500	0.8	0.5	30
PN202S◎	037	20	2	0.2	0.5	30
PN205◎	013	20	2	0.2	0.5	30
PN207◎	015	20	2	0.5	0.5	18
PN208◎	014	20	2	0.2	0.5	40
PN268◎	07	20	2	0.1	0.5	30
PN268-(NC)◎	07	20	2	0.05	0.5	30

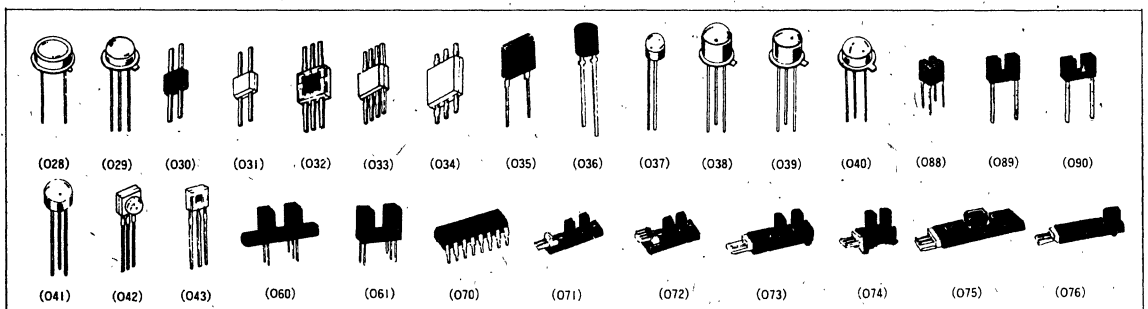
*ベース端子付き ◎ダーリントントランジスタ

■集積化ホトセンサ

形名	パッケージ No.	V _{CC} (V)	V _{OL} (V)	I _{OH} (μA)	I _{leth} (mA)
ON1402A/B	060	4.5~16	0.4	100	5
ON1403A/B	061	4.5~16	0.4	100	5

■ホトセンサユニット

形名	パッケージ No.	特長	出力ON条件	V _{CC} (V)	I ₀ (mA)	V ₀ (V)	V _{OL} max. (V)
ON1501	071	ギャップ幅5mm、深さ11mm、オープンコレクタ出力、高分解能	物体非検知時	24	50	40	0.6
ON1503	072	ギャップ幅3.6mm、深さ10mm、オープンコレクタ出力、高分解能	物体検知時	5.10	100	20	0.6
ON1517HH-(A)	073	ギャップ幅5mm、深さ10mm、オープンコレクタ出力、高分解能	検知時	5	20	30	0.4
ON2509	075	反射型、オープンコレクタ出力、普通紙・OHPフィルム、第2原紙を検知可能	物体非検知時	5	6	24	0.4
ON2521LA-(A)	076	反射型、オープンコレクタ出力、検知距離範囲2.5~7.5mm	非検知時	5	10	5	0.4



参考資料：発光素子・受光素子・光複合素子・光ファイバユニット

■透過形ホトセンサ(ホトインタラプタ)

形名	パッケージ No.	特長	F (mA)	VCEO (V)	Ic min. (mA)	ICEO max. (μA)	tr,tf typ. (μs)	VCE(sat) max. (V)
ON1001	088	超小型	50	30	0.065	200	20	0.4
ON1053	089	小型、薄形	50	20	0.5	200	6	0.5
ON1054	090	小型、薄形	50	20	0.1	200	6	0.5
ON1102	044	高出力	50	30	2	200	4	0.4
ON1105	045	高分解能	50	30	0.3	200	6	0.3
ON1108	046	プリント板用	50	30	2	200	4	0.4
ON1109	048	ギャップが深く広い	50	30	0.3	200	6	0.3
ON1110	049	高分解能	50	30	0.3	200	6	0.3
ON1111	050	高分解能、薄形	50	30	0.3	200	6	0.3
ON1112	051	高分解能、薄形	50	30	0.3	200	6	0.3
ON1113	052	高分解能、薄形	50	30	0.3	200	6	0.5
ON1114	051	高出力	50	30	0.7	200	6	0.3
ON1120	—	ギャップが広い	50	20	1.0	200	6	0.4
ON1122*	044	一般用	25	30	0.1	200	6	0.5
ON1128	046	プリント板用	25	30	0.1	200	6	0.5
ON1128S*	047	メタルスリット付き	25	30	0.05	200	6	0.5
ON1179	053	高分解能、薄形	50	30	0.3	200	6	0.3
ON1215◎*	045	外乱光防止形	25	20	2	600	100	1.5

* : 可視発光ダイオード ◎ : ダーリントン出力

■オプトアイソレータ

形名	パッケージ No.	特長	VCEO *V _A **V _O (V)	Viso min. (VRMS)	CTR (%)	tr typ. (μs)
ON3100	063	高伝達効率	30	2500	50~600	5
ON3105	062	高耐圧	30	5000	30typ.	4
ON3105V	062	高耐圧	30	4000	15~60	4
ON3110	063	高伝達効率	30	2500	30~250	2
ON3111	064	高伝達効率	35	2500	50~250	2.5
ON3112	065	高伝達効率(2連)	35	2500	50~250	2.5
ON3113	066	高伝達効率(3連)	35	2500	50~250	2.5
ON3131	091	高耐圧	35	5000	200typ.	2
ON3132	068	高耐圧(2連)	35	5000	200typ.	2
ON3133	069	高耐圧(3連)	35	5000	200typ.	2
ON3134	070	高耐圧(4連)	35	5000	200typ.	2
ON3161	067	高耐圧	35	5000	50~600	2.5
ON3171	093	高耐圧	35	5000	50~600	4
ON3205◎	062	高耐圧	20	5000	700typ.	100
ON3301*	063	高速応答	*50	2500	0.35typ.	0.07
ON3401	063	高速応答、高伝達効率	**15	2500	15~60	0.4

* PIN ホトダイオード出力 ◎ ダーリントン出力

■反射形ホトセンサ(ホトリフレクタ)

形名	パッケージ No.	特長	F (mA)	VCEO (V)	Ic min. (mA)	ICEO max. (μA)	tr,tf typ. (μs)	VCE(sat) max. (V)
ON2152	054	高速応答	100	20	0.8	2	8	0.6
ON2153	055	高速応答	50	30	0.1	0.2	6	0.5
ON2253◎	055	高感度	50	20	3	0.5	150	1.5
ON2160	056	可視光カット小形	50	30	0.09	0.2	15	0.4
ON2170	057	可視光カット小形、薄形	50	30	0.045	0.2	20	0.4
ON2173	058	高速応答	50	20	0.1	0.2	6	0.3
ON2180	057	可視光カット小形	50	30	0.045	0.2	20	0.4
ON2270◎	057	可視光カット小形、薄形	50	20	0.17	0.5	150	1.5
ON2280◎	057	可視光カット小形、薄形	50	20	0.17	1	150	1.5

◎ : ダーリントン出力

■光ファイバユニット

●光ファイバリンク

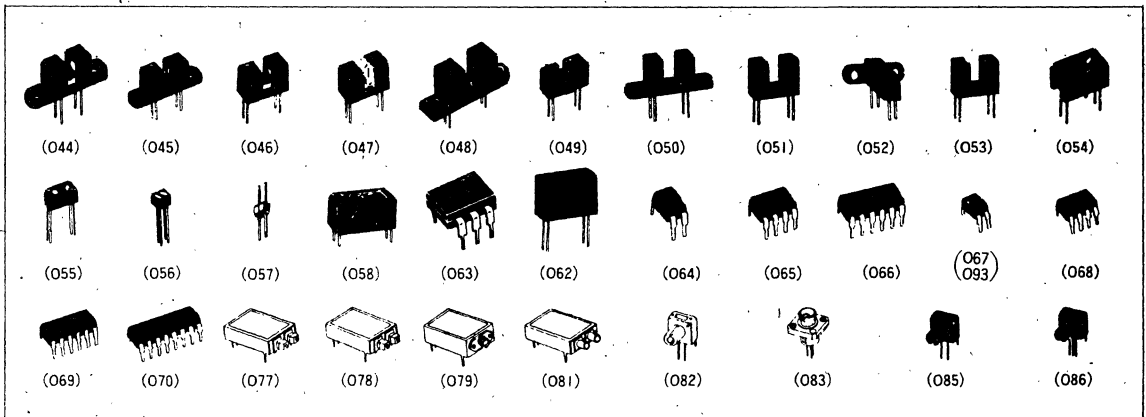
形名	パッケージ No.	VCC (V)	F (kbps)	受光レベル (dBm)	λ _p (nm)	伝送距離 (m)
△ON1631	077	5	—	消費電流 50mA	660	—
△ON2631	078	5	—	消費電流 50mA	660	—
△ON3634W	081	5	1000	-30~-13	660	250*1, 40*2
△ON3633W	081	5	100	-30~-13	660	250*1, 40*2
ON3631R/T	079	5	1000	-30~-13	880	2000*3

*1 : ガラスファイバ(S1200) *2 : プラスチックファイバ(1mmφ)
*3 : ガラスファイバ(G150) △暫定規格

●光コネクタモジュール

素子	形名	パッケージ No.	ファイバ結合パワー Pf typ. (μW)	発光波長 λ _p typ. (nm)	順電圧 V _F typ. (V)	周波数 f _c (MHz)	
発光	△LN125D004	082	50*1	660	1.8	10	
発光	△LN183-001	083	40*2	880	1.6	35	
素子	形名	パッケージ No.	量子効率 η min. (%)	ピーク感度波長 λ _p typ. (nm)	リーク電流 I _o max. (nA)	周波数 f _c typ. (MHz)	
発光	△PN332F001	083	60*2	850	1	300	
発光	△PN335-004	085	60	900	10	50	
素子	形名	パッケージ No.	VCC (V)	F (Kbps)	I _{OH} (μA)	V _{OL} (V)	I _{CC} (mA)
受光	△PN405A004*3	086	5~16	10	100	0.4	12

△暫定規格 *1 : プラスチックファイバ(1mmφ)
*2 : ガラスファイバ(G150) *3 : ホトICモジュール



REFERENCE: Light-Emitting Diode · Photo Detector · Photo Coupler · Optical Fiber Unit

■ TYPE NUMBER LIST

Type No.	Type No.	Type No.	Type No.
Visible Infrared	LN193	PN302H	ON1402A/B
Light-Emitting Diode	LN193HK	PN303	ON1403A/B
LN51F	LN671	PN307	ON1501
LN51L	LN9705/P	PN312D	ON1503
LN52	LN9705D	PN313	ON1517HH-(A)
LN54	LN9705M	PN313B	ON2152
LN55	LN9705PR	PN316K1/CI	ON2153
LN57	LN9705PSR	PN322D	ON2160
LN58	LN9705S/PS	PN323	ON2170
LN59	LN9707/P	PN323B	ON2173
LN62S	LN9710/P	PN324E	ON2180
LN64	LN9825K	PN328B	ON2253
LN65	LN9830/P	PN330CL	ON2270
LN66	LN9840/P	PN331	ON2280
LN66(L)	LN9850/P	PN331CL	ON2509
LN66(NC)		PN331F	ON2521LA-(A)
LN66A	Photo Detector	PN332F	ON3100
LN68	PN101/102	PN334	ON3105
LN71	PN101F/102F	PN335	ON3105V
LN76	PN106	PN3105	ON3110
LN122CAL	PN107/108	PN3107	ON3111
LN122D	PN107F/108F	PN3206	ON3112
LN122DF	PN108CL	PN3404	ON3113
LN122DL	PN109CL	PN3405	ON3131
LN123DF	PN109F	PN3608	ON3132
LN124D	PN109L	PN3608K	ON3133
LN124W	PN110	PN3610	ON3134
LN125D	PN111W	PN3613	ON3161
LN126D	PN115	△PN7202	ON3171
LN145W	PN116		ON3205
LN151F	PN120S	Photo Coupler	ON3301
LN151L	PN121S	ON1001	ON3401
LN152	PN123S	ON1053	
LN155	PN126S	ON1054	Optical Fiber Unit
LN162S	PN127	ON1102	△LN125D004
LN166	PN147	ON1105	△LN183-001
LN172	PN150	ON1108	△ON1631
LN174	PN154	ON1109	△ON2631
LN175	PN155	ON1110	ON3631R/T
LN176	PN158	ON1111	ON3633W
LN181	PN168	ON1112	ON3634W
LN181L	PN202S	ON1113	△PN332F001
LN182/(SC)	PN205	ON1114	△PN335-004
LN183	PN207	ON1120	△PN405A004
LN183H	PN208	ON1122	
LN183HK	PN268	ON1128	
LN184	PN268-(NC)	ON1128S	
LN189L	PN300	ON1179	
LN191	PN300F	ON1215	

△ Tentative Specification

REFERENCE: Light-Emitting Diode · Photo Detector · Photo Coupler · Optical Fiber Unit

Visible/Infrared Light-Emitting Diode (for Fiber and Control)

Application	Type No.	Package No.	IF (mA)	PO min. (mW)	V _F max. (V)	λ _P typ. (nm)	θ typ. (deg.)	t _r , t _f typ. (ns)
For Control	LN71	01	75	0.3	1.5	910	6	40
	LN122DL	01	40	0.2	2.6	660	10	30
	LN122DF	02	40	0.2	2.6	660	32	-30
For Plastic Fiber	LN122CAL	03	40	0.2	2.4	680	80	120
	LN122D	03	40	0.4	2.6	660	80	30
	LN123DF	018	50	0.4	2.6	660	40	30
	LN124D	021	40	0.4	2.6	660	30	30
	LN124W	021	50	1.0	2.6	660	30	30
	LN125D	017	40	0.4	2.6	660	80	30
	LN126D	06	30	0.2	2.6	660	80	130
For Glass Fiber	LN181*	019	150	50μW	2.0	880	5	35MHz
	LN181L*	019	100	3.0	2.0	880	6.5	35MHz
	LN183*	020	75	40μW	1.9	880	25	35MHz
	LN183H*	020	150	70μW	1.9	880	25	70MHz
	LN183HK*	020	150	50μW	1.9	880	25	60MHz
	LN191*	019	100	10μW	1.5	1300	5	100MHz
	LN193*	020	100	0.2	1.5	1300	25	100MHz
	LN193HK*	020	150	0.35	1.5	1300	25	200MHz

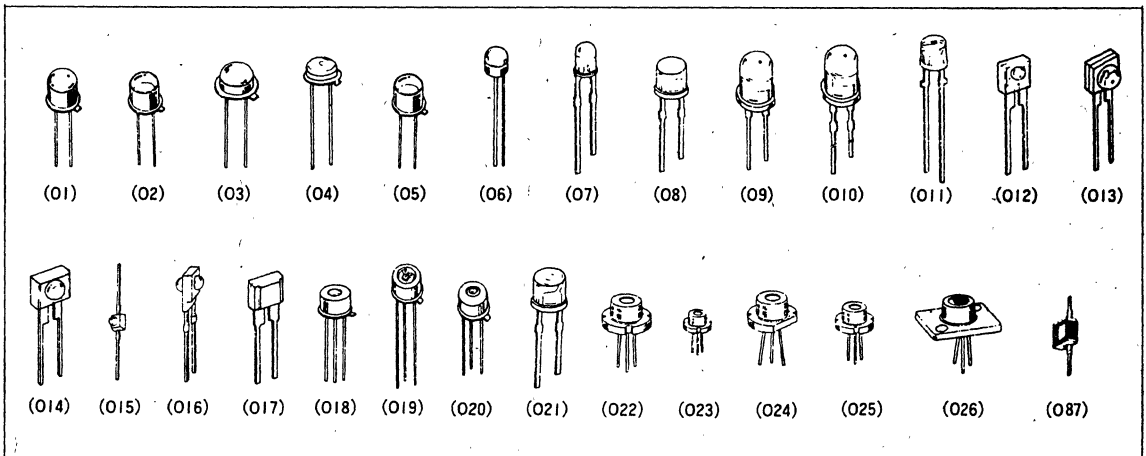
* : Infrared light-emitting diode (Fiber power output at GI50).
Without asterisk : Visible (red) light emitting diode.

Infrared Light-Emitting Diode (Remote Control, AF, Control)

Application	Type No.	Package No.	IF (mA)	PD (mW)	PO min. (mW)	V _F max. (V)	λ _P typ. (nm)	θ typ. (deg.)
For Remote Control	LN66	09	100	160	3	1.6	950	25
	LN66A	09	100	160	12	1.6	950	25
	LN66 (NC)	09	100	160	3	1.6	950	25
	LN66 (L)	010	100	160	5	1.6	950	25
	LN68	07	50	75	2.5	1.5	940	20
	LN76	09	100	180	14	1.8	880	25
	LN166	09	100	160	5	1.6	950	20
For AF	LN64	08	100	160	3.5	1.6	950	45
	LN155	017	100	160	3	1.6	950	80
	LN172	04	100	170	7	1.7	900	100
	LN174	011	100	170	7	1.7	900	120
	LN175	017	100	170	7	1.9	900	115
	LN182/(SC)	05	100	190	3	1.9	880	20
	LN184	05	100	190	3	1.9	880	20
	LN189L	087	100	190	3	1.9	880	20
	LN671	031	70	130	7	1.8	880	50
	For Control	LN51L	01	100	150	3	1.5	950
LN51F		02	100	150	3	1.5	950	32
LN52		03	100	160	3.5	1.6	950	100
LN54		012	50	75	2.5	1.5	950	17
LN55		013	50	75	1.8	1.5	950	35
LN57		015	50	75	3	1.5	950	18
LN58		014	50	75	1.8	1.5	950	35
LN59		016	50	75	1.8	1.5	940	
LN62S		06	50	75	1.5	1.5	950	80
LN65		013	100	160	4.3	1.6	950	35
LN145W		017	40	120	2.5	2.2	700	80
LN151L		01	100	160	4	1.6	950	8
LN151F		02	100	160	4	1.6	950	32
LN152		03	100	160	5	1.6	950	100
LN162S		06	50	75	1.5	1.5	950	80
LN176		09	100	180	6	1.8	900	25

Semiconductor Laser

Application	Type No.	Package No.	PO max. (mW)	I _{th} typ. (mA)	I _{op} typ. (mA)	λ _L typ. (nm)	θ _z typ. (deg.)	θ _⊥ typ. (deg.)	V _{OP} typ. (V)
For CD · VD	LN9705/P	022	5	40	50	788, 805	10	33	1.8
	LN9705PR	022	5	40	50	788, 805	10	33	1.8
	LN9705S/PS	023	5	40	50	788, 805	10	33	1.8
	LN9705PSR	023	5	40	50	788, 805	10	33	1.8
	LN9705D	024	5	40	50	805	10	33	1.8
	LN9705M	026	5	40	50	788	10	33	1.8
For Printer	LN9707/P	022	7	40	55	788, 805	10	30	1.8
	LN9710/P	022	10	40	65	788, 805	10	35	2.0
For Light Memory and Video	LN9825K	026	25	70	125	830	9	27	2.2
	LN9830/P	022	30	40	70	830	9	27	2.0
	LN9840/P	022	40	40	90	830	9	27	2.0
	LN9850/P	022	50	40	110	830	9	27	2.0



REFERENCE: Light-Emitting Diode·Photo Detector·Photo Coupler·Optical Fiber Unit

■ Pin Photo Diode(AF,CD,VD,Light communication,control)

Application	Type No.	Package No.	V _R (V)	I _D max. (nA)	I _L min. (μA)	λ _p typ. (nm)	tr,t _f typ. (ns)	θ typ. (deg.)
For AF	PN3206	031	12	10	2	900	10	65
	PN312D	030	30	20	8	940	10	65
	PN322D	031	30	10	3	940	10	65
	PN3105	030	30	2	14	940	8μ	65
	PN3107	030	30	2	8	940	5μ	65
	△PN7202	—	30	5	5	900	10	65
	For CD-VD	PN324E	034	30	50	35	900	30
PN340A		—	30	10	8	900	20	65
PN3405		032	30	10	8	900	20	65
PN316KI/CI		033	30	1	0.1	900	3	65
				2	0.8			
PN3608		033	30	1	0.1	900	3	65
				2	0.8			
PN3608K		033	30	1	0.1	900	3	65
				2	0.8			
PN3610		033	12	10	0.3	900	3	65
					1.5			
PN3613		033	12	10	0.1	900	5	65
	1.0							
For PF	PN330CL	03	30	10	7	850	2	70
	PN331	03	30	10	7	900	2	70
	PN334	011	30	10	5	850	2	30
	PN335	017	30	10	5	850	2	70
For GF	PN331F	018	30	10	4	900	2	40
	PN332F	018	30	1	4	850	1	40
For Control	PN300	01	50	10	30	800	1	10
	PN300F	03	50	10	5	800	1	40
	PN302H	027	30	30	15	900	10	55
	PN303	028	30	50	50	900	50	55
	PN307	016	30	40	5	800	—	24
	PN313	035	30	50	35	900	50	65
	PN313B	035	30	50	15	960	50	65
	PN323	036	30	50	30	900	50	70
	PN323B	036	30	50	15	960	50	70
	PN328B	036	30	50	15	960	50	70
	PN331CL	029	30	50	10	900	50	70

* : With sealed terminal. For PF=plastic fiber. For GF=for glass fiber. △Tentative Specification.

■ Phototransistor

Type No.	Package No.	V _{CEO} (V)	L (ix)	I _{CE(L)} min. (mA)	I _{CEO} max. (μA)	θ typ. (deg.)
PN101/102*	01/038	30	100	1.5	0.3	10
PN101F/102F*	02/039	30	100	0.1	0.3	40
PN106*	038	30	100	0.3	0.1	10
PN107/108*	01/038	20	100	5	2	10
PN107F/108F*	01/039	20	100	0.4	2	40
PN108CL*	040	20	500	3.5	2	80
PN109L*	01/038	20	100	3.5	2	10
PN109F*	02/039	20	100	0.3	2	40

■ Phototransistor(continued)

Type No.	Package No.	V _{CEO} (V)	L (ix)	I _{CE(L)} min. (mA)	I _{CEO} max. (μA)	θ typ. (deg.)
PN109CL	038	20	500	2.0	2	80
PN110*	041	20	500	0.8	1	80
PN111W*	041	20	500	4.5	2	80
PN115*	042	20	100	1.5	2	35
PN116*	043	20	100	0.2	2	70
PN120S	037	30	2	3μA	0.5	50
PN121S	037	20	1000	0.12	0.1	30
PN123S	037	20	1000	0.4	0.1	30
PN126S	037	20	1000	1.05	0.1	30
PN127	015	20	1000	0.80	0.1	14
PN147	015	20	2	3μA	0.5	24
PN150	013	20	500	1	1	35
PN154	012	20	100	1	1	27
PN155	016	20	100	1	1	70
PN158	014	20	100	1	1	40
PN168	07	30	500	0.8	0.5	30
PN202S⊙	037	20	2	0.2	0.5	30
PN205⊙	013	20	2	0.2	0.5	30
PN207⊙	015	20	2	0.5	0.5	18
PN208⊙	014	20	2	0.2	0.5	40
PN268⊙	07	20	2	0.1	0.5	30
PN268-(NC)⊙	07	20	2	0.05	0.5	30

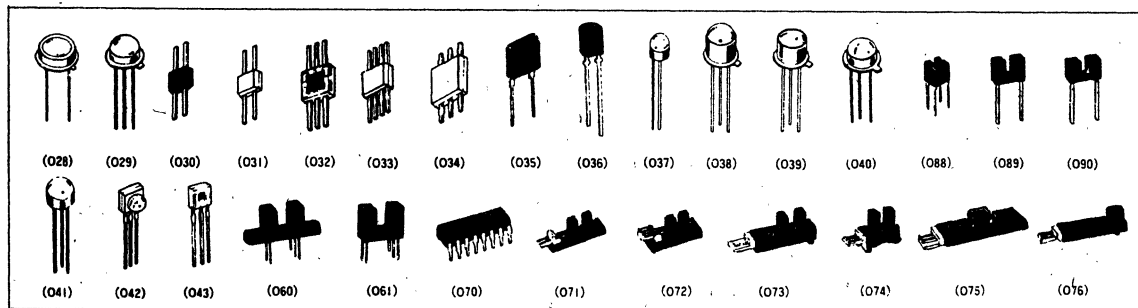
*:With base terminal ⊙:Darlington phototransistor

■ Integrated Photo Sensor

Type No.	Package No.	V _{CC} (V)	V _{OL} (V)	I _{OH} (μA)	I _{FTH} (mA)
ON1402A/B	060	4.5~16	0.4	100	5
ON1403A/B	061	4.5~16	0.4	100	5

■ Photo Sensor Unit

Type No.	Package No.	Feature	Output ON Condition	V _{CC} (V)	I _O (mA)	V _O (V)	V _{OL} max. (V)
ON1501	071	Gap Width 5mm, Width 11mm, Open Collector Output High Resolution Capacity	Non Detection Object	24	50	40	0.6
ON1503	072	Gap Width 3.6mm, Width 10mm, Open Collector Output High Resolution Capacity	Detection Object	5,10	100	20	0.6
ON1517HH-(A)	073	Gap Width 5mm, Width 10mm, Open Collector Output High Resolution Capacity	Detection	5	20	30	0.4
ON2509	075	Reflection type Open Collector Output Nomal Paper-OHP Film 2nd original paper can be detected	Non Detection Object	5	6	24	0.4
ON2521LA-(A)	076	Reflection type Open Collector Output Detection Distance Range 2.5~7.5mm	Non Detection	5	10	5	0.4



REFERENCE: Light-Emitting Diode · Photo Detector · Photo Coupler · Optical Fiber Unit

Transmittive Photo sensor (Photo Interrupter)

Type No.	Package No.	Feature	I _F (mA)	V _{CEO} (V)	I _C min. (mA)	I _{CEO} max. (μA)	t _r , t _f typ. (μs)	V _{CE(sat)} max. (V)
ON1001	088	Super Mini	50	30	0.065	200	20	0.4
ON1053	089	mini, thin size	50	20	0.5	200	6	0.5
ON1054	090	mini, thin size	50	20	0.1	200	6	0.5
ON1102	044	High Output	50	30	2	200	4	0.4
ON1105	045	High Resolution Capacity	50	30	0.3	200	6	0.3
ON1108	046	For Print Board	50	30	2	200	4	0.4
ON1109	048	Deep and Wide Gap	50	30	0.3	200	6	0.3
ON1110	049	High Resolution Capacity	50	30	0.3	200	6	0.3
ON1111	050	High Resolution Capacity, thin size	50	30	0.3	200	6	0.3
ON1112	051	High Resolution Capacity, thin size	50	30	0.3	200	6	0.3
ON1113	052	High Resolution Capacity, thin size	50	30	0.3	200	6	0.5
ON1114	051	High Output	50	30	0.7	200	6	0.3
ON1120	—	Wide Gap	50	20	1.0	200	6	0.4
ON1122*	044	General Use	25	30	0.1	200	6	0.5
ON1128	046	For Print Board	25	30	0.1	200	6	0.5
ON1128S*	047	With Metal Slit	25	30	0.05	200	6	0.5
ON1179	053	High Resolution Capacity, thin size	50	30	0.3	200	6	0.3
ON1215*	045	Outside Disturbing Light Prevention Shape	25	20	2	600	100	1.5

* : Visible Light-Emitting Diode Ⓞ: Darlington Output

Reflective Photo Sensor (Photo Reflector)

Type No.	Package No.	Feature	I _F (mA)	V _{CEO} (V)	I _C min. (mA)	I _{CEO} max. (μA)	t _r , t _f typ. (μs)	V _{CE(sat)} max. (V)
ON2152	054	High speed response	100	20	0.8	2	8	0.6
ON2153	055	High speed response	50	30	0.1	0.2	6	0.5
ON2253Ⓞ	055	High sensitivity	50	20	3	0.5	150	1.5
ON2160	056	Visible Light Cut Small size	50	30	0.09	0.2	15	0.4
ON2170	057	Visible Light Cut Small size, Thin Size	50	30	0.045	0.2	20	0.4
ON2173	058	High speed response	50	20	0.1	0.2	6	0.3
ON2180	057	Visible Light Cut Small size, Thin Size	50	30	0.045	0.2	20	0.4
ON2270Ⓞ	057	Visible Light Cut Small size, Thin Size	50	20	0.17	0.5	150	1.5
ON2280Ⓞ	057	Visible Light Cut Small size, Thin Size	50	20	0.17	1	150	1.5

Ⓞ: Darlington Output

Optical Fiber Unit

● Fiber Link

Type No.	Package No.	V _{CC} (V)	F (kbps)	Photo Detecting Level (dBm)	λ _P (nm)	Transmission Distance (m)	
Link	△ON1631	077	5	—	Current Consumption 50mA	660	
	△ON2631	078	5	—	Current Consumption 50mA	660	
	△ON3634W	081	5	1000	-30~-13	660	250*1, 40*2
	△ON3633W	081	5	100	-30~-13	660	250*1, 40*2
	ON3631R/T	079	5	1000	-30~-13	880	2000*3

*1: Glass Fiber(SI200) *2: Plastic Fiber(1mmφ)
*3: Glass Fiber(GI50) △: Tentative Specification

Opto Isolator

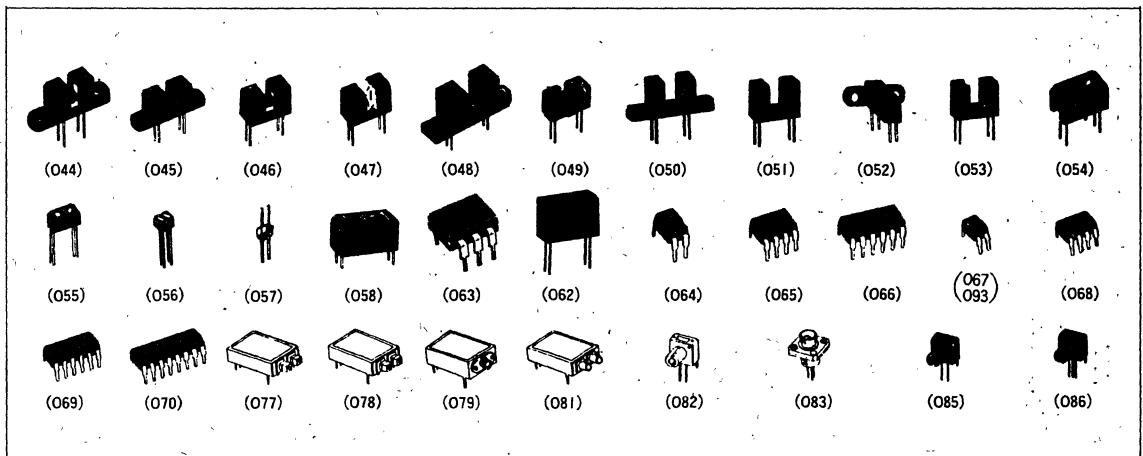
Type No.	Package No.	Feature	V _{CEO} * V _R ** V _O (V)	V _{ISO} min. (VRMS)	CTR (%)	t _r typ. (μs)
ON3100	063	High Transfer Ratio	30	2500	50~600	5
ON3105	062	High Voltage	30	5000	30typ.	4
ON3105V	062	High Voltage	30	4000	15~60	4
ON3110	063	High Transfer Ratio	30	2500	30~250	2
ON3111	064	High Transfer Ratio	35	2500	50~250	2.5
ON3112	065	High Transfer Ratio (2 gang)	35	2500	50~250	2.5
ON3113	066	High Transfer Ratio (3 gang)	35	2500	50~250	2.5
ON3131	091	High Voltage	35	5000	200typ.	2
ON3132	068	High Voltage (2 gang)	35	5000	200typ.	2
ON3133	069	High Voltage (3 gang)	35	5000	200typ.	2
ON3134	070	High Voltage (4 gang)	35	5000	200typ.	2
ON3161	067	High Voltage	35	5000	50~600	2.5
ON3171	093	High Voltage	35	5000	50~600	4
ON3205Ⓞ	062	High Voltage	20	5000	700typ.	100
ON3301*	063	High speed response	*50	2500	0.35typ.	0.07
ON3401	063	High speed Response, High Transfer Ratio	**15	2500	15~60	0.4

* : PIN Photo Diode Output Ⓞ: Darlington Output

● Optical Connector Module

Element	Type No.	Package No.	Fiber Power Output P _F typ. (μW)	Peak Emission Wavelength λ _P typ. (nm)	Forward Voltage V _F typ. (V)	Cut-off Frequency f _C typ. (MHz)	
Optical Element	△LN125D004	082	50*1	660	1.8	10	
	△LN183-001	083	40*2	880	1.6	35	
Element	Type No.	Package No.	Quantum Efficiency η min. (%)	Peak Sensitivity Wavelength λ _P typ. (nm)	Dark Current I _D max. (nA)	Cut-off Frequency f _C typ. (MHz)	
Optical Element	△PN332F001	083	60*2	850	1	300	
	△PN335-004	085	60	900	10	50	
Element	Type No.	Package No.	V _{CC} (V)	F (Kbps)	I _{OH} (μA)	V _{OL} (V)	I _{CC} (mA)
Optical Element	△PN405A004*3	086	5~16	10	100	0.4	12

*1 Plastic Fiber (1mmφ) *3 Photo IC Module
*2 Glass Fiber (GI50) △ Tentative Specification



営業所所在地一覧表

松下電器産業株式会社・国際インダストリー営業本部

〒105 東京都港区芝公園一丁目1番2号(ナショナル1号館) TEL. (03) 437-1121

松下電器	〒	所 在 地	電話番号
北海道支店インダストリー営業課	060	札幌市中央区北三条西一丁目1番地の1(ナショナルビル)	(011)231-6966
東北インダストリー営業所	980	仙台市青葉区国分町三丁目1番11号(ナショナルビル)	(022)263-4201
郡山出張所	963	福島県郡山市清水台一丁目6番21号(山相郡山ビル4階)	(0249)38-6201
関東インダストリー営業所	320	宇都宮市中央一丁目1番1号(新ナショナルビル)	(0286)37-2271
水戸出張所	310	水戸市泉町二丁目4番16号(茨城ナショナルビル2階)	(0292)26-2401
北関東インダストリー営業所	360	埼玉県熊谷市筑波一丁目26番1号	(0485)21-3755
東東京インダストリー営業所	105	東京都港区芝大門一丁目1番30号(ナショナル6号館)	(03) 438-5201
千葉出張所	260	千葉市新田町2番22号	(0472)46-1621
新潟出張所	950	新潟市東大通り二丁目4番1号	(025)246-2111
西東京インダストリー営業所	192	東京都八王子市明神町四丁目6番2号(山口ビル2階)	(0426)45-3233
パナソニックIインダストリー営業所	105	東京都港区芝大門一丁目1番30号(ナショナル6号館)	(03) 438-5251
パナソニックIIインダストリー営業所	105	東京都港区芝大門一丁目1番30号(ナショナル6号館)	(03) 438-5300
パナソニックIIIインダストリー営業所	105	東京都港区浜松町二丁目4番1号(世界貿易センタービル)	(03) 435-4927
関連インダストリー営業所	105	東京都港区芝大門一丁目1番30号(ナショナル6号館)	(03) 438-5181
岩井出張所	306-06	茨城県岩井市大字辺田1106番地	(02973)5-2251~3
前橋出張所	371	前橋市大渡町一丁目10番1号	(0272)52-5784
小諸出張所	389-03	長野県小県郡東部町大字滋野乙1633-1	(0268)64-2489
東京インダストリー営業所	105	東京都港区芝大門一丁目1番30号(ナショナル6号館)	(03) 438-5111
宇都宮出張所	320	宇都宮市中央一丁目1番1号(新ナショナルビル)	(0286)37-0129
関東出張所	360	埼玉県熊谷市筑波一丁目27番3号(サンハイツ大和2階)	(0485)25-5551
神奈川インダストリー営業所	220	横浜市西区北幸一丁目4番1号(天理ビル17階)	(045)319-5261
長野インダストリー営業所	390	長野県松本市渚二丁目9番45号	(0263)26-3200
北長野出張所	380	長野市西後町1603番地(協和銀行長野支店2階)	(0262)35-2377
静岡インダストリー営業所	420	静岡市水落町1番1号(ナショナルビル)	(0542)47-5151
三島出張所	411	静岡県三島市一番町15番26号(ミシマスルカビル6階)	(0559)71-0011
浜松出張所	430	静岡県浜松市田町324番地の3(住友生命浜松田町ビル7階)	(0534)56-1313
東海インダストリー営業所	461	名古屋市中区泉一丁目23番30号	(052)951-6211
中部インダストリー営業所	471	愛知県豊田市三軒町四丁目34番地	(0565)32-7180
北近畿インダストリー営業所	604	京都市中京区烏丸通御池上ル二条殿町548番地	(075)256-3301
武生出張所	915	福井県武生市府中二丁目1番2号(河合ビル3階)	(0778)22-5646
金沢出張所	920	金沢市芳齋二丁目16番15号	(0762)23-1132
近畿インダストリー営業所	540	大阪市中央区城見二丁目1番61号(ナショナルタワー)	(06) 949-2371
姫路出張所	670	兵庫県姫路市白銀町24番地(阪神相銀第一生命共同ビル2階)	(0792)82-1660
鳥取出張所	680	鳥取市今町二丁目251番地(日本生命鳥取駅前ビル5階)	(0857)24-8711
中国インダストリー営業所	730	広島市中区国泰寺町二丁目3番23号	(082)248-1946
岡山事務所	700	岡山市番町二丁目3番2号(浦上ビル)	(0862)25-1311
四国支店インダストリー営業課	760	高松市古新町8番地の1	(0878)21-1121
九州インダストリー営業所	812	福岡市博多区博多駅前一丁目9番3号(福岡MIDビル1階)	(092)481-1131
海外直販営業所	542	大阪市中央区南船場四丁目11番28号(山中産業ビル)	(06) 282-5111
海外販社営業部	542	大阪市中央区南船場四丁目11番28号(山中産業ビル)	(06) 282-5111

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Panasonic

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