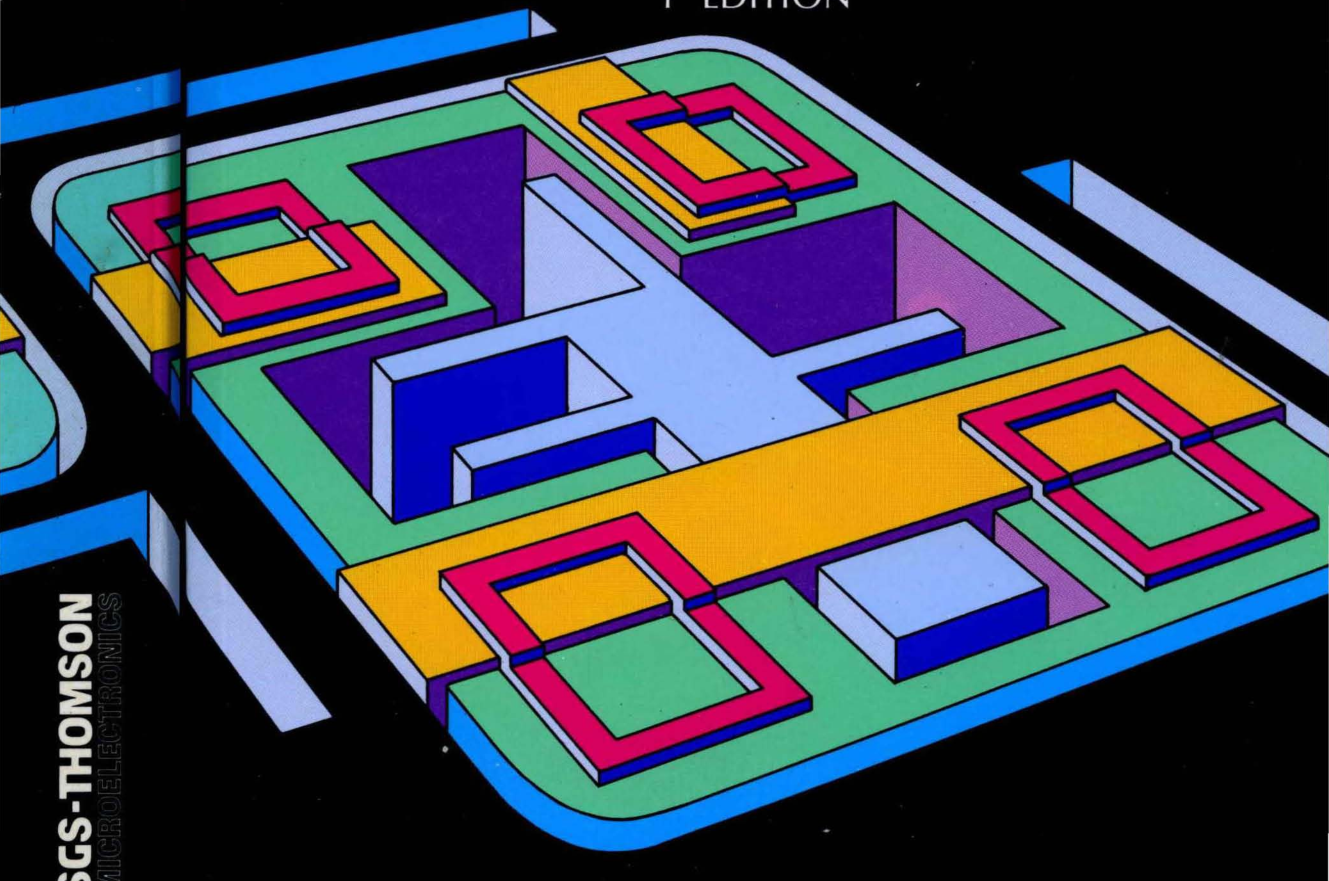
THYRISTORS & TRIACS

DATABOOK

1st EDITION



SGS-THOMSON
MICROELECTRONICS

THYRISTORS & TRIACS

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1st EDITION

APRIL 1989

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ALPHANUMERICAL INDEX

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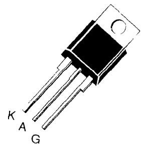
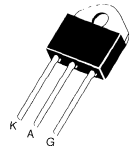
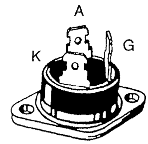
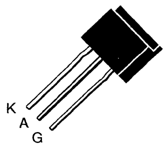
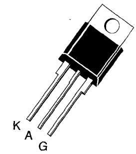
PRODUCT GUIDE

di/dt	Critical rate of rise of on-state current
$(di/dt)_c$	Critical rate of removal of the current of an alternistor
dv/dt	Critical rate of rise of off-state voltage
$(dv/dt)_c$	Critical rate of rise of commutating off-state voltage of a triac
I_{DRM}	Maximum forward leakage current
I_{FGM}	Peak forward gate current of a thyristor
I_{GM}	Peak gate current of a triac
I_{GT}	Gate trigger current
I_H	Continuous holding current
I_L	Latching current
I_{RRM}	Maximum reverse leakage current of a thyristor
$I_{T(AV)}$, I_O	Mean on-state current of a thyristor
I_{TM}	Peak on-state current
$I_{T(RMS)}$	RMS on-state current
I_{TSM}	Non repetitive surge peak on-state current
I^2t	I^2t for fusing
$P_{G(AV)}$	Mean gate power dissipation
P_{GM}	Peak gate power
r_T	Slope resistance
$R_{th(c-h)}$	Contract thermal resistance
$R_{th(j-a)}$	Junction to ambient thermal resistance
$R_{th(j-c)}$	Junction to case thermal resistance
$R_{th(j-c)}$ AC	Junction to case thermal resistance for alternative current
$R_{th(j-c)}$ DC	Junction to case thermal resistance for direct current
$R_{th(j-l)}$	Junction-leads thermal resistance
T_{amb}	Ambient temperature
T_{case}, T_c	Case temperature
t_{gt}	Turn-on time (total)
T_j	Junction temperature
T_{lead}, T_L	Lead temperature
t_p	Pulse width
t_q	Turn-off time of a thyristor
T_{stg}	Storage temperature
V_{DRM}	Repetitive peak off-state forward voltage
V_{FGM}	Peak forward gate voltage of a thyristor
V_{GD}	Gate non-trigger voltage
V_{GM}	Peak gate voltage of a triac
V_{GT}	Gate trigger voltage
V_{RGM}	Peak reverse gate voltage of a thyristor
V_{RRM}	Repetitive peak reverse voltage of a thyristor
V_{TM}	Peak on-state voltage
V_{TO}	Threshold voltage
Z_{th}	Thermal impedance

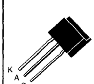
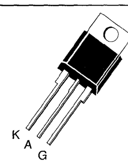
Type \ Case	 TO 220 AB	 TOP 3	 RD 91
THYRISTORS	TXN 054 →1004 TXN 056 →1006 TXN 058 →1008,G,K TXN 0510→1010 TXN 0512→1012	BTW 68-200→1200 BTW 69-200→1200	BTW 66-200→1200 BTW 67-200→1200
TRIACS	**Logic level triacs**		
	BTA 06-200→800 SW BTA 06-200→800 TW BTA 08-200→800 SW BTA 08-200→800 TW		
	Snubberless triacs		
	BTA 06-200→800 AW,BW,CW BTA 08-200→800 AW,BW,CW BTA 10-200→800 AW,BW,CW BTA 12-200→800 AW,BW,CW BTA 16-200→800 AW,BW,CW		
	Sensitive gate triacs		
	BTA 04-200→800 A,D,S,T BTA 06-200→800 A,D,S,T, BTA 08-200→800 A,S		
	Standard triacs		
	BTA 06-200→800 B,C BTA 08-200→800 B,C BTA 10-200→800 B,C BTA 12-200→800 B,C BTA 13-200→800 B BTA 16-200→800 B	BTA 26-200→800 A,B BTA 41-200→800 A,B	BTA 25-200→800 A,B BTA 40-200→800 A,B
	Special triacs for light dimmers		
	BTA 04-200→600 GP BTA 06-200→600 GP		
	Alternistors		
	TXDV 208→808 TXDV 212→812	TPDV 125→1225 TPDV 140→1240	TODV 125→1225 TODV 140→1240

SENSITIVE GATE PLASTIC CASE THYRISTORS

Case	 TL		 TO 220 AB			
$I_{T\ (RMS)}$ (A) / V_{RRM} (V)	**4 (1)**	**4 (2)**	**4 (1)**	**4 (2)**	**6 (1)**	**6 (2)**
50	TLS 106-05	TLS 107-05	TYS 406-05	TYS 407-05	TYS 606-05	TYS 607-05
100	TLS 106-1	TLS 107-1	TYS 406-1	TYS 407-1	TYS 606-1	TYS 607-1
200	TLS 106-2	TLS 107-2	TYS 406-2	TYS 407-2	TYS 606-2	TYS 607-2
400	TLS 106-4	TLS 107-4	TYS 406-4	TYS 407-4	TYS 606-4	TYS 607-4
600	TLS 106-6	TLS 107-6	TYS 406-6	TYS 407-6	TYS 606-6	TYS 607-6
800			TYS 406-8	TYS 407-8	TYS 606-8	TYS 607-8

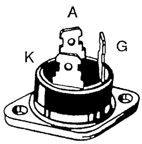
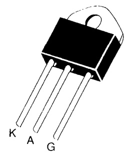
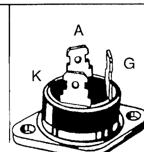
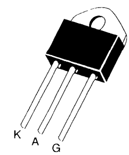
(1) I_{GT} = 0.2 mA.
(2) I_{GT} = 0.5 mA.

STANDARD PLASTIC CASE THYRISTORS

Case	 TL	 TO 220 AB							
$I_{T\ (RMS)}$ (A) / V_{RRM} (V)	**3 (1)**	**4 (1) (4)**	**6 (1) (4)**	**8 (1) (4) (5)**	**10 (1) (4)**	**12 (1) (4)**	**16 (2)**	**25 (2)**	**25 (3)**
50		TYN 054	TYN 056	TYN 058	TYN 0510	TYN 0512	TYN 0516	TYN 682	
100	TL 1006	TYN 104	TYN 106	TYN 108	TYN 110	TYN 112	TYN 116	TYN 683	
200	TL 2006	TYN 204	TYN 206	TYN 208	TYN 210	TYN 212	TYN 216	TYN 685	TYN 225
400	TL 4006	TYN 404	TYN 406	TYN 408	TYN 410	TYN 412	TYN 416	TYN 688	TYN 425
600	TL 6006	TYN 604	TYN 606	TYN 608	TYN 610	TYN 612	TYN 616	TYN 690	TYN 625
800	TL 8006	TYN 804	TYN 806	TYN 808	TYN 810	TYN 812	TYN 816	TYN 692	TYN 825
1000		TYN 1004	TYN 1006	TYN 1008	TYN 1010	TYN 1012			TYN 1025
1200									TYN 1225

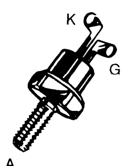
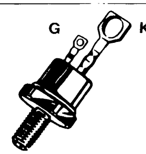
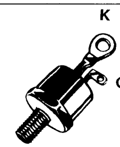
(1) I_{GT}max = 15 mA.
(2) I_{GT}max = 25 mA.
(3) I_{GT}max = 40 mA.
(4) Insulating version available
Ordering information TXN. Example: TXN 054
(5) With suffix G: I_{GT}max = 25 mA.
With suffix K: I_{GT}max = 40 mA.

STANDARD PLASTIC CASE THYRISTORS (Continued)

Case	 RD 91	 TOP 3		 RD 91	 TOP 3	
$I_{T\,(RMS)}$ (A) / V_{RRM} (V)	30 (3)	30 (1) (3)	35 (1)	40 (3)	50 (2) (3)	55 (2)
200	BTW 66- 200	BTW 68- 200	BTW 68- 200 N	BTW 67- 200	BTW 69- 200	BT W69- 200 N
400	BTW 66- 400	BTW 68- 400	BTW 68- 400 N	BTW 67- 400	BTW 69- 400	BTW 69- 400 N
600	BTW 66- 600	BTW 68- 600	BTW 68- 600 N	BTW 67- 600	BTW 69- 600	BTW 69- 600 N
800	BTW 66- 800	BTW 68- 800	BTW 68- 800 N	BTW 67- 800	BTW 69- 800	BTW 69- 800 N
1000	BTW 66-1000	BTW 68-1000	BTW 68-1000 N	BTW 67-1000	BTW 69-1000	BTW 69-1000 N
1200	BTW 66-1200	BTW 68-1200	BTW 68-1200 N	BTW 67-1200	BTW 69-1200	BTW 69-1200 N

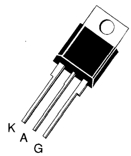
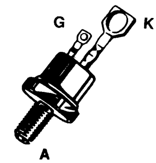
(1) I_{GT} max = 50 A. (3) Insulated. Insulating voltage: 2500 V_{RMS}
(2) I_{GT} max = 80 A.

STANDARD METAL CASE THYRISTORS

Case	 TO 64	 TO 48				 TO 65
$I_{T\,(RMS)}$ (A) / V_{RRM} (V)	7.4 (1)	25 (2)	25 (3)	35 (2)	50 (4)	63 (5)
25	2N 1770		2N 681			
50	2N 1771	BTW 39- 50	2N 682			
100	2N 1772	BTW 30- 100	2N 683			BTW 50- 100
150	2N 1773					
200	2N 1774	BTW 39- 200	2N 685		BTW 48- 200	BTW 50- 200
250	2N 1775					
300	2N 1776	BTW 39- 300	2N 687			
400	2N 1777	BTW 39- 400	2N 688		BTW 48- 400	BTW 50- 400
500	2N 1778	BTW 39- 500	2N 689			
600	2N 2619	BTW 39- 600	2N 690	2N 5204	BTW 48- 600	BTW 50- 600
700		BTW 39- 700	2N 691			
800		BTW 39- 800	2N 692	2N 5205	BTW 48- 800	BTW 50- 800
900		BTW 39- 900				
1000		BTW 39-1000		2N 5206		BTW 50-1000
1100		BTW 39-1100				
1200		BTW 39-1200		2N 5207	BTW 48-1200	BTW 50-1200

(1) T_{case} = 90°C.
(2) T_{case} = 75°C.
(3) T_{case} = 70°C.
(4) T_{case} = 85°C.
(5) T_{case} = 105°C.

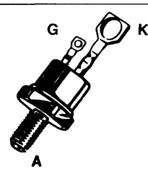
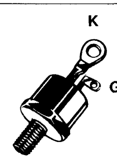
OVERVOLTAGE PROTECTION THYRISTORS

Case	 TO 220 AB	 TO 48
$I_{T\ (RMS)}$ (A) / V_{RRM} (V)	12 (1)	25 (2)
25	TYP 212	TSP 225
50	TYP 512	TSP 525
100	TYP 1012	TSP 1025
200	TYP 2012	

(1) I_{TSM} = 750 A (1 ms expo).

(2) I_{TSM} = 145 A (250 ms ⎍)

FAST SWITCHING THYRISTORS

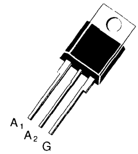
Case	 TO 48			 TO 65	
$I_{T\ (RMS)}$ (A) / V_{RRM} (V)	25 (1)	35 (2)	35 (3)	63 (4)	63 (5)
50		2N 3654	2N 3649		
100		2N 3655	2N 3650	TGF 149-100 A	
200		2N 3656	2N 3651	TGF 149-200 A	
300		2N 3657	2N 3652	TGF 149-300 A	
400		2N 3658	2N 3653	TGF 149-400 A	
500				TGF 149-500 A	
600	BTW 30- 600			TGF 149-600 A	TGF 148- 600 B
700					TGF 148- 800 B
800	BTW 30- 800				TGF 148- 800 B
900					TGF 148- 900 B
1000	BTW 30-1000				TGF 148-1000 B
1100					TGF 148-1100 B
1200	BTW 30-1200				TGF 148-1200 B

(1) $V_{RRM} \leqslant$ 800 V - $t_q \leqslant$ 12 μs.
$V_{RRM} \geqslant$ 1000 V - $t_q \leqslant$ 20 μ s.

(2) $t_q \leqslant$ 15 μs.
(3) $t_q \leqslant$ 10 μs.
(4) $t_q \leqslant$ 20 μs.
(5) $t_q \leqslant$ 40 μs.

HIGH SWITCHING PERFORMANCE TRIACS

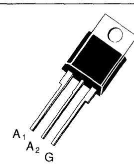
Logic Level Triacs

Case	 **TO 220 AB**	
V_{RRM} ±(V) \ $I_{T\ (RMS)}$ (A)	**6 (1) (2)**	**8 (1) (2)**
200	BTA 06-200	BTA 08-200
400	BTA 06-400	BTA 08-400
600	BTA 06-600	BTA 08-600
700	BTA 06-700	BTA 08-700
800	BTA 06-800	BTA 08-800

(1) With suffixes: TW, SW. (2) Non isolated type available. Designation BTB

Suffix	**Quadrants**		
	QI	**QII**	**QIII**
TW	5 mA	5 mA	5 mA
SW	10 mA	10 mA	10 mA

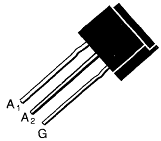
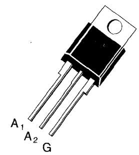
Snubberless Triacs

Case	 **TO 220 AB**				
V_{DRM} ±(V) \ $I_{T\ (RMS)}$ (A)	**6 (1) (2)**	**8 (1) (2)**	**10 (1) (2)**	**12 (1) (2)**	**16 (1) (2)**
200	BTA 06-200	BTA 08-200	BTA 10-200	BTA 12-200	BTA 16-200
400	BTA 06-400	BTA 08-400	BTA 10-400	BTA 12-400	BTA 16-400
600	BTA 06-600	BTA 08-600	BTA 10-600	BTA 12-600	BTA 16-600
700	BTA 06-700	BTA 08-700	BTA 10-700	BTA 12-700	BTA 16-700
800	BTA 06-800	BTA 08-800	BTA 10-800	BTA 12-800	BTA 16-800

(1) With suffixes: AW, BW, CW. (2) Non isolated type available. Designation BTB.

Suffix	**Quadrants**		
	QI	**QII**	**QIII**
AW	75 mA	75 mA	75 mA
BW	50 mA	50 mA	50 mA
CW	35 mA	35 mA	35 mA

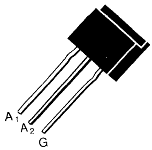
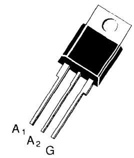
SENSITIVE GATE TRIACS

Case	 TL		 TO 220 AB		
$I_{T\ (RMS)}$ (A) / V_{DRM} ±(V)	1 (1)	3 (1)	4 (1) (3)	6 (1) (3)	8 (2) (3)
200	TLC 111	TLC 116	BTA 04-200	BTA 06-200	BTA 08-200
400	TLC 221	TLC 226	BTA 04-400	BTA 06-400	BTA 08-400
600	TLC 331	TLC 336	BTA 04-600	BTA 06-600	BTA 08-600
700	TLC 381	TLC 386	BTA 04-700	BTA 06-700	BTA 08-700
800			BTA 04-800	BTA 06-800	BTA 08-800

(1) With suffixes: T, S, D, A.
(2) With suffixes: S, A.
(3) Non isolated type available. Designation BTB....

Suffix	Quadrants			
	QI	QII	QIII	QIV
T	5 mA	5 mA	5 mA	5 mA
S	10 mA	10 mA	10 mA	10 mA
D	5 mA	5 mA	5 mA	10 mA
A	10 mA	10 mA	10 mA	25 mA

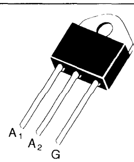
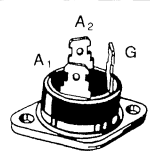
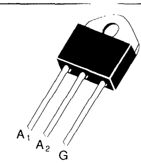
STANDARD PLASTIC CASE TRIACS

Case	 TL		 TO 220 AB							
$I_{T\ (RMS)}$ (A) / V_{DRM} ±(V)	1 (1)	3 (1)	6 (2) (3)	8 (2) (3)	10 (2) (3)	12 (2) (3)	12 (1) (3)	15 (1)	16 (1) (3)	25 (1)
200	TLC 111	TLC 116	BTA 06-200	BTA 08-200	BTA 10-200	BTA 12-200	BTA 13-200	BTB 15-200	BTA 16-200	BTB 24-200
400	TLC 221	TLC 226	BTA 06-400	BTA 08-400	BTA 10-400	BTA 12-400	BTA 13-400	BTB 15-400	BTA 16-400	BTB 24-400
600	TLC 331	TLC 336	BTA 06-600	BTA 08-600	BTA 10-600	BTA 12-600	BTA 13-600	BTB 15-600	BTA 16-600	BTB 24-600
700	TLC 381	TLC 386	BTA 06-700	BTA 08-700	BTA 10-700	BTA 12-700	BTA 13-700	BTA 15-700	BTA 16-700	BTB 24-700
800			BTA 06-800	BTA 08-800	BTA 10-800	BTA 12-800	BTA 13-800	BTB 15-800	BTA 16-800	BTB 24-800

(1) With suffix: B
(2) With suffixes: B,C
(3) Non isolated type available. Designation BTB...

Suffix	Quadrants			
	QI	QII	QIII	QIV
B	50 mA	50 mA	50 mA	100 mA
C	25 mA	25 mA	25 mA	50 mA

STANDARD PLASTIC CASE TRIACS

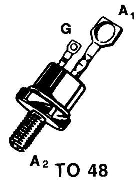
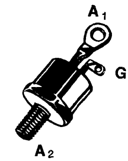
Case	 TOP 3		 RD 91		 TOP 3	
$I_{T\ (RMS)}$ (A) / V_{DRM} ±(V)	25 (1)	30	30 (1)	40	40 (1)	45
200	BTA 26-200 B, A	BTB 26-200 B, A	BTA 25-200 B, A	BTA 40-200 B, A	BTA 41-200 B, A	BTB 41-200 B, A
400	BTA 26-400 B, A	BTB 26-400 B, A	BTA 25-400 B, A	BTA 40-400 B, A	BTA 41-400 B, A	BTB 41-400 B, A
600	BTA 26-600 B, A	BTB 26-600 B, A	BTA 25-600 B, A	BTA 40-600 B, A	BTA 41-600 B, A	BTB 41-600 B, A
700	BTA 26-700 B, A	BTB 26-700 B, A	BTA 25-700 B, A	BTA 40-700 B, A	BTA 41-700 B, A	BTB 41-700 B, A
800	BTA 26-800 B, A	BTB 26-800 B, A	BTA 25-800 B, A	BTA 40-800 B, A	BTA 41-800 B, A	BTB 41-800 B, A

Suffix B: Quadrants QI QII QIII: I_{GT} 50 mA.
QIV : I_{GT} = 100 mA

Suffix A: Quadrants QI QII QIII: I_{GT} = 100 mA.
QIV : I_{GT} = 150 mA.

(1) Insulated case - Insulating voltage 2500 V_{RMS}.

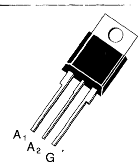
STANDARD METAL CASE TRIACS

Case	 **TO 48**		 **TO 65**
$I_{T\,(RMS)}$ (A) / **V_{DRM} (V)**	**25 (1)**	**35 (2)**	**60 (2)**
200	TRAL 1125 D	TRAL 1135 D	TGAL 602
400	TRAL 2225 D	TRAL 2235 D	TGAL 604
600	TRAL 3325 D	TRAL 3335 D	TGAL 606
700	TRAL 3825 D	TRAL 3835 D	
800			TGAL 608
1000			TGAL 610

(1) Quadrants QI QII QIII: I_{GT} = 100 mA
QIV : I_{GT} = 150 mA.

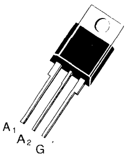
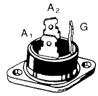
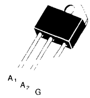
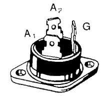
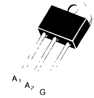
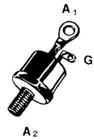
(2) Quadrants QI QIII : I_{GT} = 100 mA
QII QIV: I_{GT} = 150 mA.

SPECIAL TRIACS FOR LIGHT DIMMERS

Case	 **TO 220 AB**	
$I_{T\,(RMS)}$ (A) / **V_{DRM} (V)**	**4 (1)**	**6 (1)**
200	BTA 04-200 GP	BTA 06-200 GP
400	BTA 04-400 GP	BTA 06-400 GP
600	BTA 04-600 GP	BTA 06-600 GP

(1) Quadrants QI QII QIII: I_{GT} = 50 mA.
QIV : I_{GT} = 75 mA.
Insulated case - Insulating voltage 2500 V_{RMS}

ALTERNISTOR

Case	 TO 220 AB		 RD 91	 TOP 3	 RD 91	 TOP 3	 TO 65
$I_{T\ (RMS)}$ (A) / V_{DRM} ±(V)	8 (1) (4)	12 (1) (4)	25 (2) (4)	25 (2) (4)	40 (3) (4)	40 (3) (4)	60 (3)
100			TODV 125	TPDV 125	TODV 140	TPDV 140	TGDV 601
200	TXDV 208	TXDV 212	TODV 225	TPDV 225	TODV 240	TPDV 240	TGDV 602
400	TXDV 408	TXDV 412	TODV 425	TPDV 425	TODV 440	TPDV 440	TGDV 604
600	TXDV 608	TXDV 612	TODV 625	TPDV 625	TODV 640	TPDV 640	TGDV 606
800	TXDV 808	TXDV 812	TODV 825	TPDV 825	TODV 840	TPDV 840	TGDV 608
1000			TODV 1025	TPDV 1025	TODV 1040	TPDV 1040	TGDV 610
1200			TODV 1225	TPDV 1225	TODV 1240	TPDV 1240	TGDV 612

(1) Quadrants QI - QII - QIII: I_{GT} = 100 mA.
(2) Quadrants QI - QII - QIII: I_{GT} = 150 mA.
(3) Quadrants QI - QII - QIII: I_{GT} = 200 mA.
(4) Insulated Case - Insulating voltage 2500 V_{RMS}

TRIGGER DIODES (DIACS)

Case			 DO 35	 Minimelf
Breakover voltage			Types	
Min	Typ	Max		
28	32	36	DB 3	TMMDB3
35	40	45	DB 4	
30	34	38	DC 34	
35	38	42	DC 38	
39	42	45	DC 42	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
2N3899		2N5204
2N4169		2N1772
2N4170		2N1775
2N4172		2N1777
2N4174		2N2619
2N5204	2N5204	
2N5206	2N5206	
2N5207	2N5207	
2N6070		TLC116C
2N6070A		TLC116D
2N6070B		TLC116D
2N6071		TLC116C
2N6071A		TLC116D
2N6071B		TLC116T
2N6072		TLC226C
2N6072A		TLC226D
2N6072B		TLC226T
2N6073		TLC226A
2N6073A		TLC226D
2N6073B		TLC226T
2N6074		TLC336A
2N6074A		TLC336D
2N6074B		TLC336T
2N6075		TLC336A
2N6075A		TLC336D
2N6077B		TLC336T
2N6236		TLS106-05
2N6237		TLS106-2
2N6238		TLS106-1
2N6239		TLS106-1
2N6240		TLS106-4
2N6241		TLS106-6
2N6342	BTB08-200B	
2N6342A	BTB12-200B	
2N6343	BTB08-400B	
2N6343A	BTB12-400B	
2N6344	BTB08-600B	
2N6344A	BTB12-600B	
2N6345	BTB08-800B	
2N6345A	BTB12-800B	
2N6346	BTB08-200B	
2N6346A	BTB12-200B	
2N6347	BTB08-400B	
2N6347A	BTB12-400B	
2N6348	BTB08-600B	
2N6348A	BTB12-600B	
2N6349	BTB08-800B	
2N6349A	BTB12-800B	
2N6394	TYN0512	
2N6395	TYN112	
2N6396	TYN212	
2N6397	TYN412	
2N6398	TYN612	
2N6399	TYN812	
2N6400	TYN0516	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
2N6401	TYN116	
2N6402	TYN216	
2N6403	TYN416	
2N6404	TYN616	
2N6405	TYN816	
2N6504	TYN225	
2N6505	TYN225	
2N6506	TYN225	
2N6507	TYN425	
2N6508	TYN625	
2N6509	TYN825	
BR100/03	DB3	
BT136F500		BTA06-600C
BT136F500D		BTA04-600D
BT136F500E		BTA04-600S
BT136F500F		BTA06-600C
BT136F600		BTA06-600C
BT136F600E		BTA04-600S
BT136F600F		BTA06-600C
BT136-500	BTB06-600C	
BT136-500E	BTB04-600S	
BT136-500F	BTB06-600C	
BT136-500G	BTB06-600B	
BT136-600	BTB06-600C	
BT136-600E	BTB04-600S	
BT136-600F	BTB06-600C	
BT136-600G	BTB06-600B	
BT136-800	BTB06-700C	
BT136-800E	BTB04-800S	
BT136-800F	BTB06-800C	
BT136-800G	BTB06-800B	
BT137F500D		BTA08-600TW
BT137F500E		BTA08-600S
BT137F500F		BTA08-600C
BT137F500G		BTA08-600C
BT137F600		BTA08-600C
BT137F600E		BTA08-600S
BT137F600F		BTA08-600C
BT137F600G		BTA08-600B
BT137-500	BTB08-600C	
BT137-500D		BTB08-600TW
BT137-500F	BTB08-600C	
BT137-500G	BTB08-600B	
BT137-600	BTB08-600C	
BT137-600F	BTB08-600C	
BT137-600G	BTB08-600B	
BT137-800	BTB08-800C	
BT137-800F	BTB08-800C	
BT137-800G	BTB08-800B	
BT137F500		BTA08-600C
BT138F500		BTA12-600C
BT138F500F		BTA12-600C
BT138F500G		BTA12-600C
BT138F600		BTA12-600C
BT138F600F		BTA12-600C

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
BT138F600G		BTA12-600C
BT138-500	BTB12-600C	
BT138-500F	BTB12-600C	
BT138-500G	BTB12-600C	
BT138-600	BTB12-600C	
BT138-600F	BTB12-600C	
BT138-600G	BTB12-600C	
BT139F500		BTA16-600CW
BT139F500F		BTA16-600CW
BT139F500G		BTA16-600B
BT139F600		BTA16-600CW
BT139F600F		BTA16-600CW
BT139F600G		BTA16-600B
BT139-500		BTB16-600CW
BT139-500F		BTB16-600CW
BT139-500G	BTB16-600B	
BT139-600		BTB16-600CW
BT139-600F		BTB16-600CW
BT139-600G	BTB16-600B	
BT139-800		BTB16-800CW
BT139-800F		BTB16-800CW
BT139-800G	BTB16-800B	
BT150	TYS406-6	
BT151F500		TXN610
BT151F650		TXN810
BT151F800		TXN810
BT151-500R	TYN610	
BT151-650R	TYN810	
BT151-800R	TYN810	
BT152-400R	TYN688	
BT152-600R	TYN690	
BT158-400	BTB08-400C	
BT158-600	BTB08-600C	
BTA140-500	BTB24-600B	
BTA140-600	BTB24-600B	
BTA21C	BTB08-400C	
BTA21D	BTB08-400C	
BTA21E	BTB08-600C	
BTA22B	BTB10-200C	
BTA22C	BTB10-400C	
BTA22D	BTB10-400C	
BTA22E	BTB10-600C	
BTA22M	BTB10-700C	
BTA23B	BTB12-200C	
BTA23C	BTB12-400C	
BTA23D	BTB12-400C	
BTA23E	BTB12-600C	
BTA23M	BTB12-600C	
BTW40-400R	BTW48-400	
BTW40-600R	BTW48-600	
BTW40-800R	BTW48-800	
BTW45-1000R	2N5206	
BTW45-1200R	2N5207	
BTW45-400R	2N5204	
BTW45-600R	2N5204	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
BTW45-800R	2N5205	
BTY91-400R		BTW39-400
BTY91-500R		BTW39-600
BTY91-600R		BTW39-600
BTY91-800R		BTW39-800
C106A		TLS106-1
C106A1		TLS106-1
C106B		TLS106-2
C106B1		TLS106-2
C106C		TLS106-4
C106C1		TLS106-4
C106D		TLS106-4
C106D1		TLS106-4
C106E		TLS106-6
C106E1		TLS106-6
C106F1		TLS106-05
C106M		TLS106-6
C106M1		TLS106-6
C106Y1		TLS106-05
C107A		TLS107-1
C107A1		TLS107-1
C107B		TLS107-2
C107B1		TLS107-2
C107C		TLS107-4
C107C1		TLS107-4
C107D		TLS107-4
C107D1		TLS107-4
C107E		TLS107-6
C107E1		TLS107-6
C107F1		TLS107-05
C107M		TLS107-6
C107M1		TLS107-6
C107Y1		TLS107-05
C122A	TYN108G	
C122A1	TYN108G	
C122B	TYN208G	
C122B1	TYN208G	
C122C	TYN408G	
C122C1	TYN408G	
C122D	TYN408G	
C122D1	TYN408G	
C122E	TYN608G	
C122E1	TYN608G	
C122F1	TYN058G	
C122M	TYN608G	
C122M1	TYN608G	
C122N1	TYN808	
C122S1	TYN808	
C205A		TLS106-1
C205B		TLS106-2
C205C		TLS106-4
C205D		TLS106-4
C205Y		TLS106-05
C205YY		TLS106-05
C228A		2N5204

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
C228B		2N5204
C228C		2N5204
C228D		2N5204
C228E		2N5204
C228F		2N5204
C228M		2N5204
C35A		2N5204
C35B		2N5204
C35C		2N5204
C35D		2N5204
C35E		2N5204
C35F		2N5204
C35M		2N5204
C35N		2N5205
C35S		2N5205
D0201YR		DB3
EC103A		TLS106-1
EC103A3		TLS107-1
EC103B		TLS106-2
EC103B3		TLS107-2
EC103C		TLS106-4
EC103C3		TLS107-4
EC103D		TLS106-4
EC103D3		TLS107-4
EC103E		TLS106-6
EC103E3		TLS107-6
EC103M		TLS106-6
EC103M3		TLS107-6
EC103Y		TLS106-05
EC103Y3		TLS107-05
HT32	DB3	
HT35	DC34	
HT40	DC38	
IT010	BTA10-200B	
IT010B	BTA10-200B	
IT015	BTA16-200C	
IT015	BTA16-200B	
IT06	BTA06-200B	
IT06A	BTA06-200B	
IT06B	BTA06-200B	
IT06HA	BTA06-200C	
IT06HX	BTA06-200C	
IT08	BTA08-200B	
IT08A	BTA08-200B	
IT08B	BTA08-200B	
IT08HA	BTA08-200C	
IT08HX	BTA08-200C	
IT1010HA	BTA10-200C	
IT1010HX	BTA10-200C	
IT110	BTA10-200B	
IT110A	BTA10-200B	
IT110B	BTA10-200B	
IT110HA	BTA10-200C	
IT110HX	BTA10-200C	
IT115	BTA16-200B	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
IT115A	BTA16-200B	
IT115B	BTA16-200B	
IT115HA	BTA16-200C	
IT115HX	BTA16-200C	
IT16	BTA06-200B	
IT16A	BTA06-200B	
IT16B	BTA06-200B	
IT16HA	BTA06-200C	
IT16HX	BTA06-200C	
IT18	BTA08-200B	
IT18A	BTA08-200B	
IT18B	BTA08-200B	
IT18HA	BTA08-200C	
IT18HX	BTA08-200C	
IT210	BTA10-200B	
IT210A	BTA10-200B	
IT210B	BTA10-200B	
IT210HA	BTA10-200C	
IT210HX	BTA10-200C	
IT215	BTA16-200B	
IT215A	BTA16-200B	
IT215B	BTA16-200B	
IT215HA	BTA16-200C	
IT215HX	BTA16-200C	
IT26	BTA06-200B	
IT26A	BTA06-200B	
IT26B	BTA06-200B	
IT26HA	BTA06-200C	
IT26HX	BTA06-200C	
IT28	BTA08-200B	
IT28A	BTA08-200B	
IT28B	BTA08-200B	
IT28HA	BTA08-200C	
IT28HX	BTA08-200C	
IT310	BTA10-400B	
IT310A	BTA10-400B	
IT310B	BTA10-400B	
IT310HA	BTA10-400C	
IT310HX	BTA10-400C	
IT315	BTA16-400B	
IT315A	BTA16-400B	
IT315B	BTA16-400B	
IT315HA	BTA16-400C	
IT315HX	BTA16-400C	
IT36	BTA06-400B	
IT36A	BTA06-400B	
IT36B	BTA06-400B	
IT36HA	BTA06-400C	
IT36HX	BTA06-400C	
IT38	BTA08-400B	
IT38A	BTA08-400B	
IT38B	BTA08-400B	
IT38HA	BTA08-400C	
IT38HX	BTA08-400C	
IT410	BTA10-400B	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
IT410A	BTA10-400B	
IT410B	BTA10-400B	
IT410HA	BTA10-400C	
IT410HX	BTA10-400C	
IT415	BTA16-400B	
IT415A	BTA16-400B	
IT415B	BTA16-400B	
IT415HA	BTA16-400C	
IT415HX	BTA16-400C	
IT46	BTA06-400B	
IT46A	BTA06-400B	
IT46B	BTA06-400B	
IT46HA	BTA06-400C	
IT46HX	BTA06-400C	
IT48	BTA08-400B	
IT48A	BTA08-400B	
IT48B	BTA08-400B	
IT48HA	BTA08-400C	
IT48HX	BTA08-400C	
IT510	BTA10-600B	
IT510A	BTA10-600B	
IT510B	BTA10-600B	
IT510HA	BTA10-600C	
IT510HX	BTA10-600C	
IT515	BTA16-600B	
IT515A	BTA16-600B	
IT515B	BTA16-600B	
IT515HA	BTA16-600C	
IT515HX	BTA16-600C	
IT56	BTA06-600B	
IT56A	BTA06-600B	
IT56B	BTA06-600B	
IT56HA	BTA06-600C	
IT56HX	BTA06-600C	
IT58	BTA08-600B	
IT58A	BTA08-600B	
IT58B	BTA08-600B	
IT58HA	BTA08-600C	
IT58HX	BTA08-600C	
IT610	BTA10-600B	
IT610A	BTA10-600B	
IT610B	BTA10-600B	
IT610HA	BTA10-600C	
IT610HX	BTA10-600C	
IT615	BTA16-600B	
IT615A	BTA16-600B	
IT615B	BTA16-600B	
IT615HA	BTA16-600C	
IT615HX	BTA16-600C	
IT66	BTA06-600B	
IT66A	BTA06-600B	
IT66B	BTA06-600B	
IT66HA	BTA06-600C	
IT66HX	BTA06-600C	
IT68	BTA08-600B	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
IT68A	BTA08-600B	
IT68B	BTA08-600B	
IT68HA	BTA08-600C	
IT68HX	BTA08-600C	
L2004F31		BTB04-200T
L2004F51		BTB04-200T
L2004F71		BTB04-200S
L2004F91		BTB04-200A
L2004L3	BTA04-200T	
L2004L5	BTA04-200T	
L2004L7	BTA04-200S	
L2004L9	BTA04-200A	
L2006L6	BTA06-200T	
L2006L7	BTA06-200S	
L2006L9	BTA06-200A	
L2008L6	BTA08-200T	
L2008L7	BTA08-200S	
L2008L9	BTA08-200A	
L201E3		TLC111T
L201E5		TLC111T
L201E7		TLC111S
L201E9		TLC111A
L4004F31		BTB04-400T
L4004F51		BTB04-400T
L4004F71		BTB04-400S
L4004F91		BTB04-400A
L4004L3	BTA04-400T	
L4004L5	BTA04-600T	
L4004L7	BTA04-400S	
L4004L9	BTA04-400A	
L4006L6	BTA06-400T	
L4006L7	BTA06-400S	
L4006L9	BTA06-400A	
L4008L6	BTA08-400T	
L4008L7	BTA08-440S	
L4008L9	BTA08-400A	
L401E3		TLC221T
L401E5		TLC221T
L401E7		TLC221S
L401E9		TLC221A
M4013NN	BTW48-800	
M4013PN	BTW48-1200	
M4013VN	BTW48-1200	
MAC15A10	BTB16-800B	
MAC15A10FP		BTA16-800B
MAC15A4	BTB16-200B	
MAC15A4FP		BTA16-200B
MAC15A5	BTB16-400B	
MAC15A5FP		BTA16-400B
MAC15A6	BTB16-400B	
MAC15A6FP		BTA16-400B
MAC15A7	BTB16-600B	
MAC15A7FP		BTA16-600B
MAC15A8	BTB16-600B	
MAC15A8FP		BTA16-600B

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
MAC15A9	BTB16-700B	
MAC15A9FP		BTA16-700B
MAC20A10		BTB16-800B
MAC20A4		BTA16-200B
MAC20A5		BTA16-400B
MAC20A6		BTA16-400B
MAC20A7		BTA16-600B
MAC20A8		BTA16-600B
MAC20A9		BTA16-700B
MAC210A10	BTB10-800C	
MAC210A10FP		BTA10-800C
MAC210A4	BTB10-200C	
MAC210A4FP		BTA10-200C
MAC210A5	BTB10-400C	
MAC210A5FP		BTA10-400C
MAC210A6	BTB10-400C	
MAC210A6FP		BTA10-400C
MAC210A7	BTB10-600C	
MAC210A7FP		BTA10-600C
MAC210A8	BTB10-600C	
MAC210A8FP		BTA10-600C
MAC210A9	BTB10-700C	
MAC210A9FP		BTA10-700C
MAC212A10	BTB12-800C	
MAC212A10FP		BTA12-800C
MAC212A4	BTB12-200C	
MAC212A4FP		BTA12-200C
MAC212A6	BTB12-400C	
MAC212A6FP		BTA12-400C
MAC212A8	BTB12-600C	
MAC212A8FP		BTA12-600C
MAC218A10	BTB08-800C	
MAC218A10FP		BTA08-800C
MAC218A4	BTB08-200C	
MAC218A4FP		BTA08-200C
MAC218A6	BTB08-400C	
MAC218A6FP		BTA08-400C
MAC218A8	BTB08-400C	
MAC218A8FP		BTA08-400C
MAC220-2	BTB08-200C	
MAC220-3	BTB08-200C	
MAC220-5	BTB08-400C	
MAC220-7	BTB08-600C	
MAC220-9	BTB08-700B	
MAC221-3	BTB08-200C	
MAC221-5	BTB08-400C	
MAC221-7	BTB08-600C	
MAC221-9	BTB08-700B	
MAC222A1	BTB08-200C	
MAC222A10	BTB08-700B	
MAC222A2	BTB08-200C	
MAC222A3	BTB08-200C	
MAC222A4	BTB08-200C	
MAC222A5	BTB08-400C	
MAC222A6	BTB08-400C	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
MAC222A7	BTB08-600C	
MAC222-1	BTB08-200C	
MAC222-10	BTB08-700B	
MAC222-2	BTB08-200C	
MAC222-3	BTB08-200C	
MAC222-4	BTB08-200C	
MAC222-5	BTB08-400C	
MAC222-6	BTB08-400C	
MAC222-7	BTB08-600C	
MAC223A10		BTB24-800B
MAC223A4		BTA24-200B
MAC223A5		BTB24-400B
MAC223A6		BTA24-400B
MAC223A7		BTA24-600B
MAC223A8		BTA24-600B
MAC223A9		BTA24-700B
MAC224A10		BTB41-800B
MAC224A4		BTB41-200B
MAC224A5		BTB41-400B
MAC224A6		BTB41-400B
MAC224A7		BTB41-600B
MAC224A8		BTB41-600B
MAC224A9		BTB41-700B
MAC228A10	BTB08-800S	
MAC228A4	BTB08-200S	
MAC228A5	BTB08-400S	
MAC228A6	BTB08-400S	
MAC228A7	BTB08-600S	
MAC228A8	BTB08-600S	
MAC228A9	BTB08-700S	
MAC228-10	BTB08-800S	
MAC228-4	BTB08-200S	
MAC228-5	BTB08-400S	
MAC228-6	BTB08-400S	
MAC228-7	BTB08-600S	
MAC228-8	BTB08-600D	
MAC228-9	BTB08-700S	
MAC25A10		BTA26-800B
MAC25A4		BTA26-200B
MAC25A5		BTA26-400B
MAC25A6		BTA26-400B
MAC25A7		BTA26-600B
MAC25A8		BTA26-600B
MAC25A9		BTA26-700B
MAC3010-15	BTB15-400B	
MAC3010-25	BTB24-400B	
MAC3010-4		BTB04-400A
MAC3010-40		BTB40-400B
MAC3010-401		BTA41-400B
MAC3010-8	BTB08-400C	
MAC3020-15	BTB15-400B	
MAC3020-25	BTB24-400B	
MAC3020-4		BTB04-400A
MAC3020-40		BTB40-400B
MAC3020-401		BTA41-400B

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
MAC3020-8	BTB08-400C	
MAC3030-15	BTB15-400B	
MAC3030-25	BTB24-400B	
MAC3030-4		BTB04-400A
MAC3030-40		BTB40-400B
MAC3030-401		BTB41-400B
MAC3030-8	BTB08-400C	
MAC3040-15	BTB15-400B	
MAC3040-25	BTB24-400B	
MAC3040-4		BTB06-400C
MAC3040-40		BTB40-400B
MAC3040-401		BTA41-400B
MAC3040-8	BTB08-400B	
MAC3060-15	BTB16-600B	
MAC3060-25	BTB24-600B	
MAC3060-4		BTB04-400B
MAC3060-40		BTB41-600B
MAC3060-401		BTA41-600B
MAC3060-8	BTB08-600B	
MAC320A10	BTB24-800B	
MAC320A10FP		BTA26-800B
MAC320A4	BTB24-200B	
MAC320A4FP		BTA26-200B
MAC320A6	BTB24-400B	
MAC320A6FP		BTA26-400B
MAC320A8	BTB24-600B	
MAC320A8FP		BTA26-600B
MAC50A10		BTA40-800B
MAC50A4		BTA40-200B
MAC50A5		BTA40-400B
MAC50A6		BTA40-400B
MAC50A7		BTA40-600B
MAC50A8		BTA40-600B
MAC50A9		BTA40-700B
MAC97A3		TLC111D
MAC97A4		TLC111D
MAC97A5		TLC221D
MAC97A6		TLC221D
MAC97A7		TLC331D
MAC97A8		TLC331D
MAC97B3		TLC111T
MAC97B4		TLC111T
MAC97B5		TLC221T
MAC97B6		TLC221T
MAC97B7		TLC331T
MAC97B8		TLC331T
MAC97-3		TLC111S
MAC97-4		TLC111S
MAC97-5		TLC221S
MAC97-6		TLC221S
MAC97-7		TLC331S
MAC97-8		TLC331S
MCR100-3		TLS106-1
MCR100-4		TLS106-2
MCR100-5		TLS106-4

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
MCR100-6		TLS106-4
MCR100-7		TLS106-6
MCR100-8		TLS106-6
MCR102		TLS106-05
MCR103		TLS106-05
MCR106-1		TLS106-05
MCR106-3		TLS106-1
MCR106-4		TLS106-2
MCR106-6		TLS106-4
MCR106-8		TLS106-6
MCR218-10	TYN808G	
MCR218-2	TYN058G	
MCR218-3	TYN108G	
MCR218-4	TYN208G	
MCR218-5	TYN408G	
MCR218-6	TYN408G	
MCR218-7	TYN608G	
MCR218-8	TYN608G	
MCR218-9	TYN808G	
MRC220-5	TYN412	
MCR220-7	TYN612	
MCR220-9	TYN812	
MCR221-5	TYN416	
MCR221-7	TYN616	
MCR221-9	TYN816	
MCR225-12	TYN1225	
MCR225-5	TYN425	
MCR225-7	TYN625	
MCR225-9	TYN825	
MCR22-2		TLS106-05
MCR22-3		TLS106-1
MCR22-4		TLS106-2
MCR22-5		TLS106-4
MCR22-6		TLS106-4
MCR22-7		TLS106-6
MCR22-8		TLS106-6
MCR641	BTW48-200	
MCR6410	BTW48-800	
MCR642	BTW48-200	
MCR643	BTW48-200	
MCR644	BTW48-200	
MCR645	BTW48-400	
MCR646	BTW48-400	
MCR647	BTW48-600	
MCR648	BTW48-600	
MCR649	BTW48-800	
MCR68-1	TYN0512	
MCR68-2	TYN0512	
MCR68-3	TYN112	
MCR68-6	TYN412	
Q2001L3		TLC116A
Q2001L4		TLC116B
Q2003L3		TLC116A
Q2003L4		TLC116B
Q2004F31		TLC116A

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
Q2004F41		TLC116B
Q2004L3	BTA04-200A	
Q2004L4	BTA04-200A	
Q2006F41		BTB06-200C
Q2006L4	BTA06-200C	
Q2006L5	BTA06-200B	
Q2006R4	BTB06-200C	
Q2008F41		BTA08-200C
Q2008L4	BTA08-200C	
Q2008L4A	BTA08-200C	
Q2008L5	BTA08-200B	
Q2008R4	BTB08-200C	
Q2010F41		BTA10-200C
Q2010L4	BTA10-200C	
Q2010L5	BTA10-200B	
Q2010R4	BTB10-200C	
Q2012L5	BTA12-200B	
Q2012R5	BTB12-200B	
Q2015L5	BTA16-200B	
Q2015R5	BTB15-200B	
Q201E3		TLC111A
Q201E4		TLC111B
Q2025J6		BTA26-200B
Q2025L5		BTA26-200B
Q2025P		BTA25-200B
Q2025R5	BTB24-200B	
Q2025W6		BTB26-200B
Q2040J7		BTA41-200A
Q2040P		BTA40-200B
Q2040W7		BTB41-200A
Q4001L3		TLC226A
Q4001L4		TLC226B
Q4003L3		TLC226A
Q4003L4		TLC226A
Q4004F31		BTB04-400A
Q4004F41		BTB04-400A
Q4004L3	BTA04-400A	
Q4004L4	BTA04-400A	
Q4006F41		BTB06-400C
Q4006L4	BTA06-400C	
Q4006L5	BTA06-400B	
Q4006R4	BTB06-400C	
Q4008F41		BTB08-400C
Q4008L4A	BTA08-400C	
Q4008L5	BTA08-400B	
Q4008R4	BTB08-400C	
Q4010F41		BTB10-400C
Q4010L4	BTA10-400C	
Q4010L5	BTA10-400B	
Q4010R4	BTB10-400C	
Q4012L5	BTA12-400B	
Q4012R5	BTB12-400B	
Q4015L5	BTA15-400B	
Q4015R5	BTB15-400B	
Q401E3		TLC221A

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
Q401E4		TLC221B
Q4025J6		BTA26-400B
Q4025L5		BTA26-400B
Q4025P		BTA25-400B
Q4025R5	BTB24-400B	
Q4040J7		BTA41-400A
Q4040P		BTA40-400B
Q4040W7		BTB41-400A
Q5004F41		BTB04-600C
Q5004L4	BTA06-600C	
Q5006F41		BTB06-600C
Q5006L3	BTA06-600C	
Q5006L5	BTA06-600B	
Q5006R4	BTB06-600C	
Q5008F41		BTB08-600C
Q5008L4	BTA08-600C	
Q5008L4A	BTA08-600C	
Q5008L5	BTA08-600B	
Q5008R4	BTA08-600C	
Q5010L4	BTA10-600C	
Q5010L5	BTA10-600B	
Q5010R4	BTB10-600C	
Q5012L5	BTA12-600B	
Q5012R5	BTB12-600B	
Q5015L5	BTA16-600B	
Q5015R5	BTB16-600B	
Q5025J6	BTA26-600B	
Q5025L6		BTA26-600B
Q5025P		BTA25-600B
Q5025R5	BTB24-600B	
Q5025W6		BTB26-600B
Q5040J7		BTA41-600A
Q5040P		BTA40-600B
Q5040W7		BTB41-600A
Q6004F41		BTB04-600C
Q6004L4	BTA06-600C	
Q6006F51		BTB06-600B
Q6006L5	BTA06-600B	
Q6006R5	BTB06-600B	
Q6008F51		BTB08-600B
Q6008L5	BTA08-600B	
Q6008L5A	BTA08-600B	
Q6008R5	BTB08-600B	
Q6010F41		BTB10-600C
Q6010F51		BTB10-600B
Q6010L5	BTA10-600B	
Q6010R5	BTB10-600B	
Q6012L5	BTA12-600B	
Q6012R5	BTB12-600B	
Q6015L5	BTA16-600B	
Q6015R5	BTB15-600B	
Q6025J6		BTA26-600B
Q6025L6		BTA26-600B
Q6025P		BTA25-600B
Q6025R5	BTB24-600B	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
Q6025W6		BTB26-600B
Q6040J7		BTA41-600A
Q6040P		BTA40-600B
Q6040W7		BTB41-600A
Q8004L4	BTA06-700C	
Q8010L5	BTA10-700B	
Q8010R5	BTB10-700B	
Q8012L5	BTA12-700B	
Q8012R5	BTB12-700B	
Q8015L5	BTA16-700B	
Q8025R5	BTB24-700B	
S0105L		TYN116
S0301LS1		TLS106-05
S0301LS2		TLS107-05
S0303LS1		TLS106-05
S0303LS2		TLS107-05
S0304F1		TYN054
S0306F1		TYN056
S0306FS21		TYS606-05
S0306FS31		TYS607-05
S0306L	TXN056	
S0308F1		TYN058
S0308L	TXN058	
S0308R	TYN058	
S0310F1		TYN0510
S0310L	TXN0510	
S0312L	TXN0512	
S0312R	TYN0512	
S0316R	TYN0516	
S031E		TL1006
S0325R	TYN682	
S0335J	BTW69-200	
S0335W	BTW69-200N	
S0501LS1		TLS106-05
S0501LS2		TLS107-05
S0503LS1		TLS106-05
S0503LS2		TLS107-05
S0504F1		TYN054
S0506F1		TYN056
S0506FS21		TYS606-05
S0506FS31		TYS607-05
S0506L	TXN056	
S0508F1		TYN058
S0508FS21		TYS806-05
S0508FS31		TYS807-05
S0508L	TXN058	
S0508R	TYN058	
S0510F1		TYN0510
S0510L	TXN0510	
S0512L	TXN0512	
S0512R	TYN0512	
S0516R	TYN0516	
S051E		TL1006
S0525R	TYN225	
S0535J	BTW69-200	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
S0535W	BTW69-200N	
S0602BH	TYS606-2	
S0602DH	TYS606-4	
S0602MH	TYS606-6	
S0602NH	TYS606-8	
S0605BH	TYS407-2	
S0605DH	TYS407-4	
S0605MH	TYS407-6	
S0605NH	TYS407-8	
S0610BH	TYN206	
S0610DH	TYN406	
S0610MH	TYN606	
S0610NH	TYN806	
S0810BH	TYN208	
S0810DH	TYN408	
S0810MH	TYN608	
S0810NH	TYN808	
S1001LS1		TLS106-1
S1001LS2		TLS107-1
S1001LS3		TLS107-6
S1003L		TXN104
S1003LS1		TLS106-1
S1003LS2		TLS107-1
S1003LS3		TLS107-1
S1004F1		TYN104
S1006F1		TYN106
S1006FS21		TYS606-1
S1006FS31		TYS607-1
S1006L	TXN106	
S1008F1		TYN108
S1008L	TXN108	
S1008R	TYN108	
S1010BH	TYN210	
S1010DH	TYN410	
S1010F1		TYN110
S1010L	TXN110	
S1010MH	TYN610	
S1010NH	TYN810	
S1012L	TXN112	
S1012R	TYN112	
S1016R	TYN1016	
S101E		TL1006
S1020L		TYN683
S1025R	TYN683	
S1035J	BTW69-200	
S1035W	BTW69-200N	
S1210BH	TYN212	
S1210DH	TYN412	
S1210MH	TYN612	
S1210NH	TYN812	
S112A		TYN108
S112B		TYN208
S112C		TYN408
S122D		TYN408
S112F		TYN608

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
S122F		TYN058
S122M		TYN608
S122S		TYN808
S1610BH	TYN216	
S1610DH	TYN416	
S1610MH	TYN616	
S1610NH	TYN816	
S2001LS1		TLS106-1
S2001LS2		TLS106-2
S2001LS3		TLS107-2
S2003LS1		TLS106-1
S2003LS2		TLS106-2
S2003LS3		TLS107-2
S2004F1		TYN204
S2006F1		TYN206
S2006FS21		TYS606-2
S2006FS31		TYS607-2
S2006L	TXN206	
S2008F1		TYN208
S2008L	TXN208	
S2008R	TYN208	
S20010F1		TYN210
S2010L		TXN210
S2012F1		TYN212
S2012L		TXN212
S2012R		TYN212
S2016R		TYN216
S201E		TL2006
S2020L		TYN685
S2025R	TYN685	
S2035J	BTW69-200	
S2035W	BTW69-200N	
S2060A		TYS406-1
S2060B		TYS406-2
S2060C		TYS406-4
S2060D		TYS406-4
S2060E		TYS406-6
S2060F		TYS406-05
S2060M		TYS406-6
S2060Y		TYS406-05
S2061		TYS407-05
S2061A		TYS407-1
S2061B		TYS407-2
S2061C		TYS407-4
S2061D		TYS407-4
S2061E		TYS407-6
S2061M		TYS407-6
S2512BH		TYN685
S2512BK		BTW66-200
S2512DH		TYN688
S2512DK		BTW66-400
S2512MH		TYN690
S2512MK		BTW66-600
S2512NK		BTW66-800
S2514BH		TYN685

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
S2514BK		BTW66-200
S2514DH		TYN688
S2514DK		BTW66-400
S2514MH		TYN690
S2514MK		BTW66-600
S2514NK		BTW66-800
S2800A		TYN108
S2800B		TYN208
S2800C		TYN408
S2800D		TYN408
S2800E		TYN608
S2800F		TYN058
S2800M		TYN608
S2800N		TYN808
S2800S		TYN808
S4001LS1		TLS106-4
S4001LS2		TLS106-4
S4001LS3		TLS106-4
S4003L		TXN404
S4003LS1		TLS106-4
S4003LS2		TLS106-4
S4003LS3		TLS107-4
S4004F1		TYN404
S4006F1		TYN406
S4006FS21		TYS606-4
S4006FS31		TYS607-4
S4006L	TXN406	
S4008F1		TYN408
S4008FS21		TYS806-4
S4008FS31		TYS807-4
S4008L	TXN408	
S4008R	TYN408	
S4010F1		TYN410
S4010L	TXN410	
S4012F1		TYN412
S4012L	TXN412	
S4012R	TYN412	
S4015L		TYN416
S4016R	TYN416	
S401E		TL4006
S4020L		TYN688
S4025R	TYN688	
S4035J	BTW69-400	
S4035W	BTW69-400N	
S6003L		TXN604
S6004F1		TYN604
S6006F1		TXN606
S6006L	TXN606	
S6008F1		TXN608
S6008L	TXN608	
S6008R	TYN608	
S6010F1		TXN610
S6010L	TXN610	
S6012L	TXN612	
S6012R	TYN612	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
S6015L		TYN616
S6016R	TYN616	
S601E		TL606
S6020L		TYN690
S6025R	TYN690	
S6035J	BTW69-600	
S6035W	BTW69-600N	
S6100C		TYN416
S6100E		TYN616
SC116B1	BTA08-200B	
SC116D1	BTA08-400B	
SC116E1	BTA08-600B	
SC116M1	BTA08-600B	
SC129B	BTB24-200B	
SC129D	BTB24-400B	
SC129E	BTB24-600B	
SC129M	BTB24-600B	
SC136A		TLC116B
SC136B		TLC116B
SC136C		TLC226B
SC136D		TLC226B
SC136E		TLC386B
SC136M		TLC386B
SC140A	BTA06-200B	
SC140B	BTA06-200B	
SC140C	BTA06-400B	
SC140D	BTA06-400B	
SC140E	BTA06-600B	
SC140M	BTA06-600B	
SC141A	BTB06-200B	
SC141B	BTB06-200B	
SC141C	BTB06-400B	
SC141D	BTB06-400B	
SC141E	BTB06-600B	
SC141M	BTB06-600B	
SC141N	BTB06-700B	
SC141S	BTB06-700B	
SC142A	BTA08-200B	
SC142B	BTA08-200B	
SC142C	BTA08-400B	
SC142D	BTA08-400B	
SC142E	BTA08-600B	
SC142M	BTA08-600B	
SC143A	BTB08-200B	
SC143B	BTB08-200B	
SC143C	BTB08-400B	
SC143D	BTB08-400B	
SC143E	BTB08-600B	
SC143M	BTB08-600B	
SC143N	BTB08-600B	
SC146A	BTB10-200B	
SC146B	BTB08-200B	
SC146C	BTB10-400BW	
SC146D	BTB08-400B	
SC146E	BTB08-600B	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
SC146M	BTB10-600BW	
SC146S	BTB10-700BW	
SC147A	BTA10-200B	
SC147B	BTA10-200B	
SC147C	BTA10-400B	
SC147D	BTA10-400B	
SC147E	BTA10-600B	
SC147M	BTA10-600B	
SC148A	BTA12-200B	
SC148B	BTA12-200B	
SC148C	BTA12-400B	
SC148D	BTA12-400B	
SC148E	BTA12-600B	
SC148M	BTA12-600B	
SC149A	BTB12-200B	
SC149B	BTB12-200BW	
SC149C	BTB12-400B	
SC149D	BTB12-400BW	
SC149E	BTB12-600BW	
SC149M	BTB12-600BW	
SC150A	BTA16-200B	
SC150B	BTA16-200B	
SC150C	BTA16-200B	
SC150D	BTA16-200B	
SC150E	BTA16-400B	
SC150M	BTA16-400B	
SC151A	BTB16-200BW	
SC151B	BTB16-200B	
SC151C	BTB16-400B	
SC151D	BTB16-400BW	
SC151E	BTB16-600BW	
SC151M	BTB16-600BW	
SC160A	BTA25-200B	
SC160B	BTA26-200B	
SC160C	BTA26-400B	
SC160D	BTA26-400B	
SC160E	BTA26-600B	
SC160M	BTA26-600B	
SC219A	BTB24-200B	
SC219B	BTB24-200B	
SC219C	BTB24-400B	
SC219D	BTB24-400B	
SC219E	BTB24-600B	
SC219M	BTB24-600B	
SC265B		BTA41-200B
SC265D		BTA41-400B
SC265E		BTA41-600B
S0402BH	TYS406-2	
S0402DH	TYS406-4	
S0402MH	TYS406-6	
S0402NH	TYS406-8	
S0405BH	TYS407-2	
S0405DH	TYS407-4	
S0405MH	TYS407-6	
S0405NH	TYS407-8	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
S0410BH	TYN204	
S0410DH	TYN404	
S0410MH	TYN604	
S0410NH	TYN804	
T106A1		TLS106-1
T106B1		TLS106-2
T106C1		TLS106-4
T106D1		TLS106-4
T106E1		TLS106-6
T106F1		TLS106-05
T106M1		TLS106-6
T106Q1		TLS106-05
T106Y1		TLS106-05
T107A1		TLS107-1
T107B1		TLS107-2
T107C1		TLS107-4
T107D1		TLS107-4
T107E1		TLS107-6
T107F1		TLS107-05
T107M1		TLS107-6
T107Q1		TLS107-05
T107Y1		TLS107-05
T2322A		TLC116S
T2322B		TLC116S
T2322C		TLC226S
T2322D		TLC226S
T2322E		TLC336S
T2322M		TLC336S
T2323A		TLC116C
T2323B		TLC116C
T2323C		TLC226C
T2323D		TLC226C
T2323E		TLC336C
T2323M		TLC336C
T2500A	BTB06-200C	
T2500AFP		BTA06-200C
T2500B	BTB06-200C	
T2500BFP		BTA06-200C
T2500C	BTB06-400C	
T2500CFP		BTA06-400C
T2500D	BTB06-400C	
T2500DFP		BTA06-400C
T2500E	BTB06-600C	
T2500EFP		BTA06-600C
T2500M	BTB06-600C	
T2500MFP		BTA06-600C
T2500N	BTB06-700C	
T2500NFP		BTA06-700C
T2500S	BTB06-700C	
T2500SFP		BTA06-700C
T2506B	BTB06-200C	
T2506D	BTB06-400C	
T2512BH	BTB24-200B	
T2512BK		BTA25-200B
T2512DH	BTB24-400B	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
T2512DK		BTA25-400B
T2512MH	BTB24-600B	
T2512MK		BTA25-600B
T2512NH	BTB24-700B	
T2513BH	BTB24-200B	
T2513BK		BTA25-200A
T2513DH	BTB24-400B	
T2513DK		BTA25-400A
T2513MH	BTB24-600B	
T2513MK		BTA25-600A
T2513NH	BTB24-700B	
T2800A	BTB08-200C	
T2800B	BTB08-200C	
T2800C	BTB08-400C	
T2800D	BTB08-400B	
T2800E	BTB08-600B	
T2800F	BTB08-200C	
T2800M	BTB08-600C	
T2801A	BTB06-200B	
T2801B	BTB06-200B	
T2801C	BTB06-400B	
T2801D	BTB06-400C	
T2801E	BTB06-600C	
T2801F	BTB06-200C	
T2801M	BTB06-600B	
T2801N	BTB06-700B	
T2801S	BTB06-700B	
T2802B	BTB08-200B	
T2802C	BTB08-400B	
T2802D	BTB08-400B	
T2802E	BTB08-600B	
T2802F	BTB08-200C	
T2802M	BTB08-600B	
T2850A		BTA08-200C
T2850B		BTA08-200C
T2850D		BTA08-400C
T2850E		BTA08-600C
T2850M		BTA08-600C
T4012BK		BTA40-200B
T4012DK		BTA40-400B
T4012MK		BTA40-600B
T4013BK		BTA40-200A
T4013DK		BTA40-400A
T4013MK		BTA40-600A
T6000B		BTB16-200B
T6000C		BTB16-400B
T6000D		BTB16-400B
T6000E		BTB16-600B
T6000M		BTB16-600B
T6001B		BTB16-200B
T6001C		BTB16-400B
T6001D		BTB16-400B
T6001E		BTB16-600B
T6001M		BTB16-600B
TAG220-200	BTB06-200C	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
TAG220-400	BTB06-400C	
TAG220-600	BTB06-600C	
TAG220-700	BTB06-700C	
TAG221-200	BTB06-200S	
TAG221-400	BTB06-400S	
TAG221-600	BTB06-600S	
TAG221-700	BTB06-700S	
TAG222-200	BTB06-200D	
TAG222-400	BTB06-400D	
TAG222-600	BTB06-600D	
TAG222-700	BTB06-700D	
TAG224-200	BTB08-200C	
TAG224-400	BTB08-400C	
TAG224-600	BTB08-600C	
TAG224-700	BTB08-700C	
TAG225-200	BTB08-200C	
TAG225-400	BTB08-400C	
TAG225-600	BTB08-600C	
TAG225-700	BTB08-700C	
TAG226-200	BTB08-200S	
TAG226-400	BTB08-400S	
TAG226-600	BTB08-600S	
TAG226-700	BTB08-700C	
TAG227-200	BTB08-200S	
TAG227-400	BTB08-400S	
TAG227-600	BTB08-600S	
TAG230-200	BTB04-200C	
TAG230-400	BTB04-400C	
TAG230-600	BTB04-600C	
TAG230-700	BTB04-700C	
TAG230-800	BTB04-800C	
TAG231-200	BTB06-200C	
TAG231-400	BTB06-400C	
TAG231-600	BTB06-600C	
TAG232-200	BTB06-200S	
TAG232-400	BTB06-400S	
TAG232-600	BTB06-600S	
TAG232-700	BTB06-700S	
TAG233-200	BTB06-200T	
TAG233-400	BTB06-400T	
TAG233-600	BTB06-600T	
TAG233-700	BTB06-700T	
TAG250-200	BTB10-200C	
TAG250-400	BTB10-600C	
TAG250-600	BTB10-600C	
TAG250-700	BTB10-700C	
TAG250-800	BTB10-800C	
TAG251-200	BTB10-200C	
TAG251-400	BTB10-400C	
TAG251-600	BTB10-600C	
TAG251-700	BTB10-700C	
TAG251-800	BTB10-800C	
TAG252-200	BTB10-200C	
TAG252-400	BTB10-400C	
TAG252-600	BTB10-600C	
TAG252-700	BTB10-700C	
TAG255-200	BTB12-200B	
TAG255-400	BTB12-400B	
TAG255-600	BTB12-600B	
TAG255-700	BTB12-700B	
TAG255-800	BTB12-800B	
TAG256-200	BTB12-200B	
TAG256-400	BTB12-400B	
TAG256-600	BTB12-600B	
TAG256-700	BTB12-700B	
TAG256-800	BTB12-800B	
TAG257-200	BTB12-200C	
TAG257-400	BTB12-400C	
TAG257-600	BTB12-600C	
TAG257-800	BTB12-800C	
TAG265-200	BTB12-200B	
TAG265-400	BTB12-400B	
TAG265-600	BTB12-600B	
TAG265-800	BTB12-800B	
TAG266-200	BTB12-200C	
TAG266-400	BTB12-400C	
TAG266-600	BTB12-600C	
TAG266-800	BTB12-700C	
TAG280-200	BTB16-200B	
TAG280-400	BTB16-400B	
TAG280-600	BTB16-600B	
TAG280-700	BTB16-700B	
TAG280-800	BTB16-800B	
TAG281-200	BTB16-200B	
TAG281-400	BTB16-400B	
TAG281-600	BTB16-600B	
TAG281-700	BTB16-700B	
TAG281-800	BTB16-800B	
TAG420-200	BTA06-200B	
TAG420-400	BTA06-400B	
TAG420-600	BTA06-700B	
TAG420-700	BTA06-700B	
TAG421-200	BTA06-200C	
TAG421-400	BTA06-400C	
TAG421-600	BTA06-600C	
TAG425-200	BTA08-200B	
TAG425-400	BTA08-400B	
TAG425-600	BTA08-600B	
TAG425-700	BTA08-700B	
TAG426-200	BTA08-200C	
TAG426-400	BTA08-400C	
TAG426-600	BTA08-600C	
TAG451-200	BTA08-200C	
TAG451-400	BTA08-400C	
TAG451-600	BTA08-600C	
TAG452-200	BTA08-200A	
TAG452-400	BTA08-400A	
TAG452-600	BTA08-600A	
TAG456-200	BTA10-200C	
TAG456-400	BTA10-400C	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
TAG456-600	BTA10-600C	
TAG457-200	BTA10-200C	
TAG457-400	BTA10-400C	
TAG457-600	BTA10-600C	
TAG480-200	BTA12-200B	
TAG480-400	BTA12-400B	
TAG480-600	BTA12-600B	
TAG480-700	BTA12-700B	
TAG481-200	BTA12-200C	
TAG481-400	BTA12-400C	
TAG481-600	BTA12-600C	
TAG481-700	BTA12-700C	
TAG481-800	BTA12-800C	
TAG510B	TYN204	
TAG510D	TYN404	
TAG510M	TYN604	
TAG511B	TYN204	
TAG511D	TYN404	
TAG511M	TYN604	
TAG512B	TYN204	
TAG512D	TYN404	
TAG512M	TYN604	
TAG620-100	TYN106	
TAG620-200	TYN206	
TAG620-400	TYN406	
TAG620-600	TYN606	
TAG620-700	TYN806	
TAG620-800	TYN806	
TAG621-100	TYN106	
TAG621-200	TYN206	
TAG621-400	TYN406	
TAG621-600	TYN606	
TAG621-700	TYN806	
TAG621-800	TYN806	
TAG622-100		TYN106
TAG622-200		TYN206
TAG622-400		TYN406
TAG622-600		TYN606
TAG623-200	TYS606-2	
TAG623-400	TYS606-4	
TAG623-600	TYS606-6	
TAG623-700	TYS606-8	
TAG623-800	TYS606-8	
TAG625-100	TYN108G	
TAG625-200	TYN208G	
TAG625-400	TYN408G	
TAG625-600	TYN608G	
TAG625-700	TYN808G	
TAG625-800	TYN808G	
TAG626-100	TYN108	
TAG626-200	TYN208	
TAG626-400	TYN408	
TAG626-600	TYN608	
TAG626-700	TYN808	
TAG626-800	TYN808	

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
TAG627-100		TYN108
TAG627-200		TYN208
TAG627-400		TYN408
TAG627-600		TYN608
TAG627-700		TYN808
TAG627-800		TYN808
TAG630-100	TYN104	
TAG630-200	TYN204	
TAG630-400	TYN404	
TAG630-600	TYN604	
TAG630-700	TYN804	
TAG630-800	TYN804	
TAG631-100	TYN104	
TAG631-200	TYN204	
TAG631-400	TYN404	
TAG631-600	TYN604	
TAG631-700	TYN804	
TAG631-800	TYN804	
TAG632-100		TYN104
TAG632-200		TYN204
TAG632-400		TYN404
TAG632-600		TYN604
TAG633-200	TYS406-2	
TAG633-400	TYS406-4	
TAG633-600	TYS406-6	
TAG633-700	TYS406-8	
TAG633-800	TYS406-8	
TAG660-100	TYN110	
TAG660-200	TYN210	
TAG660-400	TYN408	
TAG660-700	TYN810	
TAG660-800	TYN810	
TAG661-100	TYN110	
TAG661-200	TYN210	
TAG661-400	TYN410	
TAG661-600	TYN610	
TAG661-700	TYN810	
TAG661-800	TYN810	
TAG662-100		TYN110
TAG662-200		TYN210
TAG662-400		TYN410
TAG662-600		TYN610
TAG665-100	TYN112	
TAG665-200	TYN212	
TAG665-400	TYN412	
TAG665-600	TYN612	
TAG665-700	TYN812	
TAG665-800	TYN812	
TAG666-100	TYN112	
TAG666-200	TYN212	
TAG666-400	TYN412	
TAG666-600	TYN612	
TAG666-700	TYN812	
TAG666-800	TYN812	
TAG667-100		TYN112

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
TAG667-200		TYN212
TAG667-400		TYN412
TAG667-600		TYN612
TAG670-200	TYN208K	
TAG675-200	TYN212K	
TAG675-400	TYN412K	
TAG675-600	TYN612K	
TAG676-200	TYN212K	
TAG676-400	TYN412K	
TAG676-600	TYN612K	
TAG680-100	TYN616	
TAG680-200	TYN116	
TAG680-400	TYN216	
TAG680-600	TYN416	
TAG680-700	TYN816	
TAG680-800	TYN816	
TAG96-100		TLC116B
TAG96-200		TLC216B
TAG96-400		TLC416B
TAG96-500		TLC616B
TAG96-600		TLC616B
TIC106A		TYS606-1
TIC106B		TYS606-2
TIC106C		TYS606-4
TIC106D		TYS606-4
TIC106E		TYS606-6
TIC106M		TYS606-6
TIC108A		TYS607-1
TIC108B		TYS607-2
TIC108C		TYS607-4
TIC108D		TYS607-4
TIC108E		TYS607-6
TIC108M		TYS607-6
TIC116A	TYN108	
TIC116B	TYN208	
TIC116C		TYN408
TIC116D	TYN408	
TIC116E		TYN608
TIC116F	TYN608	
TIC116M	TYN608	
TIC116N		TYN808
TIC116S		TYN808
TIC116Y	TYN058	
TIC122A	TYN108	
TIC122B	TYN208	
TIC122D	TYN408	
TIC122F	TYN608	
TIC122M	TYN608	
TIC126A	TYN112	
TIC126B	TYN212	
TIC126C		TYN412
TIC126D	TYN412	
TIC126E		TYN612
TIC126F	TYN610	
TIC126M	TYN610	
TIC126N		TYN812

INDUSTRY PART N.	SGS-THOMSON DIRECT REPLACEMENT	SGS-THOMSON SIMILAR REPLACEMENT
TIC126S		TYN812
TIC201A		TLC116D
TIC201B		TLC116D
TIC201C		TLC226D
TIC201D		TLC226D
TIC201E		TLC336D
TIC201M		TLC336D
TIC201S		TLC386D
TIC206A		BTB04-200D
TIC206B		BTB04-200D
TIC206C		BTB04-400D
TIC206D		BTB04-400D
TIC206E		BTB04-600D
TIC206M		BTB04-700D
TIC206M		BTB04-600D
TIC216A	BTA06-200C	
TIC216B	BTA06-200C	
TIC216D	BTA06-400C	
TIC225A		BTB08-200S
TIC225B		BTB08-200S
TIC225C		BTB08-400S
TIC225D		BTB08-400S
TIC225E		BTB08-600S
TIC225M		BTB08-600S
TIC225S		BTB08-400S
TIC226A		BTB08-200B
TIC226B		BTB08-200B
TIC226C		BTB08-400B
TIC226D		BTB08-400B
TIC226E		BTB08-600B
TIC226M		BTB08-600B
TIC226S		BTB08-700B
TIC236B	BTB12-200BW	
TIC236D	BTB12-400BW	
TIC236E	BTB12-600BW	
TIC236M	BTB12-600BW	
TIC236S	BTB12-700BW	
TIC246A	BTB16-200BW	
TIC246B	BTA16-200BW	
TIC246C	BTB16-400BW	
TIC246D	BTA16-400BW	
TIC246E	BTA16-600BW	
TIC246M	BTA16-600BW	
TIC246S	BTB16-700BW	
TIC253A		BTB26-200B
TIC253B	BTB24-200B	
TIC253C		BTB26-400B
TIC253D		BTB26-400B
TIC253E		BTB26-600B
TIC253M		BTB26-600B
TIC263A		BTB26-200B
TIC263B		BTB26-200B
TIC263C		BTB26-400B
TIC263D		BTB26-400B
TIC263E		BTB26-600B
TIC263M		BTB26-600B
TIC336A		BTB12-200BW

THYRISTOR DATASHEETS

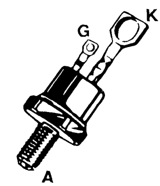
SGS-THOMSON
MICROELECTRONICS

2N 681 → 2N 692

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 70 °C	25	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 70 °C	16	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	210	A
		t = 10 ms	200	
I^2t	I^2t Value for Fusing	t = 10 ms	200	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 65 to 150 – 65 to 125	°C °C

Symbol	Parameter	2N681	2N682	2N683	2N685	2N687	2N688	2N689	2N690	2N691	2N692	Unit
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	25	50	100	200	300	400	500	600	700	800	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 0.4 A dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.7	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.4	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 5 W (t_p = 100 µs) I_{FGM} = 2 A (t_p = 100 µs) V_{RGM} = 5 V

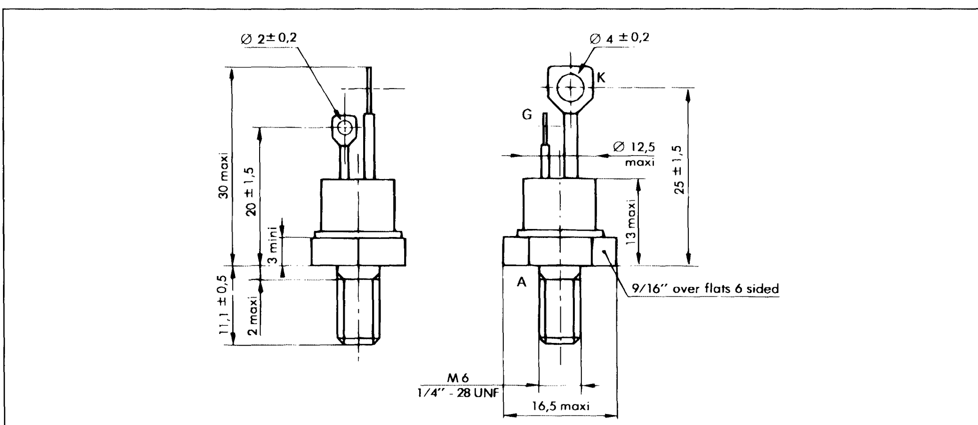
$P_{G\,(AV)}$ = 1 W V_{FGM} = 10 V (t_p = 100 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω		30	40	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D =12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.25			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20		mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 80 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 50 A	t_p = 10 ms			2	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			3	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			3	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 2 A/µs	I_T = 50 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 50 A di/dt = 30 A/µs	V_R = 50 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

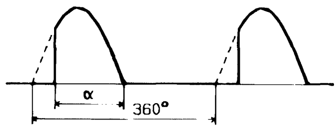
* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1g
Polarity : anode to case
Stud torque : 3.5 m∧N min - 3.8 m∧N max.

SGS-THOMSON MICROELECTRONICS



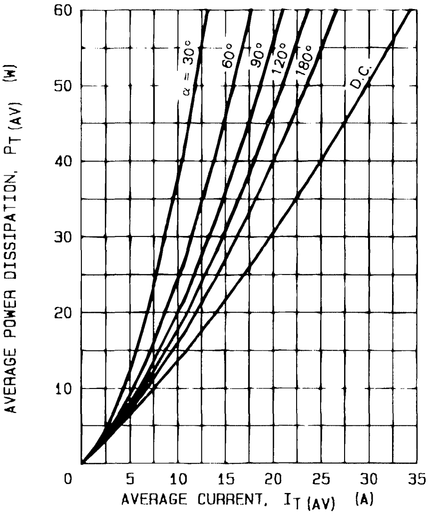


FIG.1 – MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

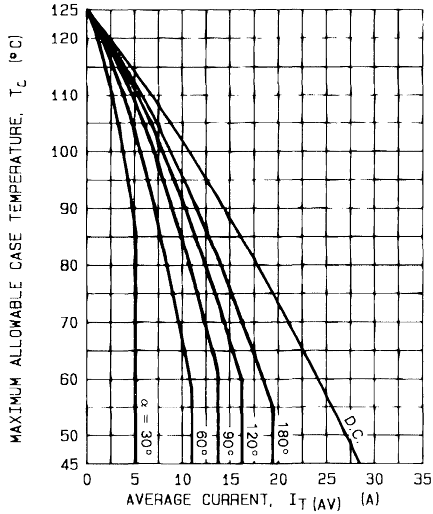
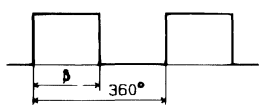


FIG.2 – MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



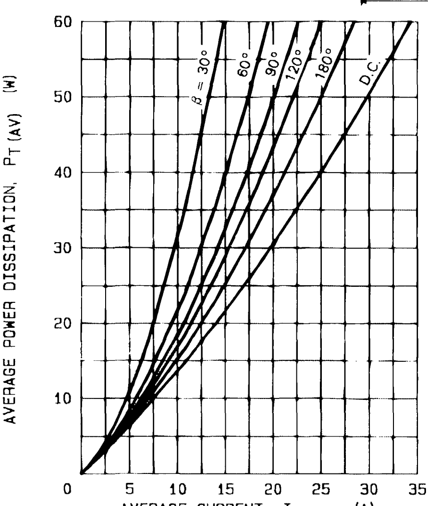


FIG.3 – MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

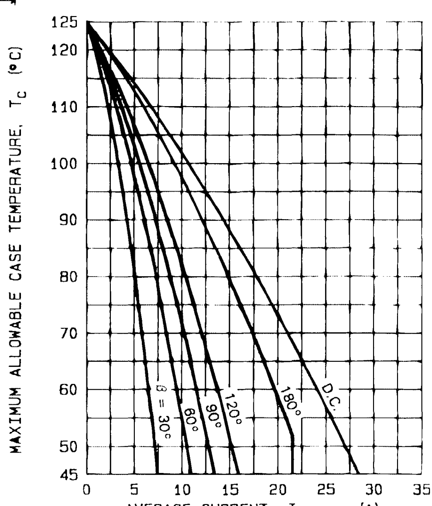


FIG.4 – MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

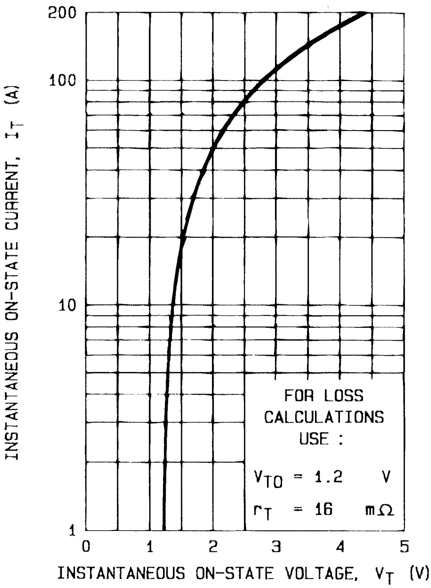


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

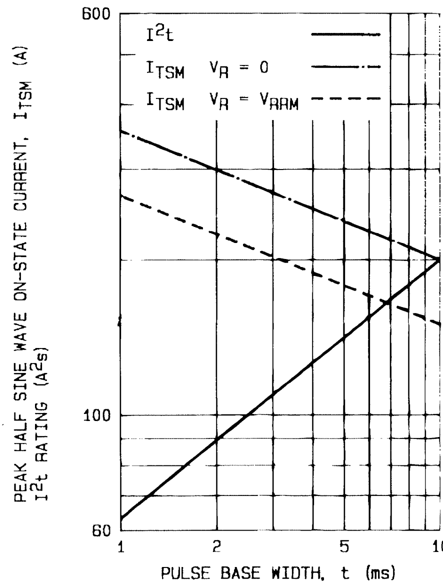


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

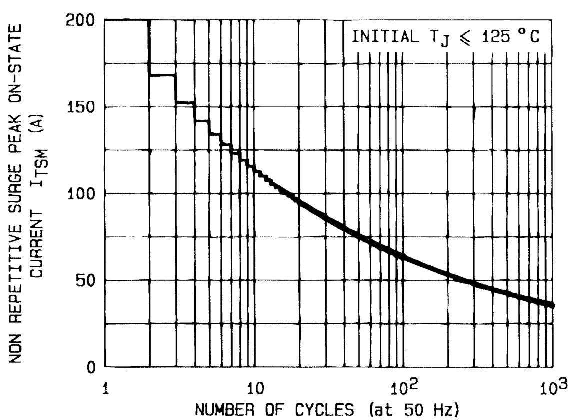


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

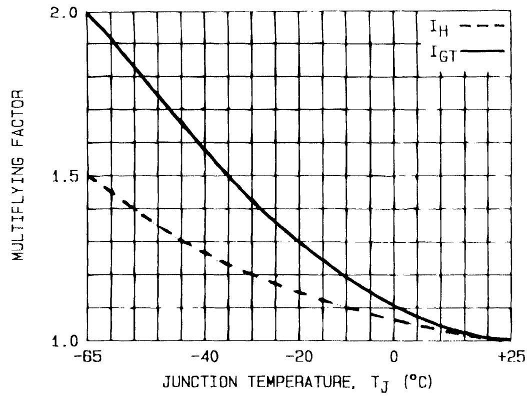


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

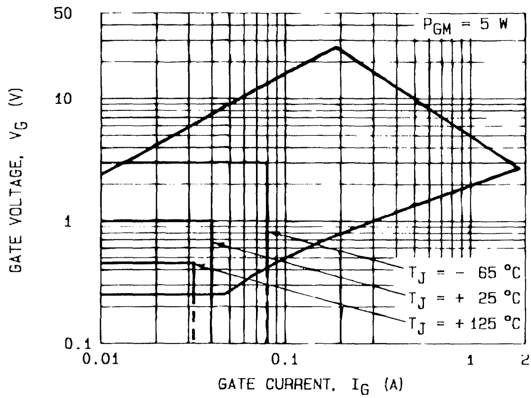
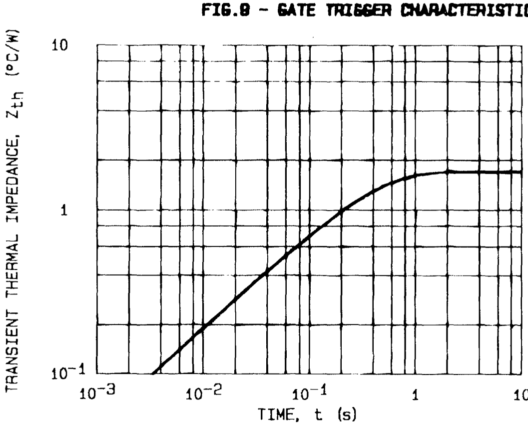


FIG.9 - GATE TRIGGER CHARACTERISTICS.



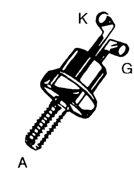
Conduction angle (α, β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.84	1.80
120°	1.90	2.55
90°	2.04	2.89
60°	2.38	3.23
30°	3.06	4.08

FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

2N 1770 → 2N 1778
2N 2619

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY



TO 64
(Metal)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 90 °C	7.4	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 90 °C	4.7	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 65 to 150 – 65 to 125	°C °C

Symbol	Parameter	2N1770	2N1771	2N1772	2N1773	2N1774	2N1775	2N1776	2N1777	2N1778	2N2619	Unit
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	25	50	100	150	200	250	300	400	500	600	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 150 mA dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	4.4	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.4	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 5 W (t_p = 100 µs) I_{FGM} = 2 A (t_p = 100 µs) V_{RGM} = 5 V
$P_{G\,(AV)}$ = 0.5 W V_{FGM} = 10 V (t_p = 100 µs)

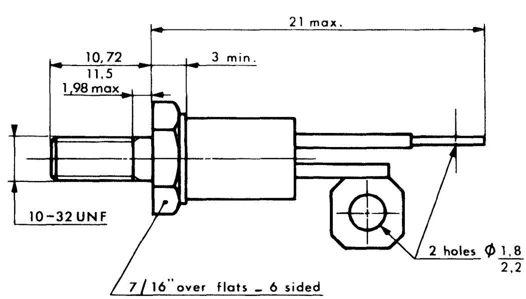
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω		10	15	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20	30	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 30 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 15 A	t_p = 10 ms			1.85	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C		1	2	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C		1	2	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 2 A/µs	I_T = 15 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 15 A di/dt = 30 A/µs	V_R = 24 V dv/dt = 20 V/µs		30		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

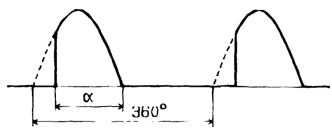
* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 64 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g
Polarity : anode to case
Stud torque : 3.5 m∧N min - 3.8 m∧N max



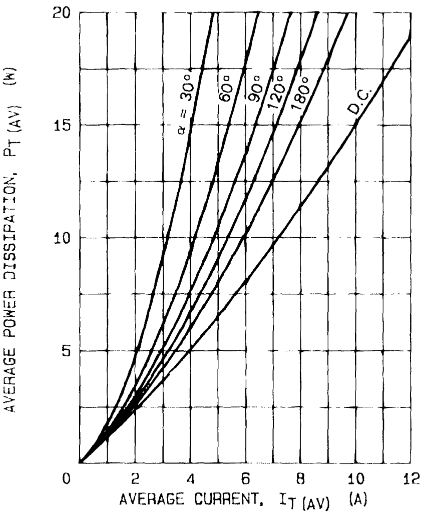


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

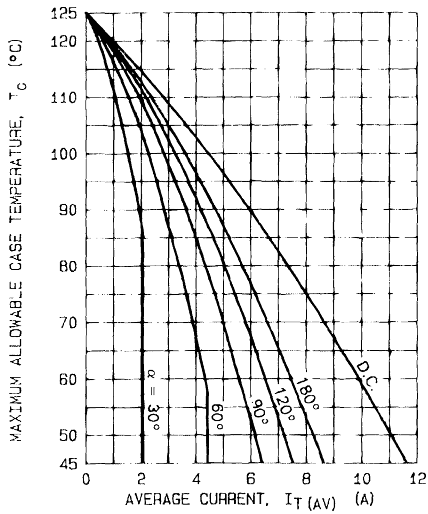
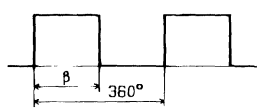


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



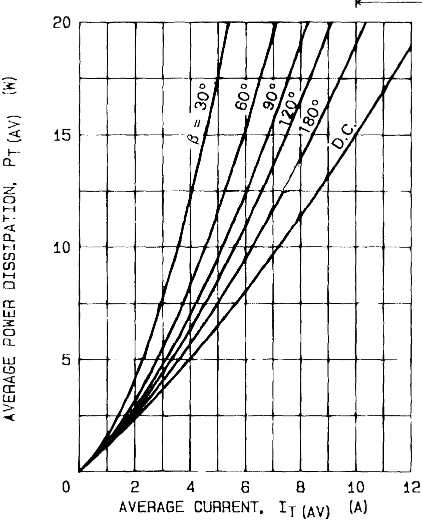


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

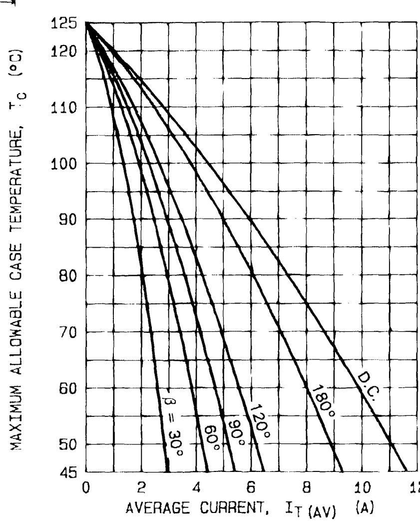


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

D882N1770P3

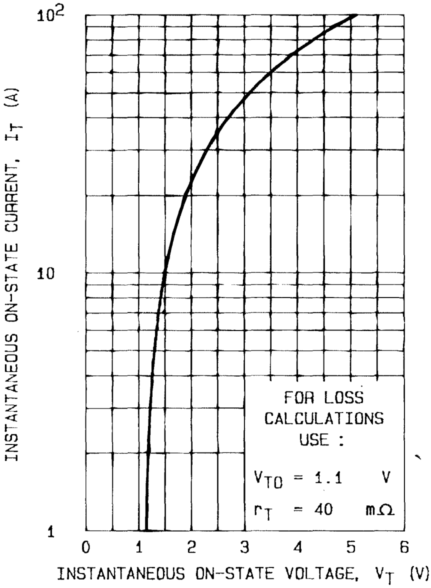


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

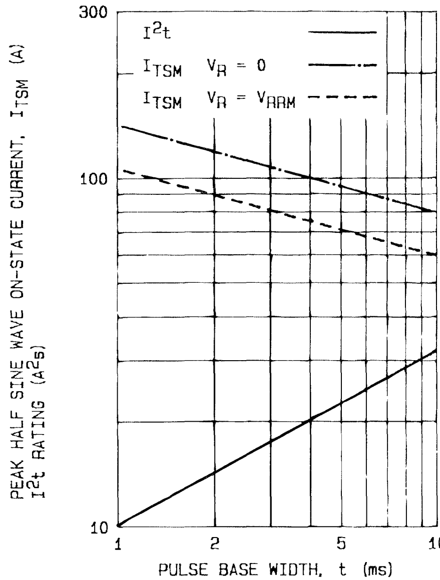


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

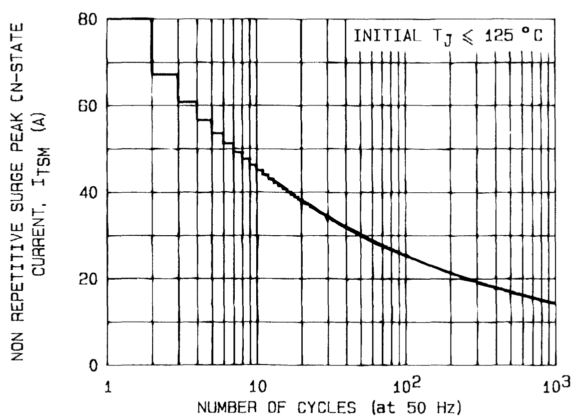


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

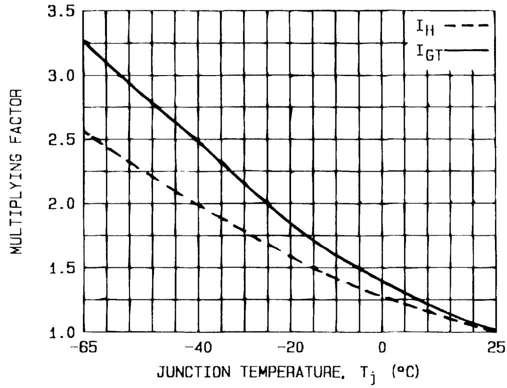


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

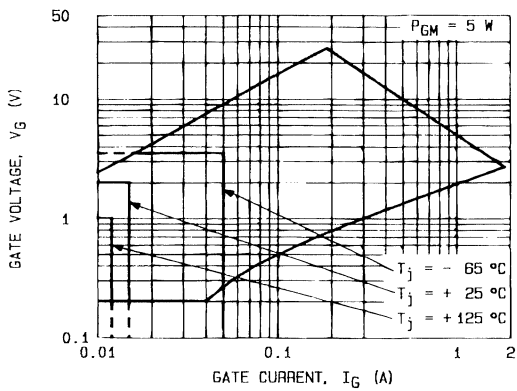


FIG.9 - GATE TRIGGER CHARACTERISTICS.

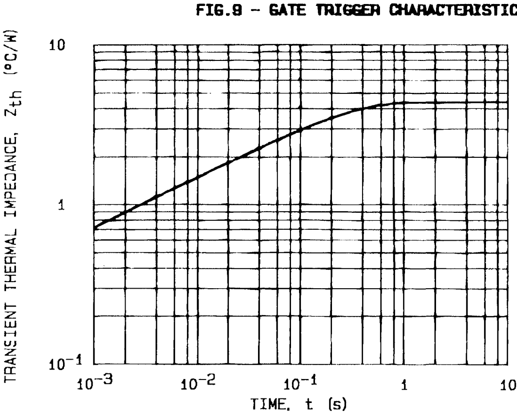


FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

Conduction angle (α, β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	4.75	4.66
120°	4.93	6.60
90°	5.28	7.48
60°	6.16	8.36
30°	7.92	.10

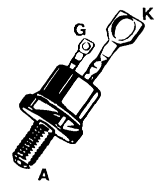
SGS-THOMSON MICROELECTRONICS

2N 3649 → 2N 3653

FAST SWITCHING THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH di/dt AND dv/dt RATINGS
- $t_q \leq 15\ \mu s$

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

SCR designed for high frequency power switching applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_C = 40 °C	35	A
$I_{T(AV)}$	Mean on-state Current (1)	T_C = 40 °C	22.5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 120 °C) (2)	t = 8.3 ms	210	A
		t = 10 ms	200	
I^2t	I^2t Value for Fusing	t = 10 ms	200	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		400	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 65 to 150 – 65 to 120	°C °C

Symbol	Parameter	2N 36..					Unit
		49	50	51	52	53	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	300	400	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 1 A dI_G/dt = 1 A/µs.
(4) T_j = 120 °C .

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.45	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.40	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 60 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 500 µs)

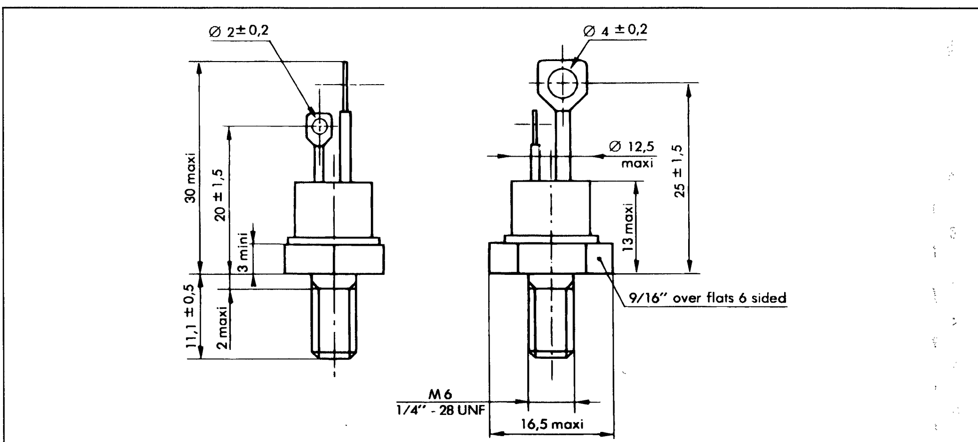
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			180	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 120 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 500 mA	Gate Open		70		mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 360 mA		140		mA
V_{TM}	T_j = 25 °C	I_{TM} = 25 A	t_p = 10 ms			2.05	V
I_{DRM}	T_j = 120 °C	V_{DRM} Specified				6	mA
I_{RRM}	T_j = 120 °C	V_{RRM} Specified				6	mA
t_{gt}	T_j = 25 °C I_G = 500 mA	V_D = V_{DRM} di_G/dt = 5 A/µs	I_T = 25 A		1		µs
t_q	T_j = 120 °C V_D = 67 % V_{DRM} dv/dt = 200 V/µs	I_T = 25 A di/dt = 5 A/µs Gate Open	V_R = 15 V			15	µs
dv/dt*	T_j = 120 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1 g
Polarity : anode to case
Stud torque : 3.5 m∧N min - 3.8 m∧N max.

SINUSOIDAL CURRENT PULSE DATA

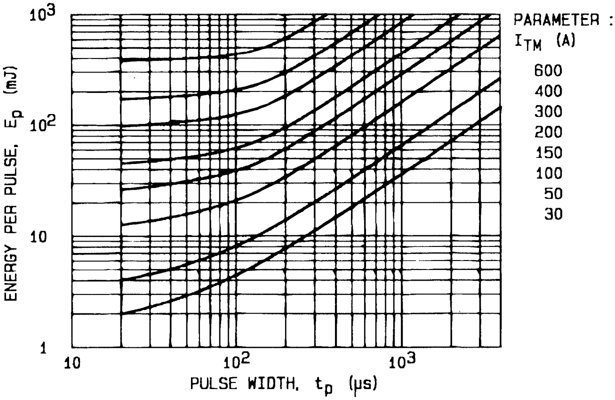
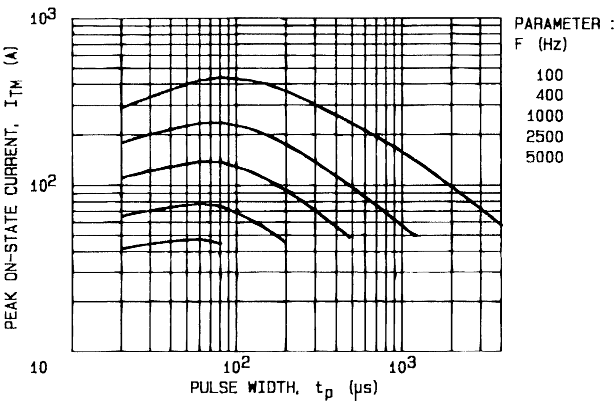


FIG.1 – ENERGY PER PULSE FOR SINUSOIDAL PULSES.



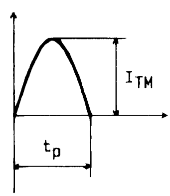
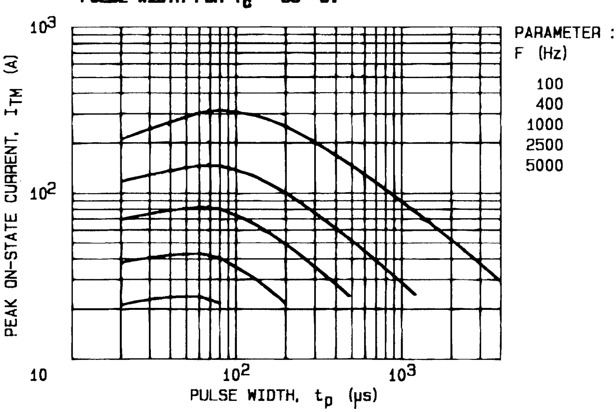


FIG.2 – MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 65 °C.



NOTES :

1. $V_D = V_R$ = 200 Volts.
2. R.C Snubber, C = 0.1 μF, R = 33 Ω .

FIG.3 – MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 90 °C.

TRAPEZOIDAL CURRENT PULSE DATA

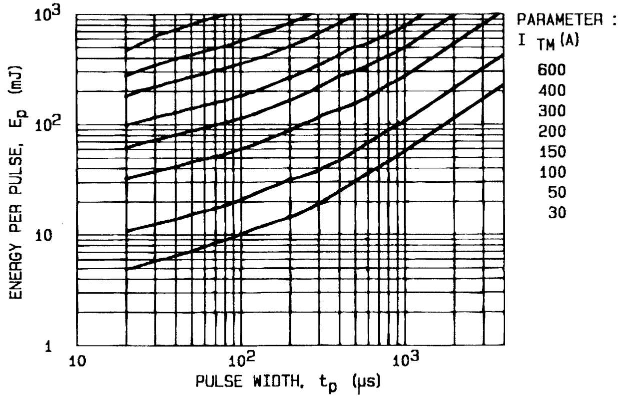
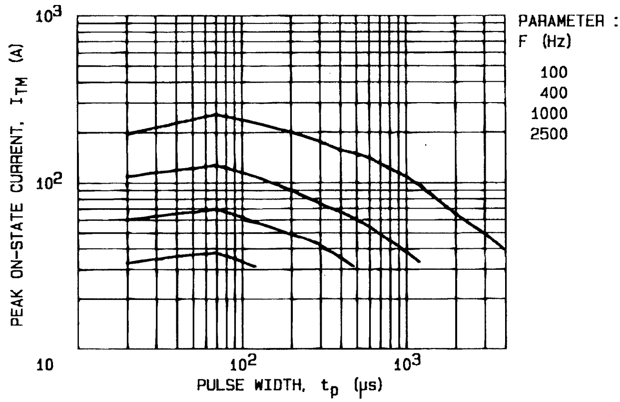


FIG.4 – ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.



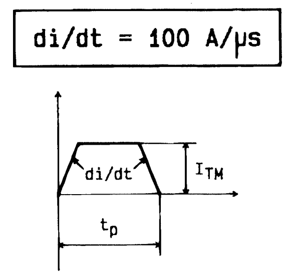
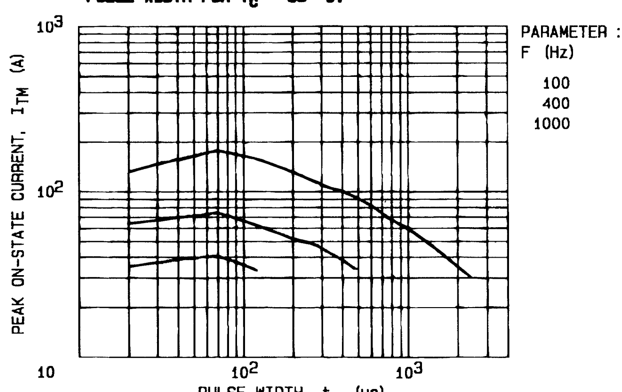


FIG.5 – MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 65 °C.



NOTES :

1. $V_D = V_R$ = 200 Volts.
2. R.C Snubber, C = 0.1 μF, R = 33 Ω .

FIG.6 – MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 90 °C.

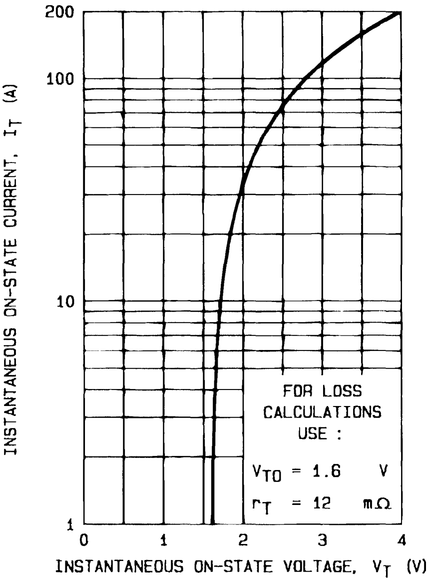


FIG.7 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 120 °C).

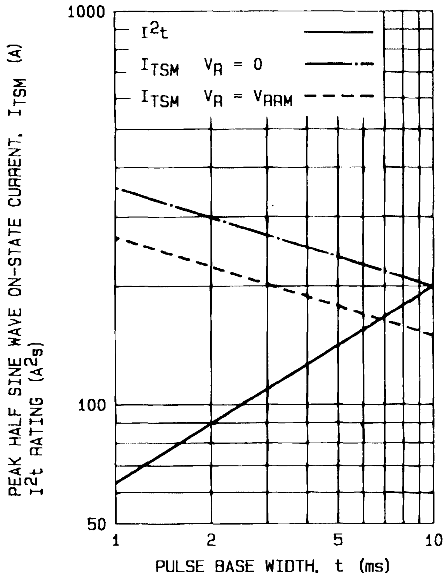


FIG.8 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 120 °C).

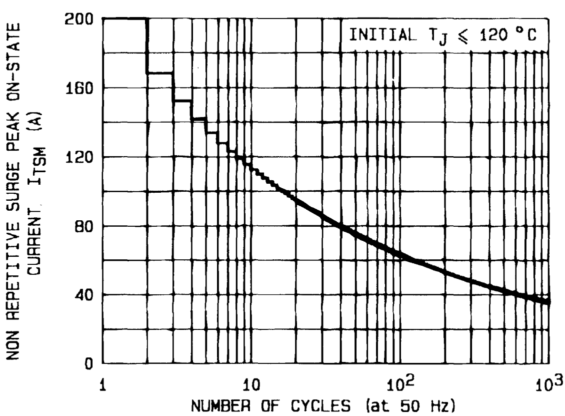


FIG.9 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

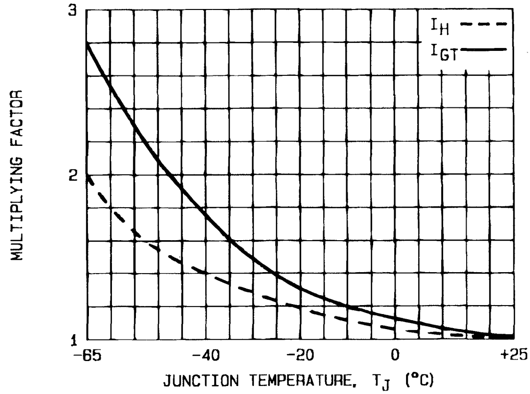


FIG.10 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

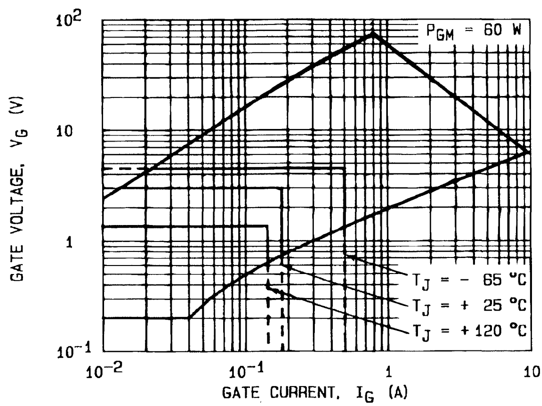


FIG.11 - GATE TRIGGER CHARACTERISTICS.

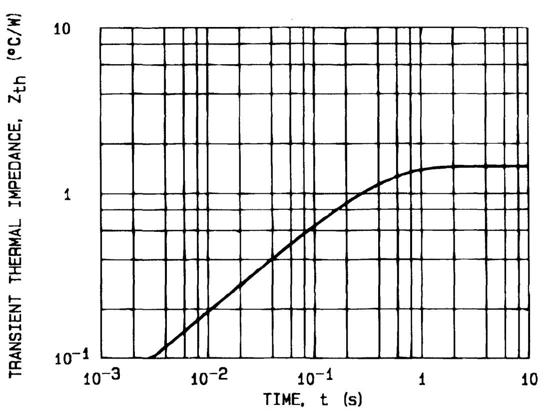


FIG.12 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

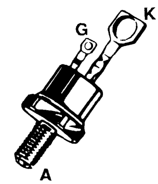
SGS-THOMSON
MICROELECTRONICS

2N 3654 → 2N 3658

FAST SWITCHING THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH di/dt AND dv/dt RATINGS
- $t_q \leq 10\ \mu s$

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

SCR designed for high frequency power switching applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_C = 40 °C	35	A
$I_{T(AV)}$	Mean on-state Current (1)	T_C = 40 °C	22.5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 120 °C) (2)	t = 8.3 ms	210	A
		t = 10 ms	200	
I^2t	I^2t Value for Fusing	t = 10 ms	200	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		400	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 65 to 150 – 65 to 120	°C °C

Symbol	Parameter	2N 36..					Unit
		54	55	56	57	58	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	300	400	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 1 A di_G/dt = 1 A/µs.
(4) T_j = 120 °C .

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.45	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.40	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 60 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 500 µs)

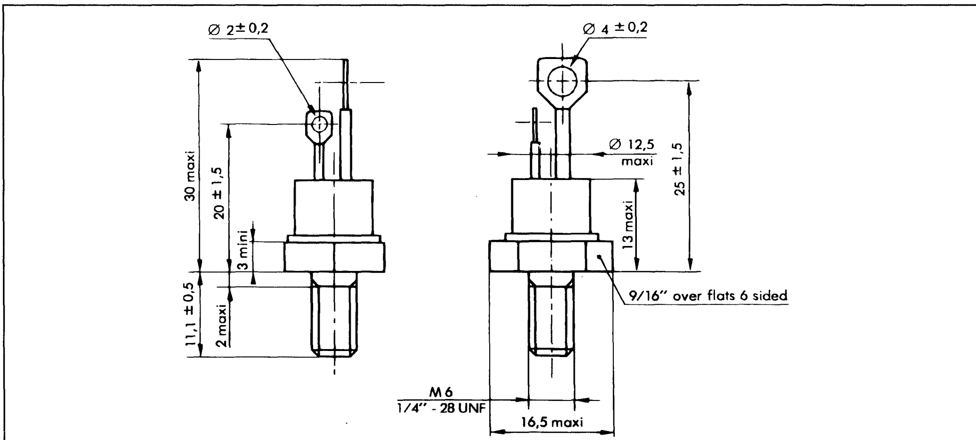
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			180	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 120 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 500 mA	Gate Open		70		mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 360 mA		140		mA
V_{TM}	T_j = 25 °C	I_{TM} = 25 A	t_p = 10 ms			2.05	V
I_{DRM}	T_j = 120 °C	V_{DRM} Specified				6	mA
I_{RRM}	T_j = 120 °C	V_{RRM} Specified				6	mA
t_{gt}	T_j = 25 °C I_G = 500 mA	V_D = V_{DRM} di_G/dt = 5 A/µs	I_T = 25 A		1		µs
t_q	T_j = 120 °C V_D = 67 % V_{DRM} dv/dt = 200 V/µs	I_T = 25 A di/dt = 5 A/µs Gate Open	V_R = 15 V			10	µs
dv/dt*	T_j = 120 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1 g
Polarity : anode to case
Stud torque : 3.5 m∆N min - 3.8 m∆N max.

SINUSOIDAL CURRENT PULSE DATA

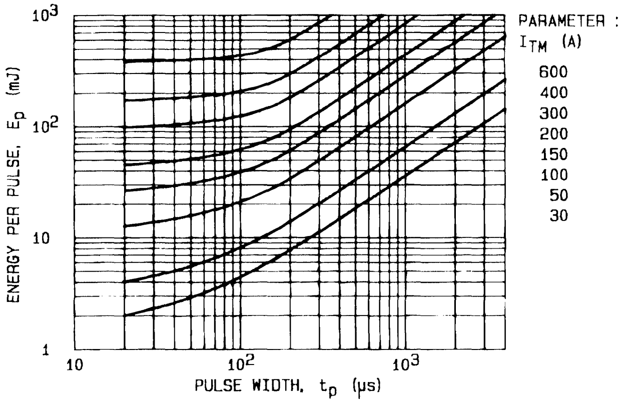
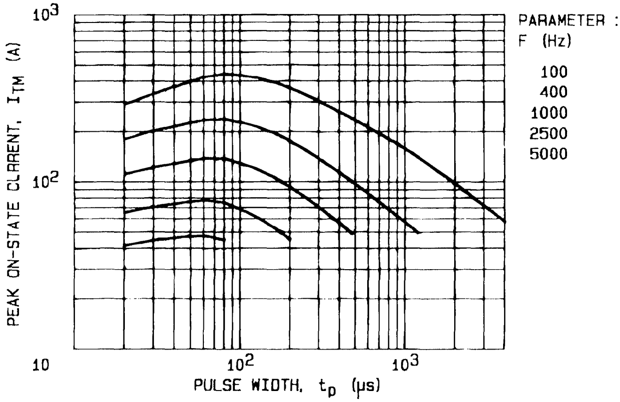


FIG.1 - ENERGY PER PULSE FOR SINUSOIDAL PULSES.



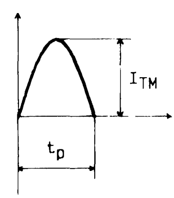
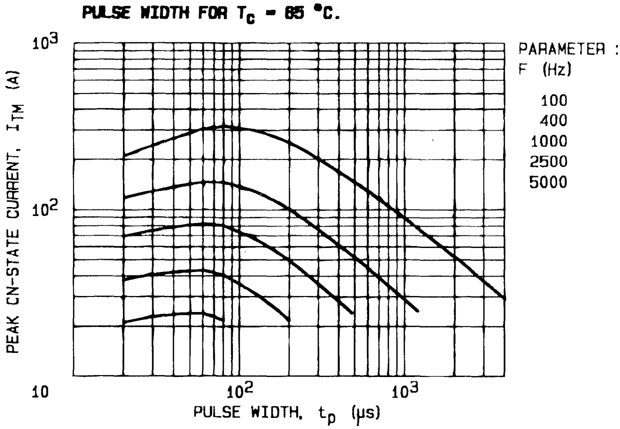


FIG.2 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 85 °C.



NOTES :

1. $V_D = V_R$ = 200 Volts.
2. R.C Snubber, C = 0.1 µF, R = 33 Ω .

FIG.3 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 90 °C.

TRAPEZOIDAL CURRENT PULSE DATA

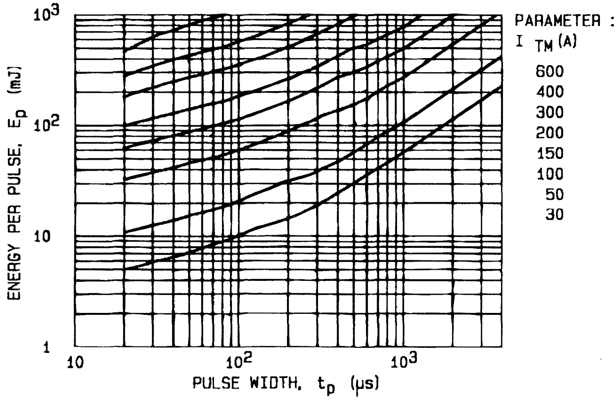


FIG.4 - ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.

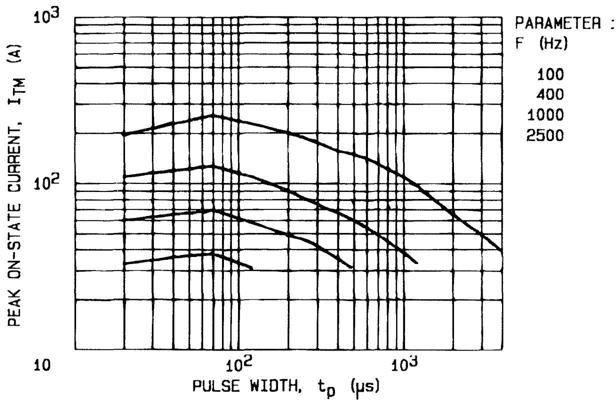
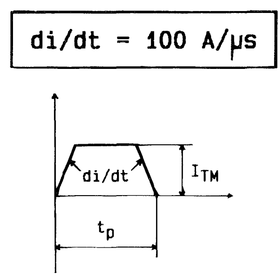
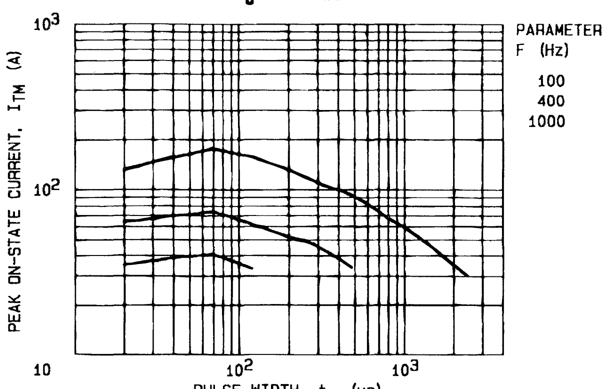


FIG.5 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 85 °C.





NOTES :

1. $V_D = V_R$ = 200 Volts.
2. R.C Snubber, C = 0.1 μF,
   R = 33 Ω .

FIG.6 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 90 °C.

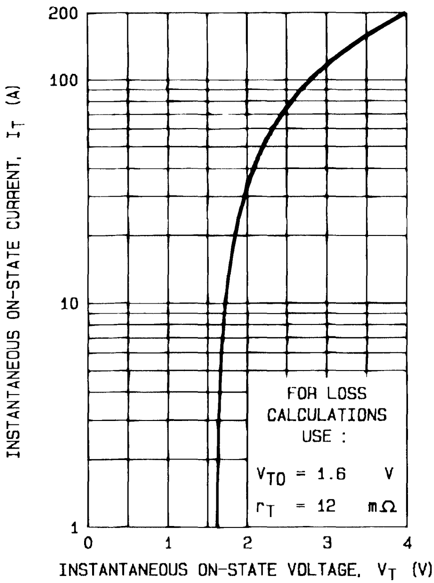


FIG.7 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 120 °C).

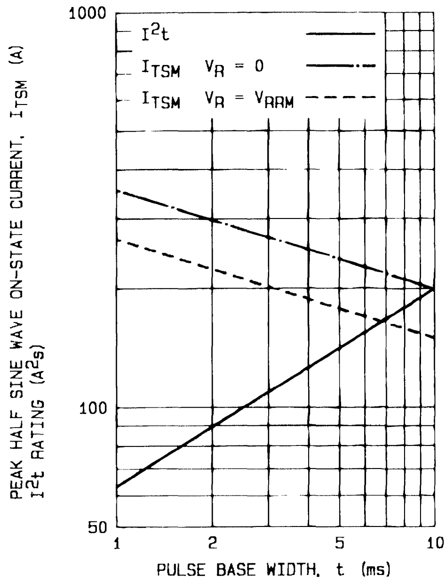


FIG.8 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 120 °C).

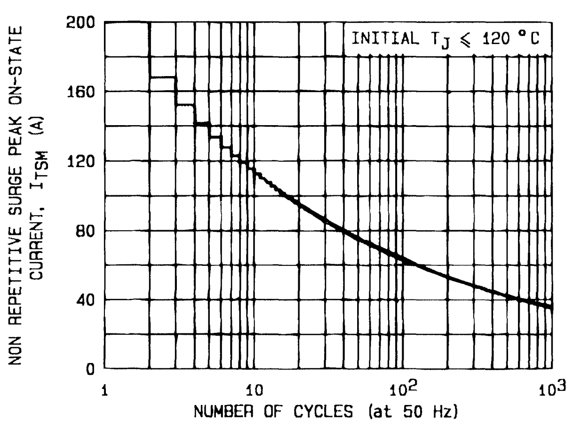


FIG.9 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

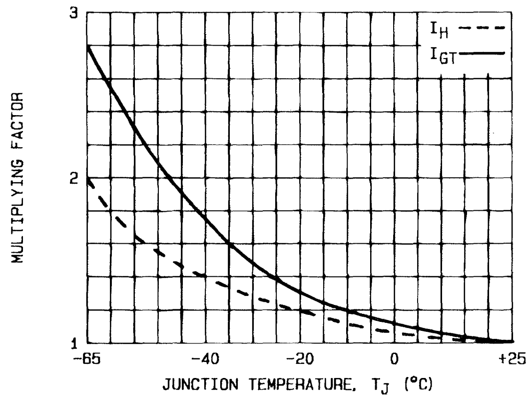


FIG.10 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

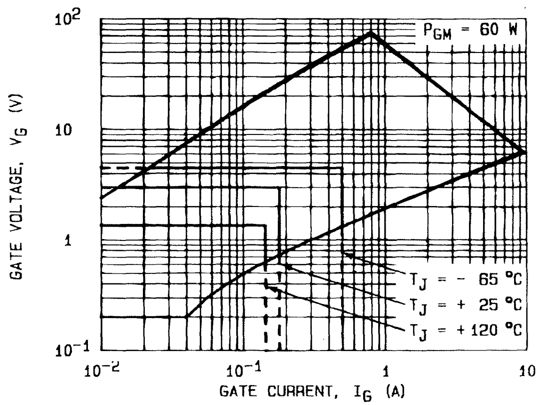


FIG.11 - GATE TRIGGER CHARACTERISTICS.

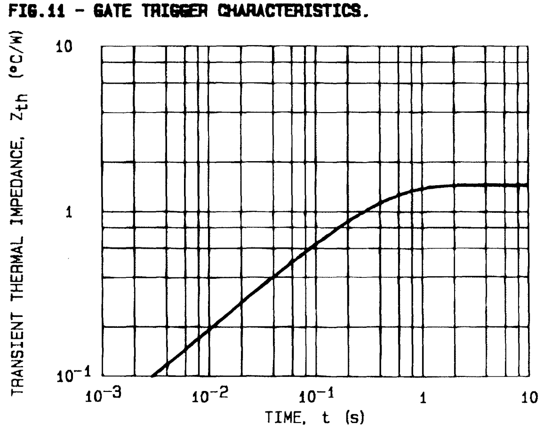


FIG.12 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

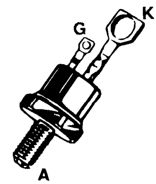
SGS-THOMSON MICROELECTRONICS

2N 5204 → 2N 5207

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	35	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	22.5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	360	A
		t = 10 ms	330	
I^2t	I^2t Value for Fusing	t = 10 ms	545	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	2N5204	2N5205	2N5206	2N5207	Unit
V_{DRM} , V_{RRM}	Repetitive Peak off-state Voltage (4)	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 0.4 A di_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.4	°C/W

GATE CHARACTERISTICS (maximum values)

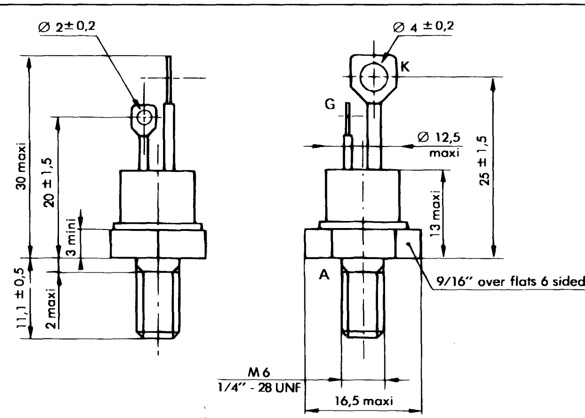
P_{GM} = 60 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 500 µs)

ELECTRICAL CHARACTERISTICS

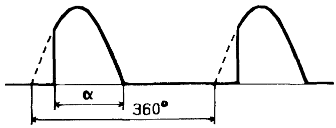
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			40	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.25			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open			100	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 80 mA			200	mA
V_{TM}	T_j = 25 °C	I_{TM} = 70 A	t_p = 10 ms			2.3	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			3.3	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			3.3	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 2 A/µs	I_T = 70 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 70 A di/dt = 30 A/µs	V_R = 30 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1g
Polarity : anode to case
Stud torque : 3.5 mΔN min - 3.8 mΔN max.



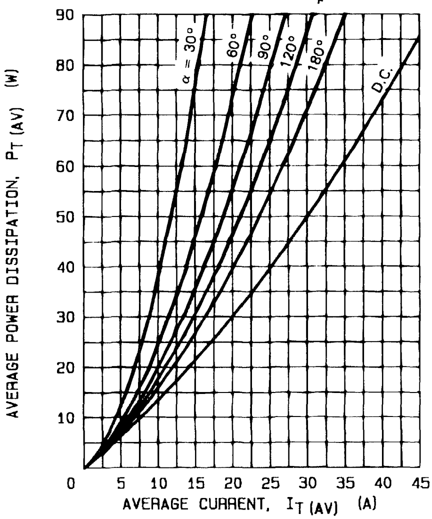


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

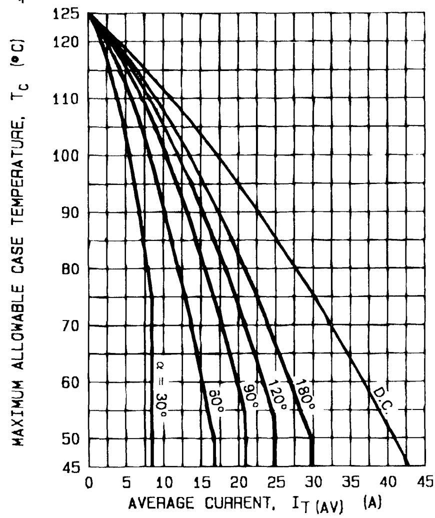
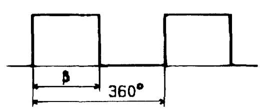


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



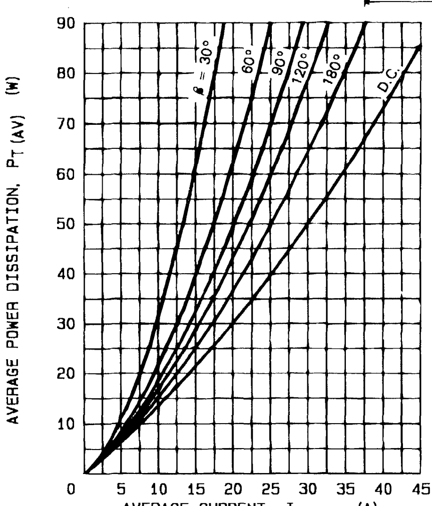


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

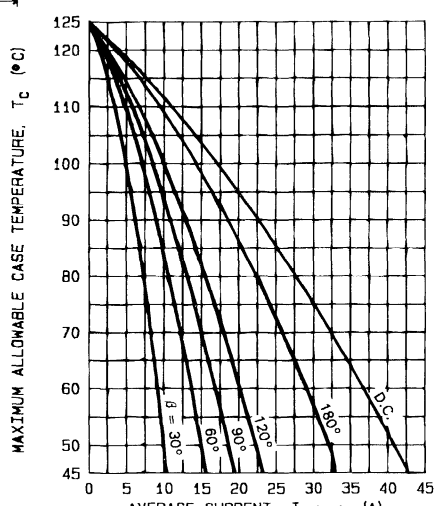


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

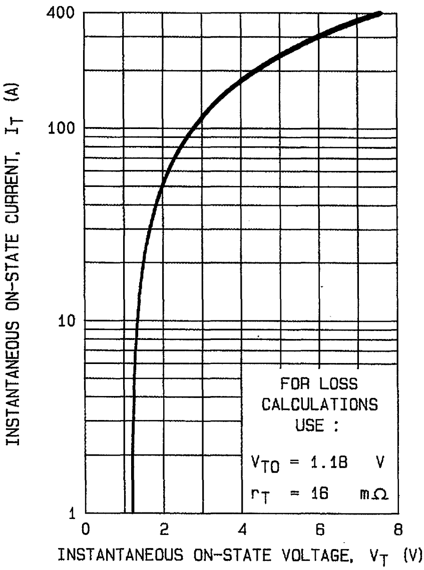


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

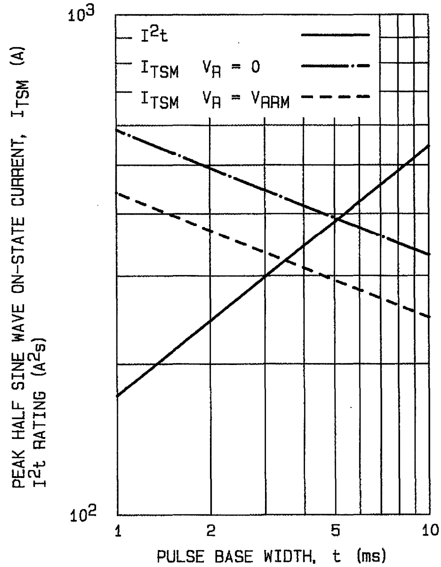


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

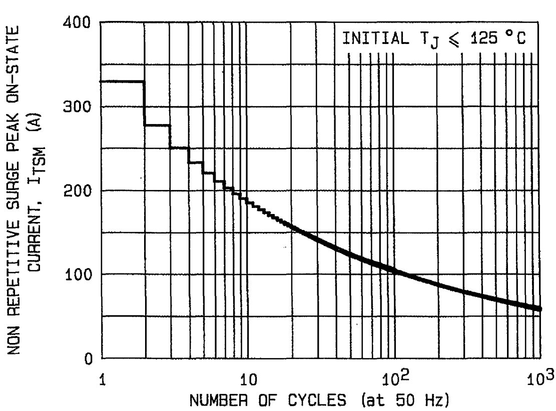


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

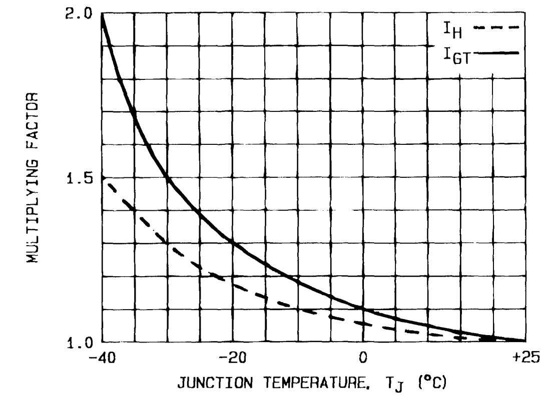


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

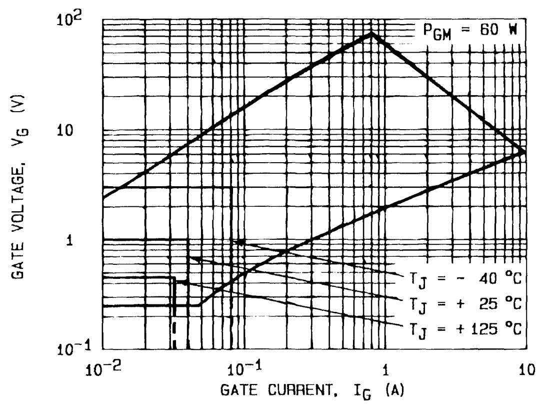


FIG.9 - GATE TRIGGER CHARACTERISTICS.

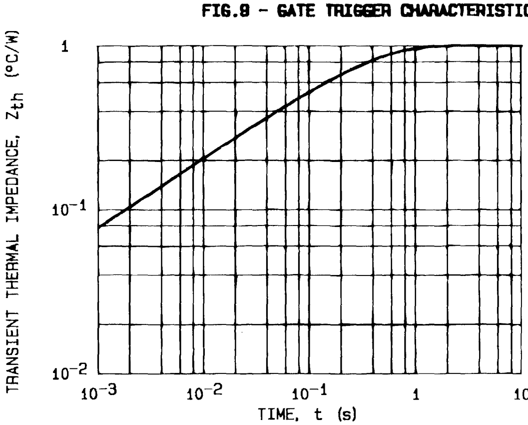


FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.08	1.06
120°	1.12	1.50
90°	1.20	1.70
60°	1.40	1.90
30°	1.80	2.40

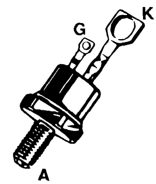
SGS-THOMSON
MICROELECTRONICS

BTW30-600 → 1200

FAST SWITCHING THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH di/dt AND dv/dt RATINGS
- t_q ≤ 12μs FOR BTW30-600/800
  ≤ 20μs FOR BTW30-1000/1200

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

SCR designed for high frequency power switching applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_C = 60 °C	25	A
$I_{T(AV)}$	Mean on-state Current (1)	T_C = 60 °C	16	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	210	A
		t = 10 ms	200	
I^2t	I^2t Value for Fusing	t = 10 ms	200	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		200	A/μs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to150 – 40 to125	°C °C

Symbol	Parameter	BTW 30-				Unit
		600	800	1000	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 1 A di_G/dt = 1 A/μs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$ $R_{th\ (c-h)}$	Junction-case for D.C. Contact (case to heatsink)	1.4 0.4	°C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 100 µs) I_{FGM} = 1 A (t_p = 100 µs) V_{RGM} = 5 V

$P_{G\,(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 100 µs)

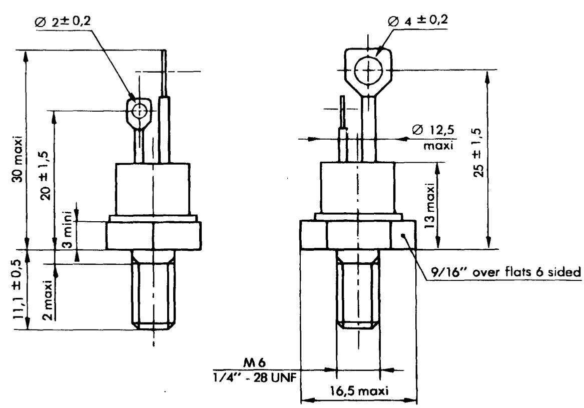
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs				200	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs				1.5	V
V_{GO}	T_j = 125 °C V_D = V_{DRM} R = 3.3 kΩ		0.2			V
I_H	T_j = 25 °C I_T = 500 mA Gate Open			70		mA
I_L	T_j = 25 °C V_D = 12 V I_G = 400 mA Pulse Duration > 20 µs			140		mA
V_{TM}	T_j = 25 °C I_{TM} = 50 A t_p = 10 ms				3	V
I_{DRM}	T_j = 100 °C V_{DRM} Specified				6	mA
I_{RRM}	T_j = 100 °C V_{RRM} Specified				6	mA
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 50 A I_G = 500 mA dI_G/dt = 5 A/µs			1		µs
t_q	T_j = 125 °C I_T = 50 A V_R = 50 V V_D = 67 % V_{DRM} di/dt = 10 A/µs dv/dt = 50 V/µs Gate Open	BTW 30-600/800		12		µs
		BTW 30-1000/1200		20		
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1 g
Polarity : anode to case
Stud torque : 3.5 mΛN min - 3.8 mΛN max.

SINUSOIDAL CURRENT PULSE DATA

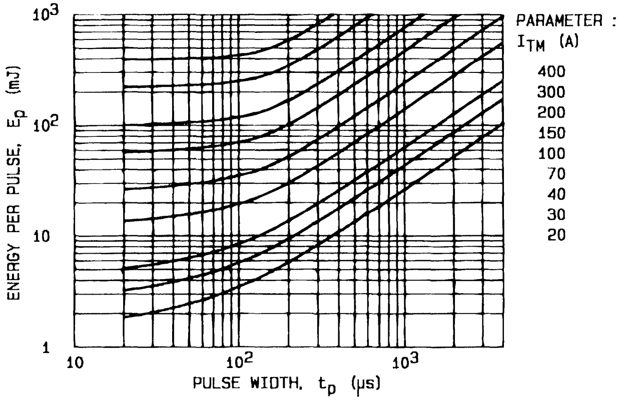
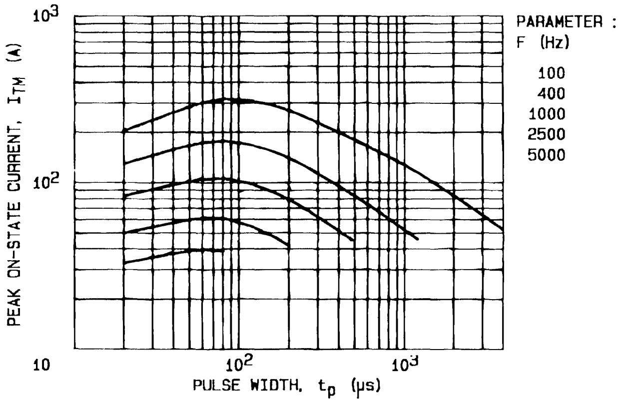


FIG.1 - ENERGY PER PULSE FOR SINUSOIDAL PULSES.



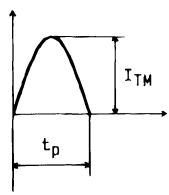
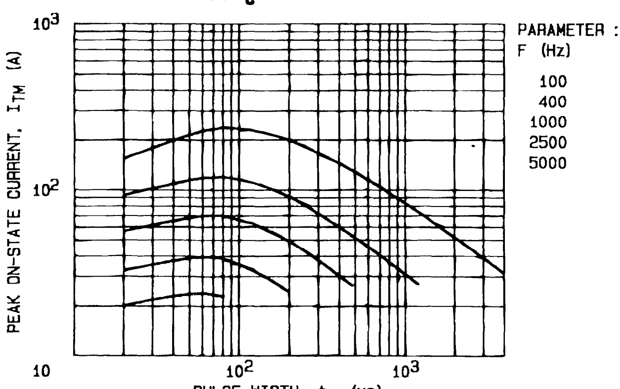


FIG.2 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 85 °C.



NOTES :

1. $V_D = V_R$ = 600 Volts.
2. R.C Snubber, C = 0.1 µF, R = 33 Ω .

FIG.3 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 90 °C.

TRAPEZOIDAL CURRENT PULSE DATA

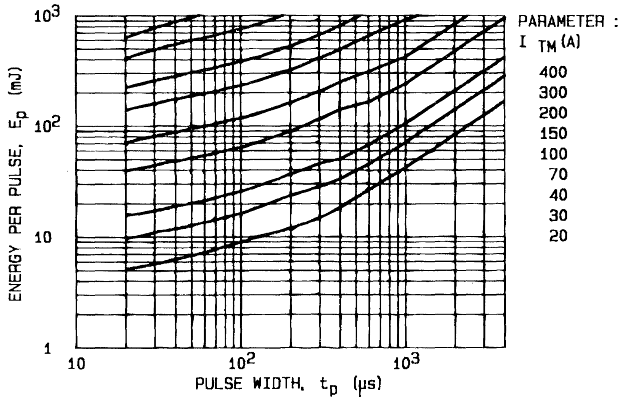
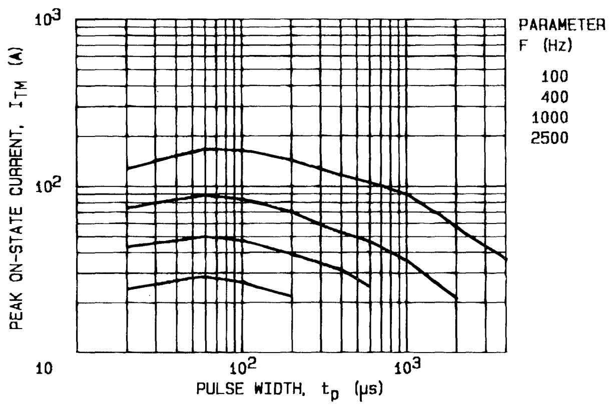


FIG.4 - ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.



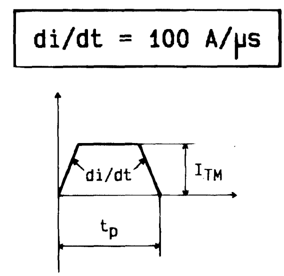
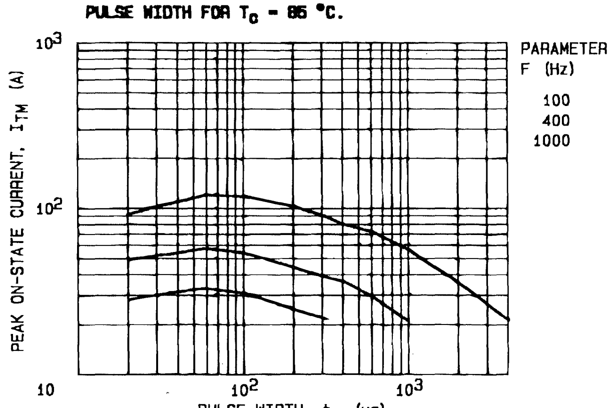


FIG.5 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 85 °C.



NOTES :

1. $V_D = V_R$ = 600 Volts.
2. R.C Snubber, C = 0.1 µF.
   R = 33 Ω .

FIG.6 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 90 °C.

D88BTW30P4

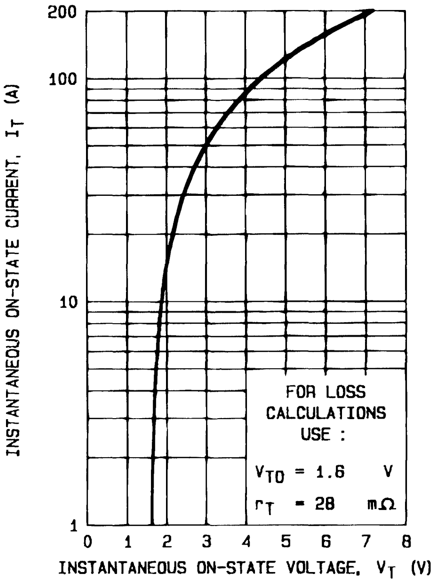


FIG.7 – MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

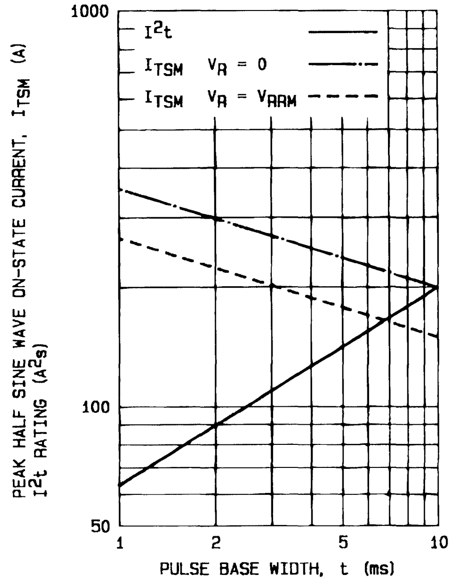


FIG.8 – NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

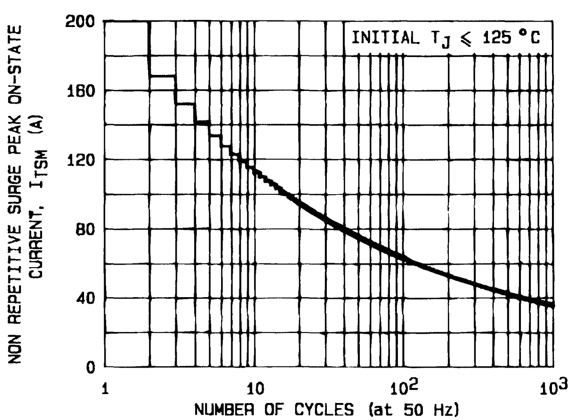


FIG.9 – NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

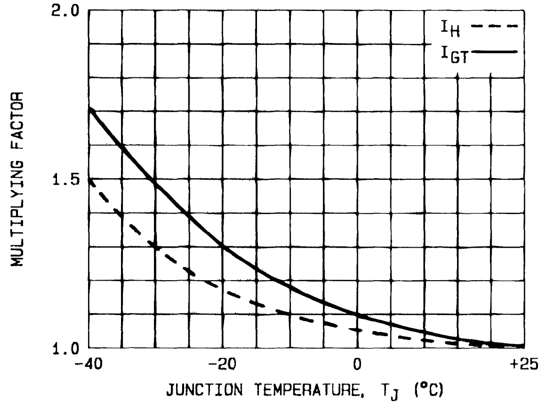


FIG.10 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

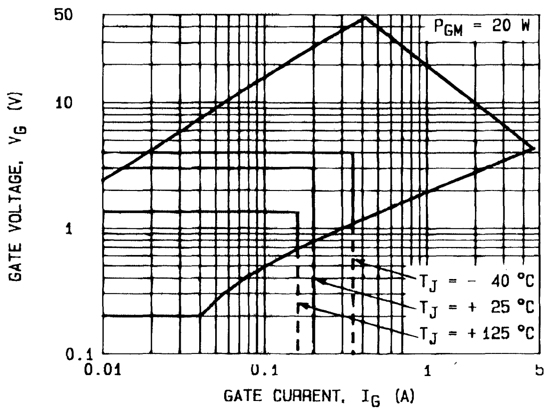


FIG.11 - GATE TRIGGER CHARACTERISTICS.

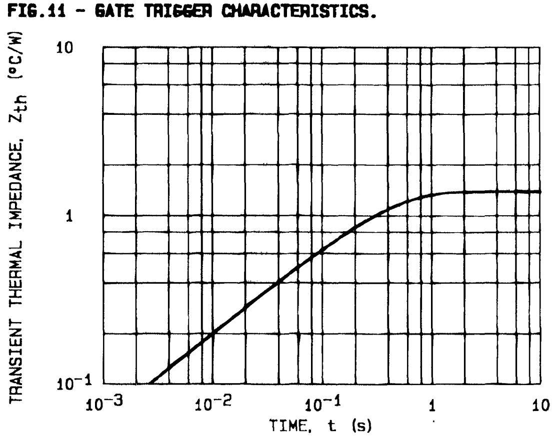


FIG.12 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

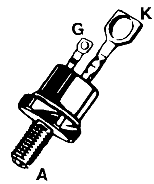
SGS-THOMSON MICROELECTRONICS

BTW39-50 → 1200

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	25	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	16	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	210	A
		t = 10 ms	200	
I^2t	I^2t Value for Fusing	t = 10 ms	200	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTW39-													Unit
		50	100	200	300	400	500	600	700	800	900	1000	1100	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	300	400	500	600	700	800	900	1000	1100	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 0.8 A di_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.42	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.4	°C/W

GATE CHARACTERISTICS (maximum values)

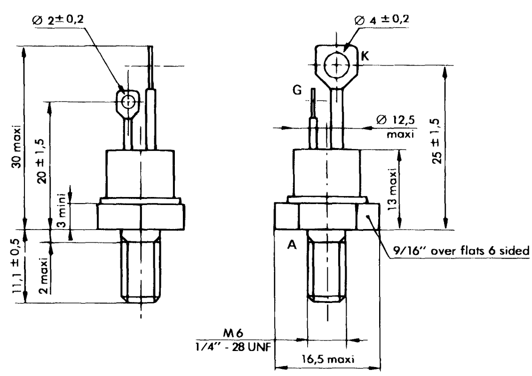
P_{GM} = 20 W (t_p = 100 μs) I_{FGM} = 8 A (t_p = 100 μs) V_{RGM} = 5 V
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 100 μs)

ELECTRICAL CHARACTERISTICS

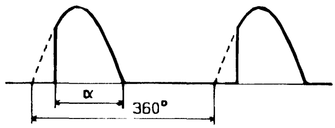
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 μs	V_D = 12 V	R_L = 33 Ω		50	80	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 μs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20		mA
I_L	T_j = 25 °C Pulse Duration > 20 μs	V_D = 12 V	I_G = 160 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 50 A	t_p = 10 ms			2.2	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			5	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			5	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 2 A/μs	I_T = 50 A		2		μs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 50 A di/dt = 30 A/μs	V_R = 50 V dv/dt = 20 V/μs		100		μs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200	400		V/μs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1g
Polarity : anode to case
Stud torque : 3.5 mΛN min - 3.8 mΛN max.



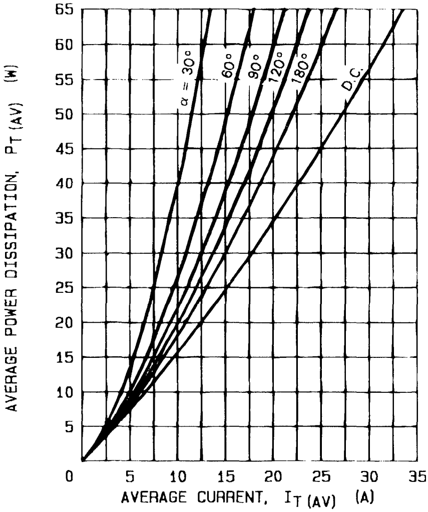


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

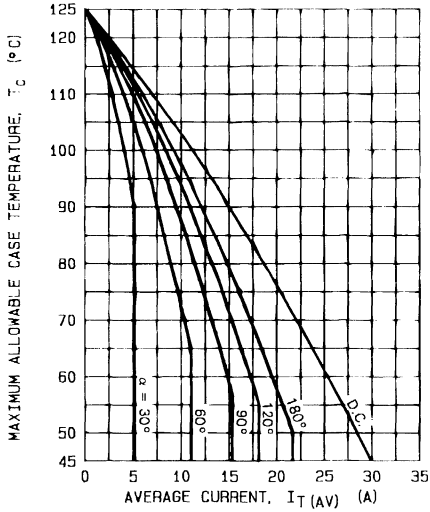
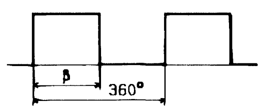


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



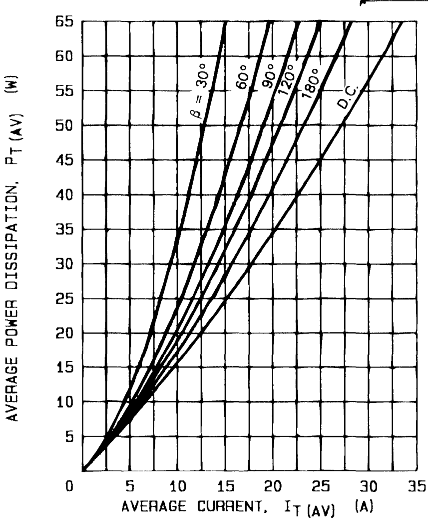


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

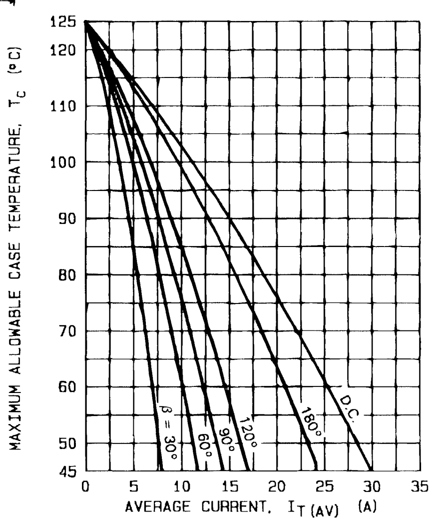


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

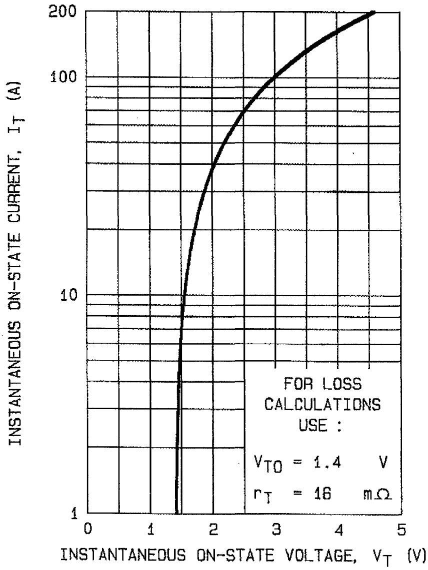


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

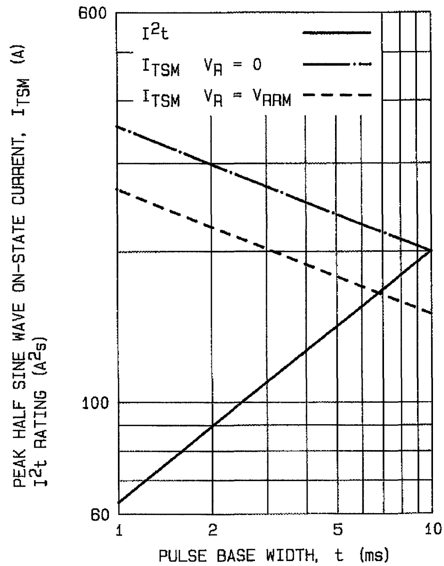


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

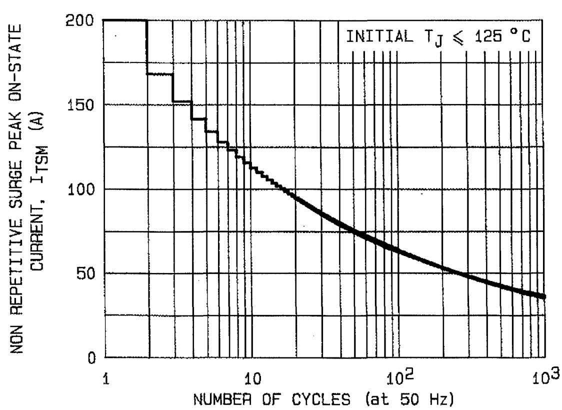


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

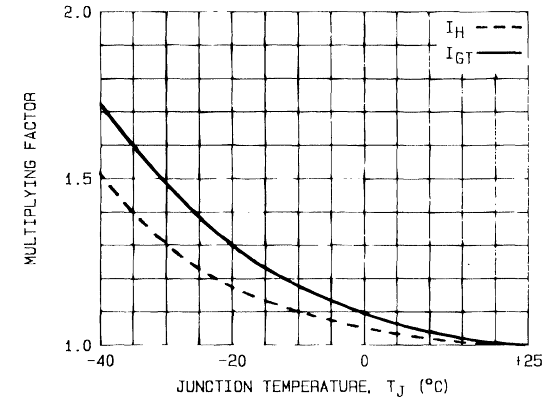


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

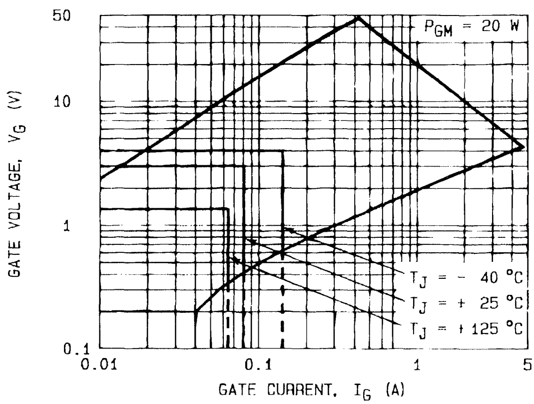


FIG.9 - GATE TRIGGER CHARACTERISTICS.

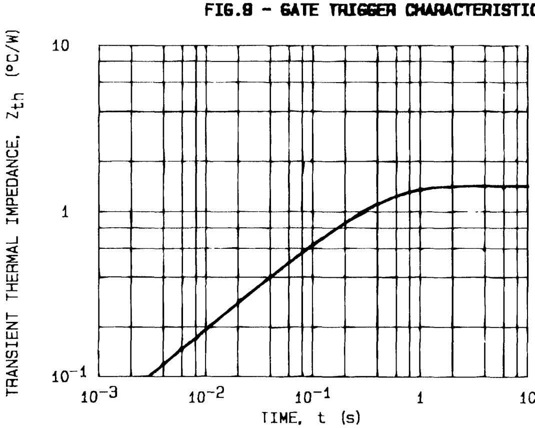


FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.53	1.51
120°	1.59	2.13
90°	1.70	2.41
60°	1.99	2.70
30°	2.56	3.41

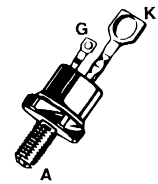
SGS-THOMSON MICROELECTRONICS

BTW48-200 → 1200

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 85 °C	50	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 85 °C	32	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	520	A
		t = 10 ms	500	
I^2t	I^2t Value for Fusing	t = 10 ms	1250	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTW48-					Unit
		200	400	600	800	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 0.6 A dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	0.7	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.4	°C/W

GATE CHARACTERISTICS (maximum values)

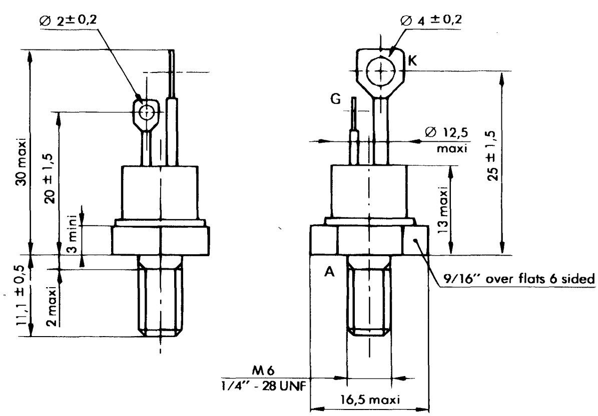
P_{GM} = 60 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 500 µs)

ELECTRICAL CHARACTERISTICS

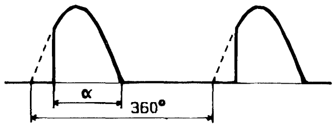
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω		30	60	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		30		mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 120 mA		60		mA
V_{TM}	T_j = 25 °C	I_{TM} = 100 A	t_p = 10 ms			1.8	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			5	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			5	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 2 A/µs	I_T = 100 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 100 A di/dt = 30 A/µs	V_R = 50 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1 g
Polarity : anode to case
Stud torque : 3.5 m∧N min - 3.8 m∧N max.



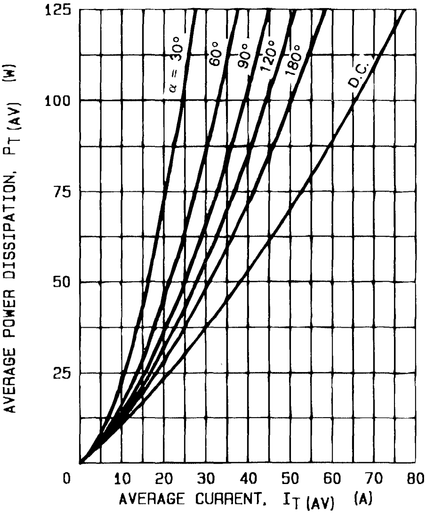


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

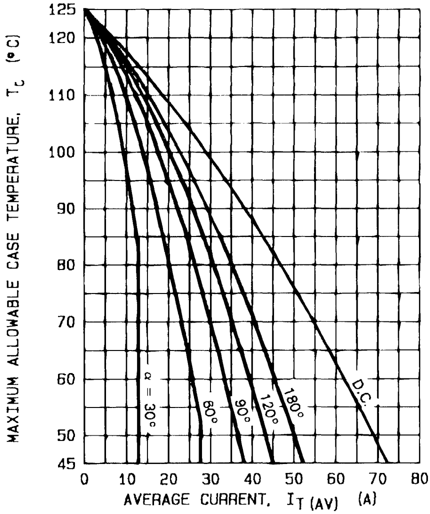
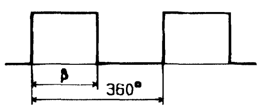


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



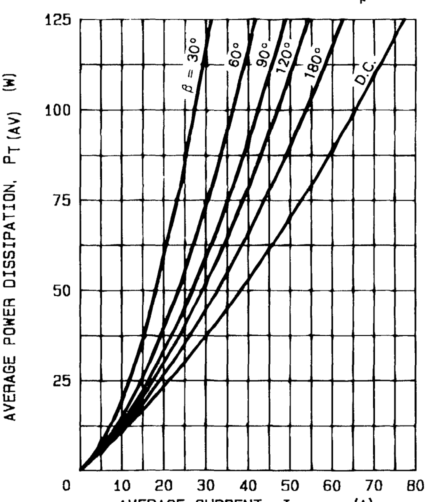


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

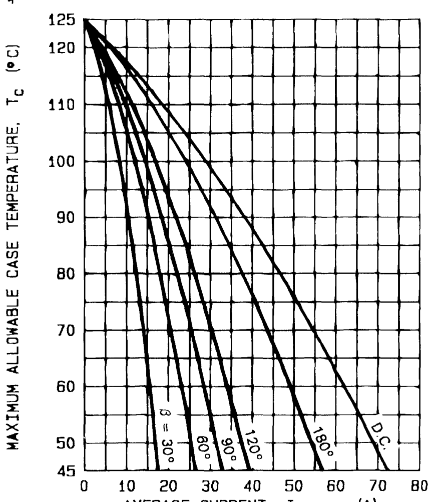


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

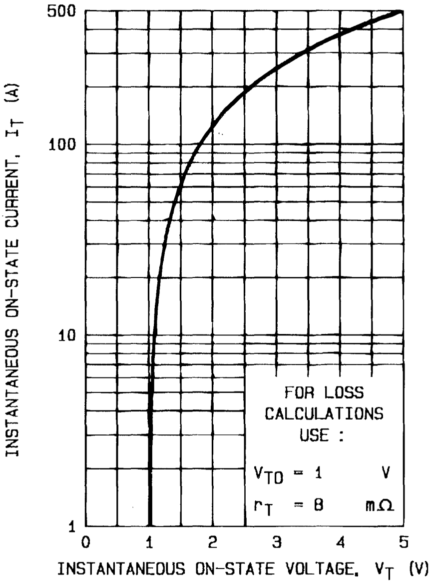


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

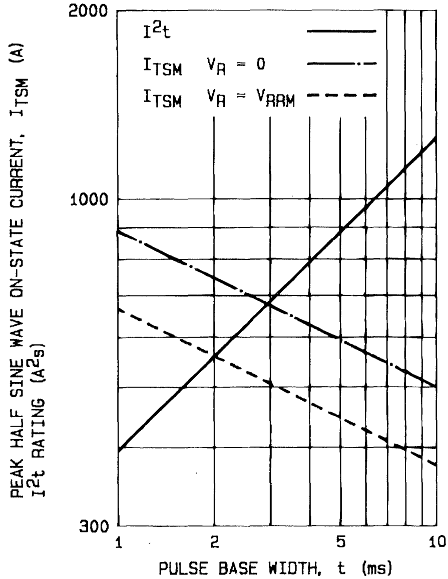


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

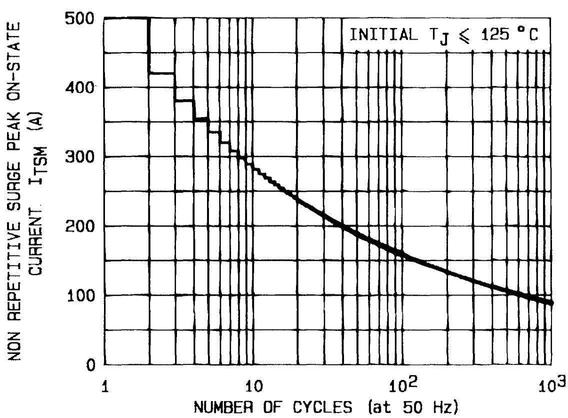


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

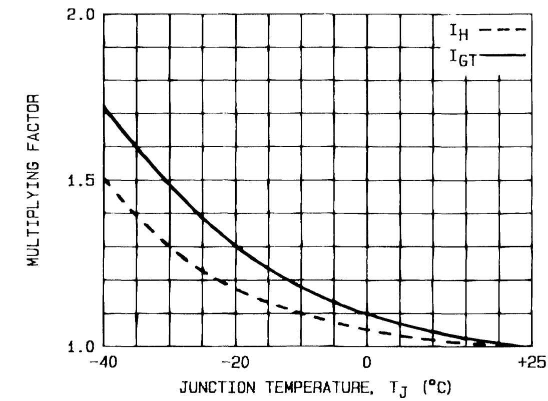


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

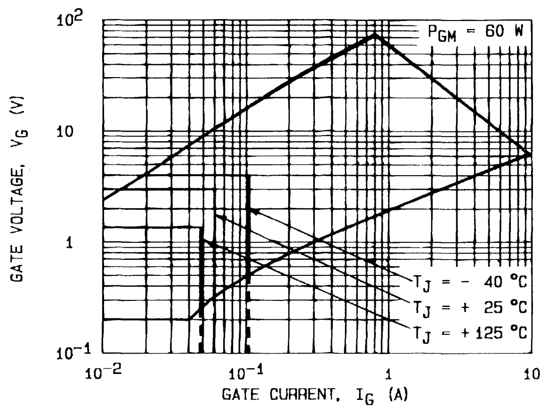


FIG.9 - GATE TRIGGER CHARACTERISTICS.

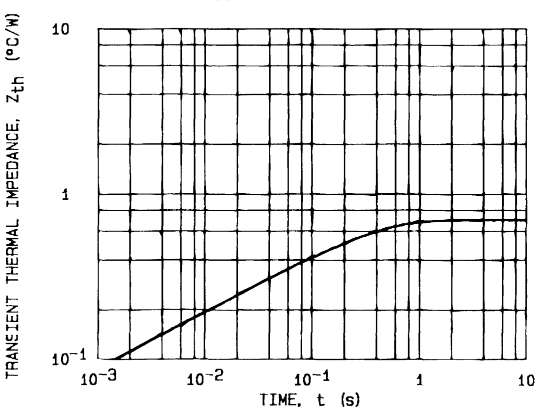
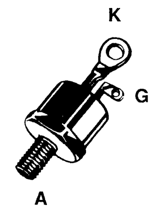


FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	0.76	0.74
120°	0.78	1.05
90°	0.84	1.19
60°	0.98	1.33
30°	1.26	1.68

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY



TO 65
(Metal)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 105 °C	63	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 105 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	950	A
		t = 10 ms	910	
I^2t	I^2t Value for Fusing	t = 10 ms	4150	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTW50-							Unit
		100	200	400	600	800	1000	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	100	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 1.5 A dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	0.36	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.3	°C/W

GATE CHARACTERISTICS (maximum values)

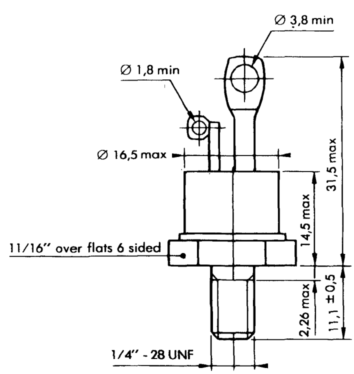
P_{GM} = 80 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G (AV)}$ = 2 W V_{FGM} = 15 V (t_p = 500 µs)

ELECTRICAL CHARACTERISTICS

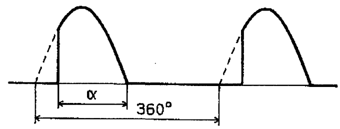
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			150	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		50		mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 300 mA		100		mA
V_{TM}	T_j = 25 °C	I_{TM} = 500 A	t_p = 10 ms			3	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			12	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			12	
t_{gt}	T_j = 25 °C I_G = 1 A	V_D = V_{DRM} di_G/dt = 10 A/µs	I_T = 500 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 500 A di/dt = 30 A/µs	V_R = 50 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 65 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 19 g without accessories
Polarity : anode to case
Stud torque : 3.5 m∆N min - 3.8 m∆N max.



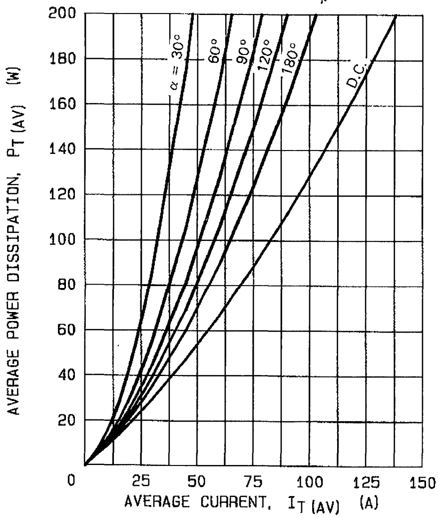


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

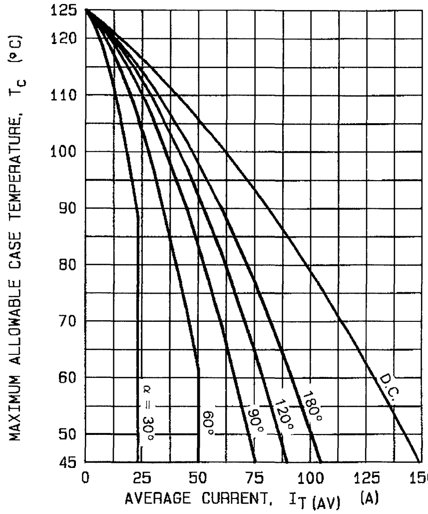
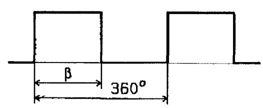


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



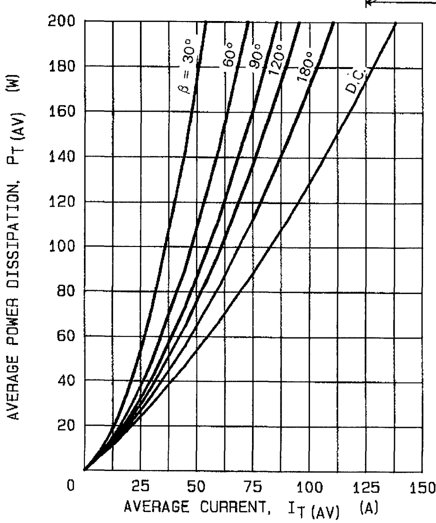


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

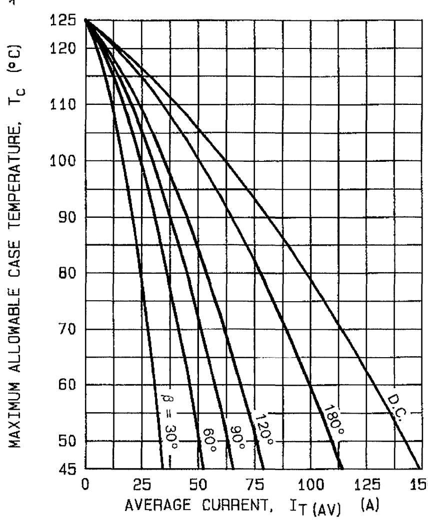


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

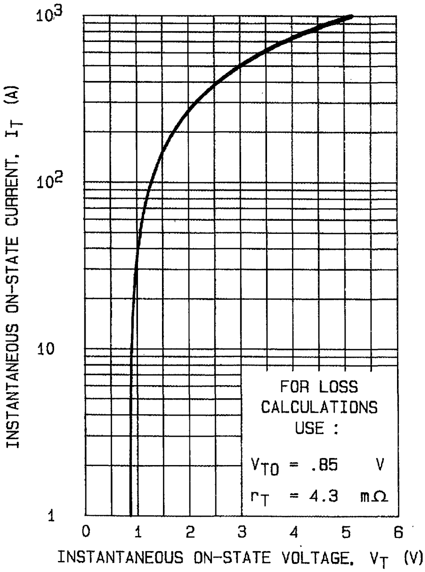


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

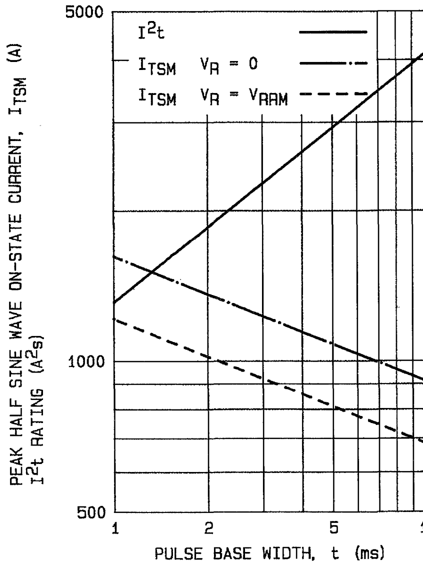


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

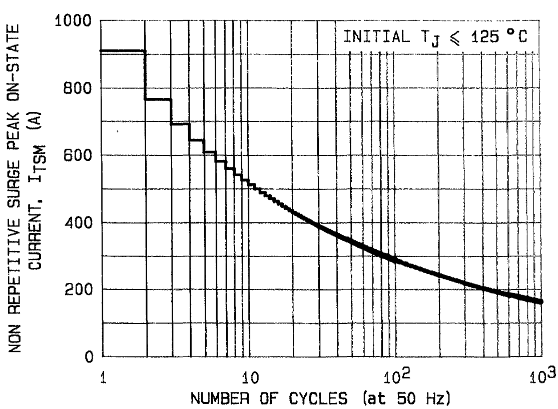


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

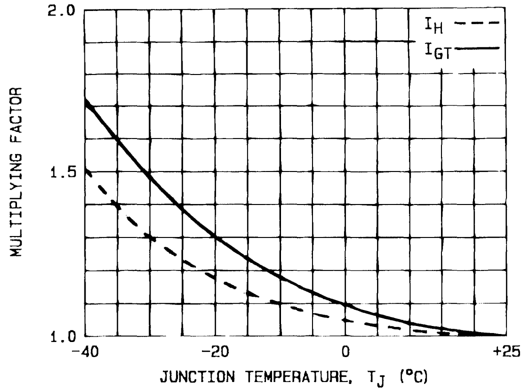


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

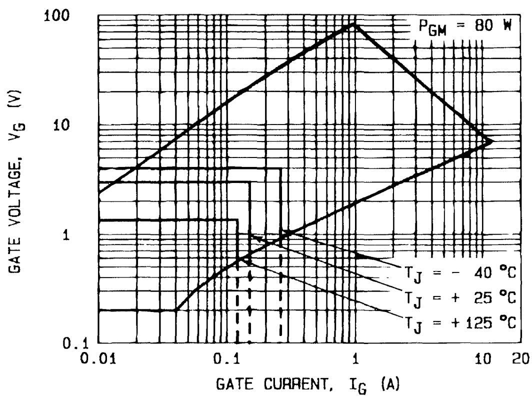


FIG.9 - GATE TRIGGER CHARACTERISTICS.

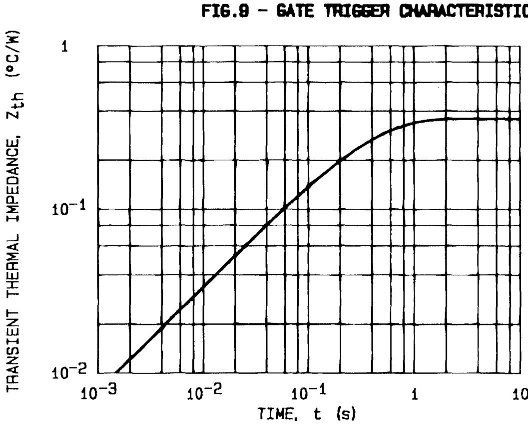


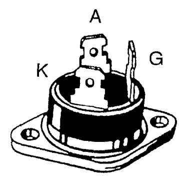
FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	0.39	0.38
120°	0.40	0.54
90°	0.43	0.61
60°	0.50	0.68
30°	0.65	0.86

BTW66-200 → 1200

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- EASY MOUNTING (FAST-ON CONNECTIONS)
- ISOLATED PACKAGE :
  INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



RD 91
(Plastic)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 65 °C	30	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 65 °C	20	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	420	A
		t = 10 ms	400	
I^2t	I^2t Value for Fusing	t = 10 ms	800	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 110	°C °C

Symbol	Parameter	BTW66-						Unit
		200	400	600	800	1000	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 500 mA dI_G/dt = 1 A/µs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.02	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.10	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 50 W (t_p = 10 µs) I_{FGM} = 2 A (t_p = 10 µs) V_{RGM} = 5 V

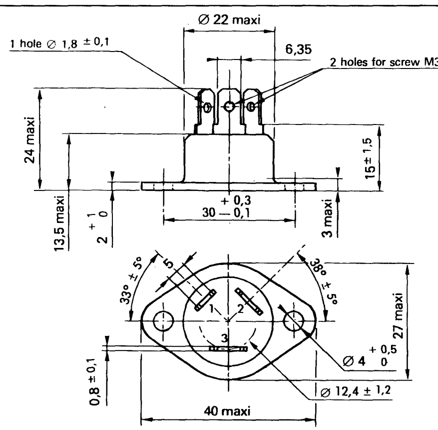
$P_{G\,(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			50	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20	75	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 100 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 60 A	t_p = 10 ms			2.2	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 110 °C			3	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 110 °C			3	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 0.2 A/µs	I_T = 60 A		2		µs
t_q	T_j = 110 °C V_D = 67 % V_{DRM} Gate Open	I_T = 60 A di/dt = 30 A/µs	V_R = 75 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open	V_{DRM} ≤ 800 V	500			V/µs
			V_{DRM} ≥ 1000 V	250			

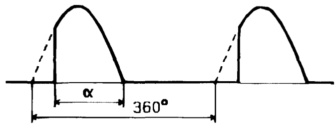
* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Thyristor 1 2 3 = G K A

Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g.



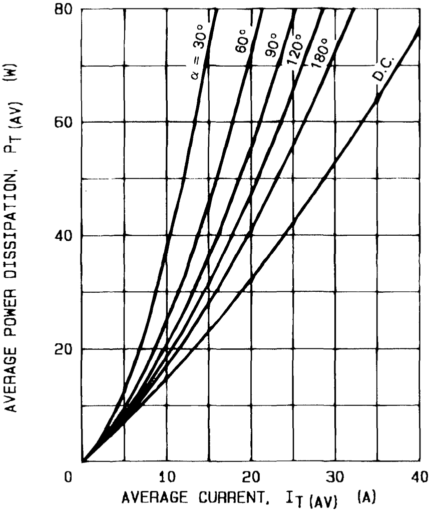


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

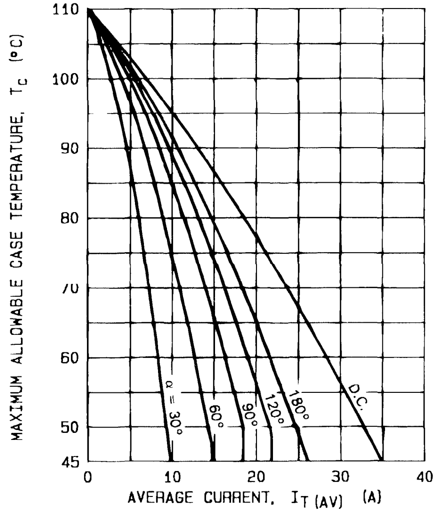
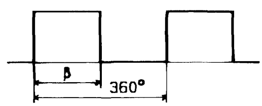


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



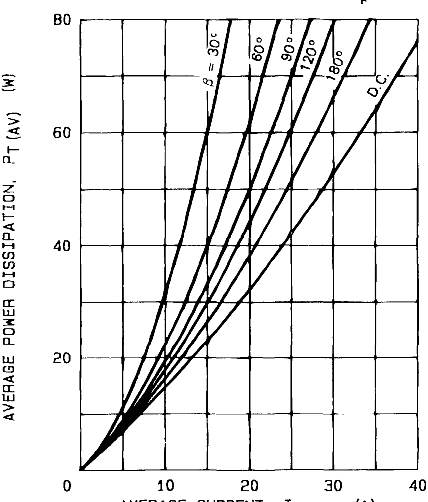


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

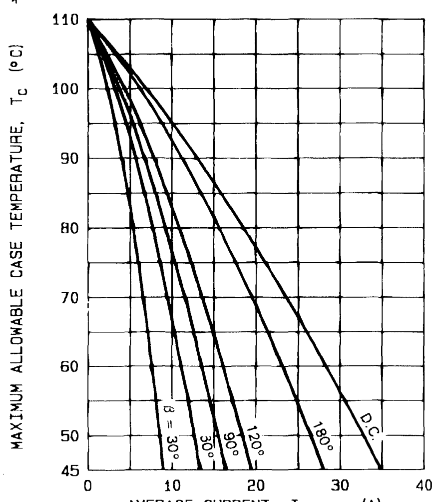


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

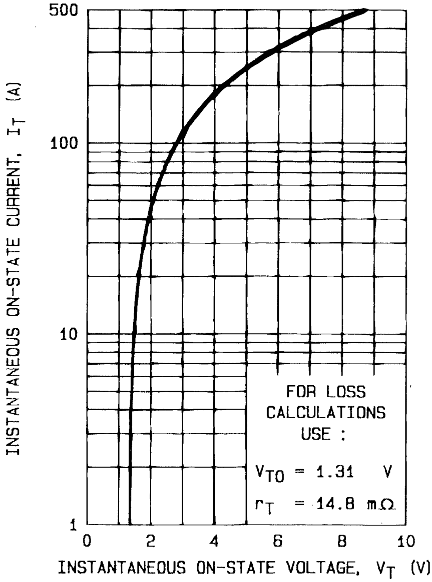


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 110 °C).

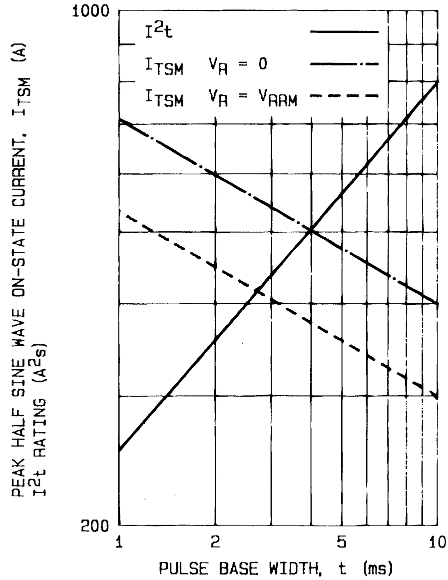


FIG.8 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 25 °C).

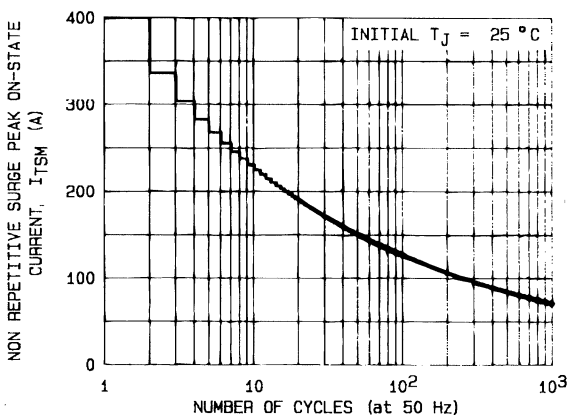


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

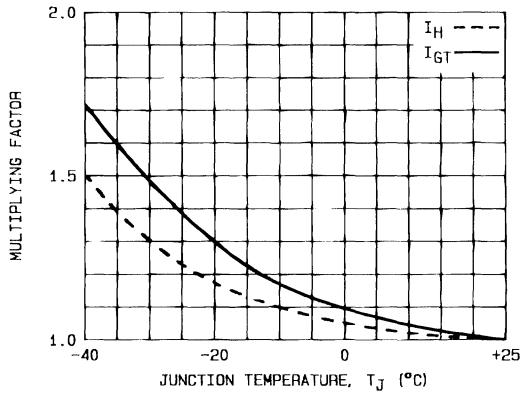


FIG.8 – RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

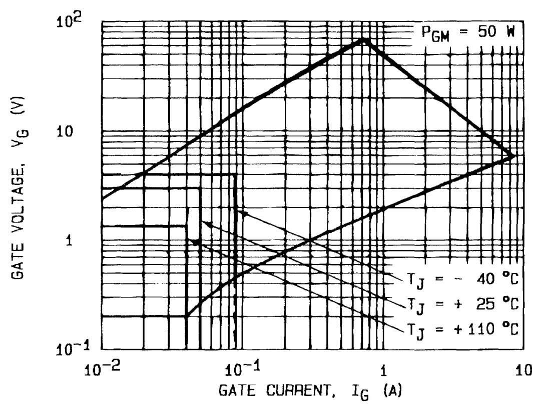


FIG.8 – GATE TRIGGER CHARACTERISTICS.

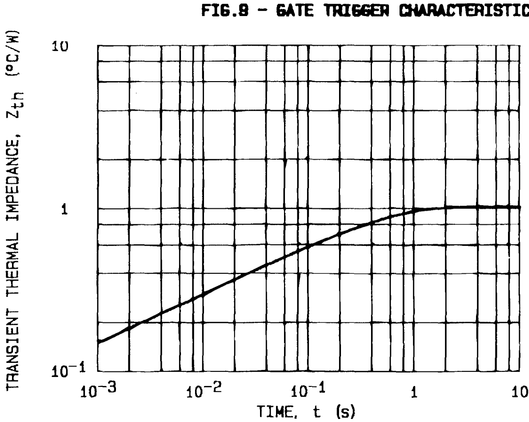


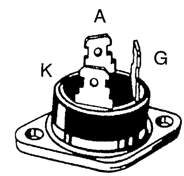
FIG.10 – TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.10	1.08
120°	1.14	1.53
90°	1.22	1.73
60°	1.43	1.94
30°	1.84	2.45

BTW67-200 → 1200

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- EASY MOUNTING (FAST-ON CONNECTIONS)
- ISOLATED PACKAGE : INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



RD 91
(Plastic)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 65 °C	40	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 65 °C	25	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	525	A
		t = 10 ms	500	
I^2t	I^2t Value for Fusing	t = 10 ms	1250	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 110	°C °C

Symbol	Parameter	BTW67-						Unit
		200	400	600	800	1000	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 800 mA di_G/dt = 1 A/µs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	0.93	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.10	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 50 W (t_p = 10 µs) I_{FGM} = 2 A (t_p = 10 µs) V_{RGM} = 5 V

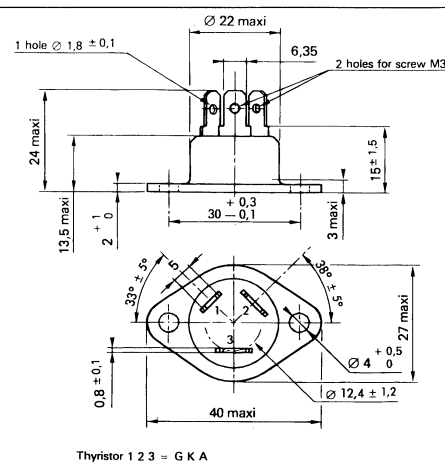
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

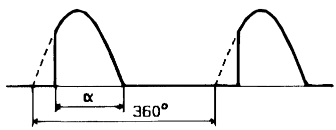
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			80	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20	150	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 160 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 80 A	t_p = 10 ms			2	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 110 °C			6	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 110 °C			6	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 0.2 A/µs	I_T = 80 A		2		µs
t_q	T_j = 110 °C V_D = 67 % V_{DRM} Gate Open	I_T = 80 A di/dt = 30 A/µs	V_R = 75 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open	V_{DRM} ≤ 800 V	500			V/µs
			V_{DRM} ≥ 1000 V	250			

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g.



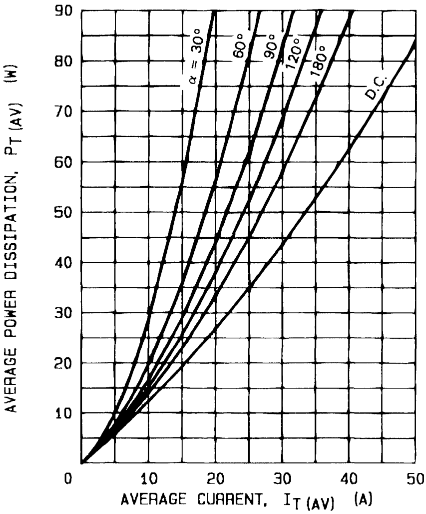


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

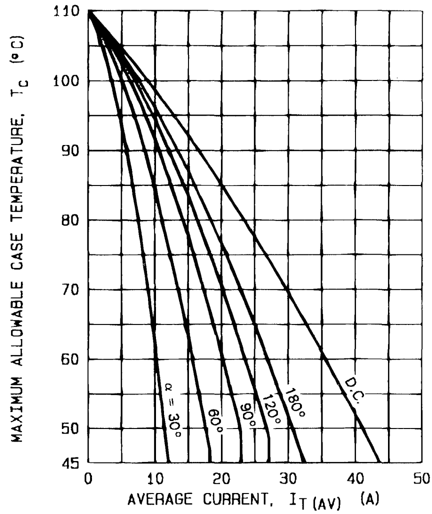
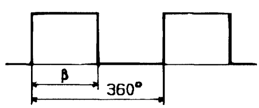


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



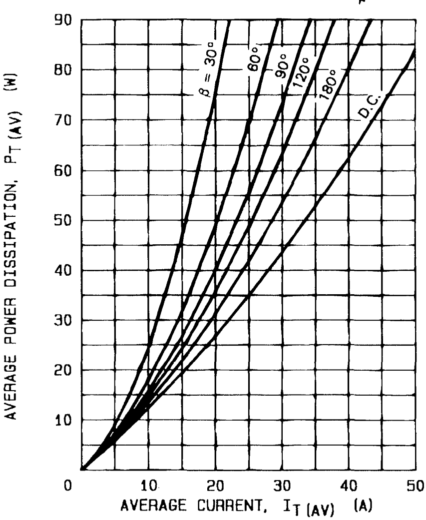


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

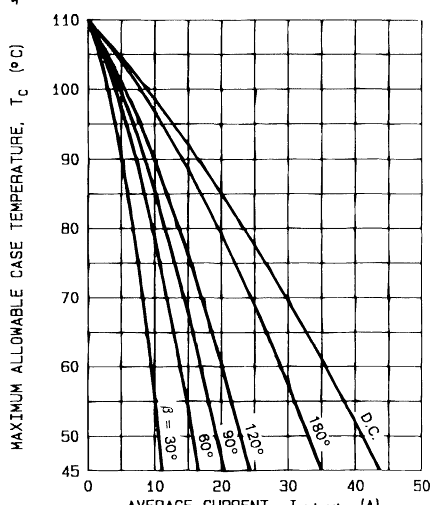


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

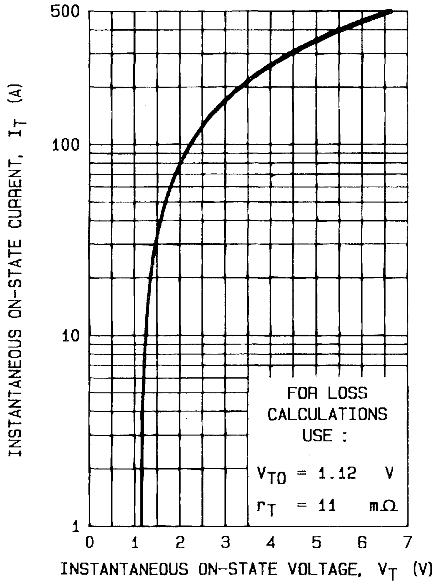


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 110 °C).

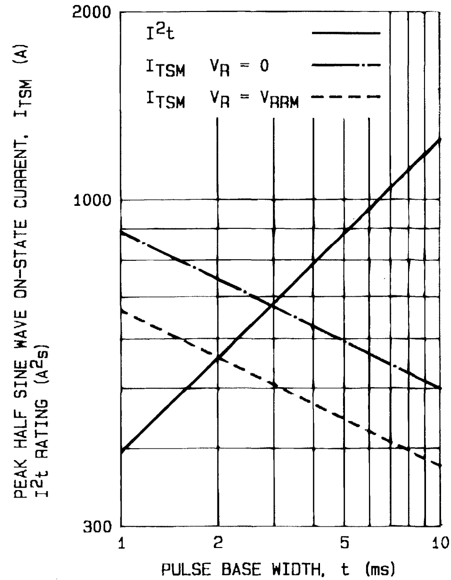


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 25 °C).

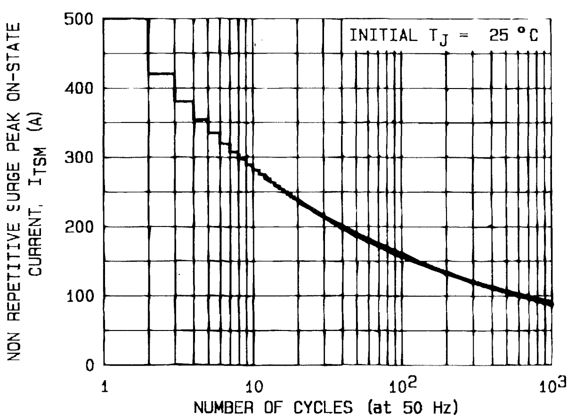


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

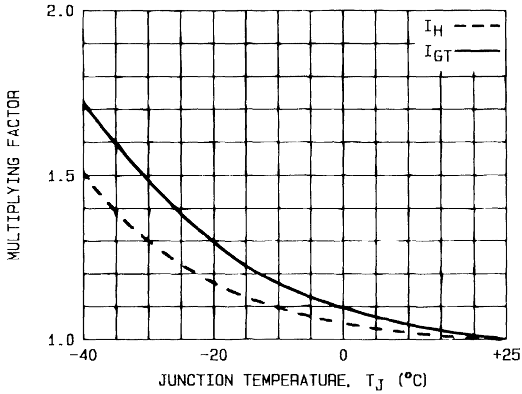


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

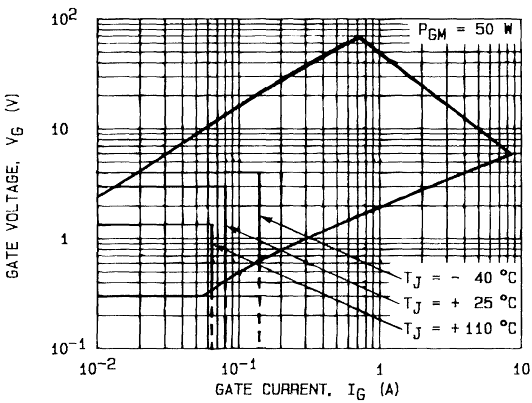


FIG.9 - GATE TRIGGER CHARACTERISTICS.

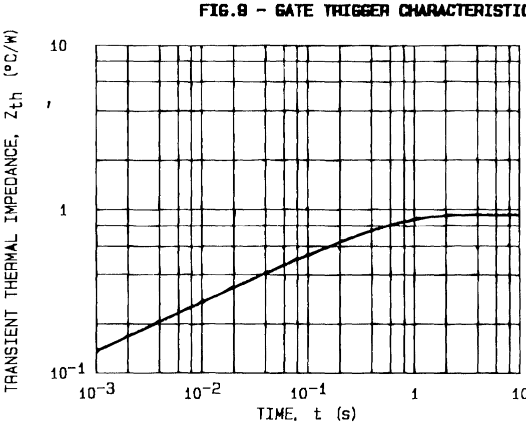


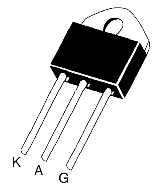
FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.00	0.99
120°	1.04	1.40
90°	1.12	1.58
60°	1.30	1.77
30°	1.67	2.23

BTW68-200 → 1200

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- EASY MOUNTING ON HEATSINK
- ISOLATED PACKAGE : INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



TOP 3
(Plastic)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		BTW68-200 → 800	BTW68-1000/1200	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	30		A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	19		A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	420	315	A
		t = 10 ms	400	300	
I^2t	I^2t Value for Fusing	t = 10 ms	800	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100		A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125		°C °C

Symbol	Parameter	BTW68-						Unit
		200	400	600	800	1000	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 500 mA $\quad$ di_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}c)}$	Junction-case for D.C.	1.25	°C/W
$R_{th\ (c\text{-}h)}$	Contact (case to heatsink)	0.20	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 50 W (t_p = 10 µs) I_{FGM} = 2 A (t_p = 10 µs) V_{RGM} = 5 V

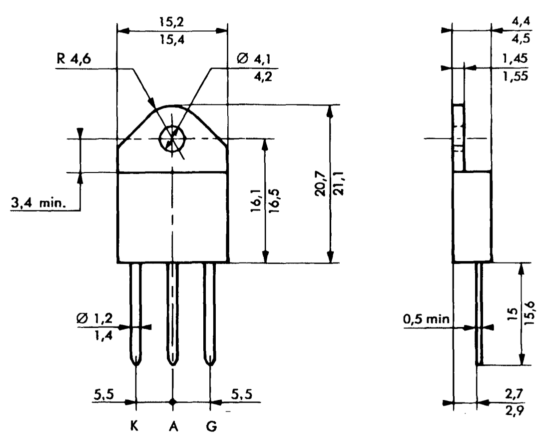
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

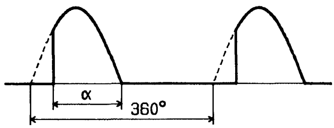
Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs				50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs				1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ		0.2			V
I_H	T_j = 25 °C I_T = 0.5 A Gate Open			20	75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 100 mA Pulse Duration > 20 µs			40		mA
V_{TM}	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms				2.1	V
I_{DRM}	V_{DRM} Specified	T_j = 25 °C			0.02	mA
		T_j = 125 °C			3	
I_{RRM}	V_{RRM} Specified	T_j = 25 °C			0.02	mA
		T_j = 125 °C			3	
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 200 mA dI_G/dt = 0.2 A/µs			2		µs
t_q	T_j = 125 °C I_T = 60 A V_R = 75 V V_D = 67 % V_{DRM} di/dt = 30 A/µs dv/dt = 20 V/µs Gate Open			100		µs
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}	V_{DRM} ≤ 800 V	500			V/µs
		V_{DRM} ≥ 1000 V	250			

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g.



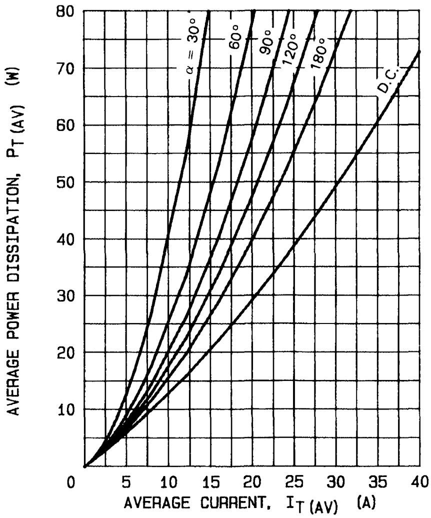


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

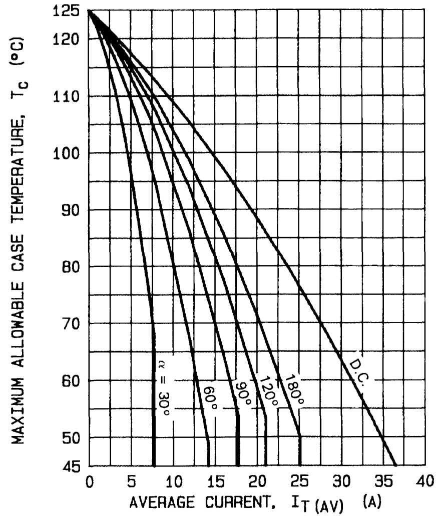
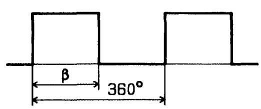


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



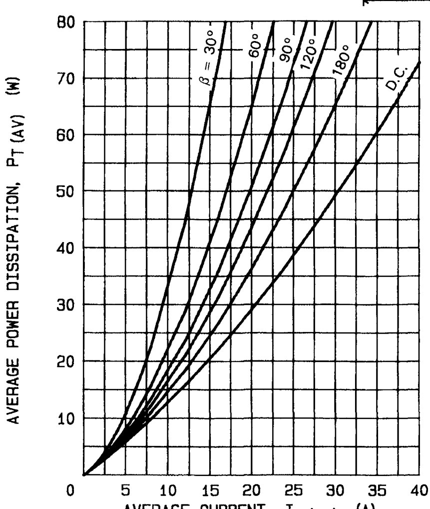


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

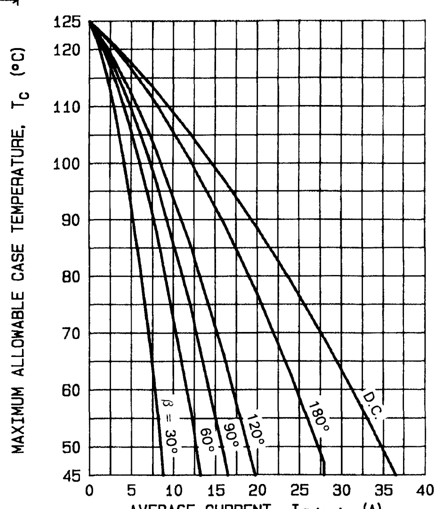


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

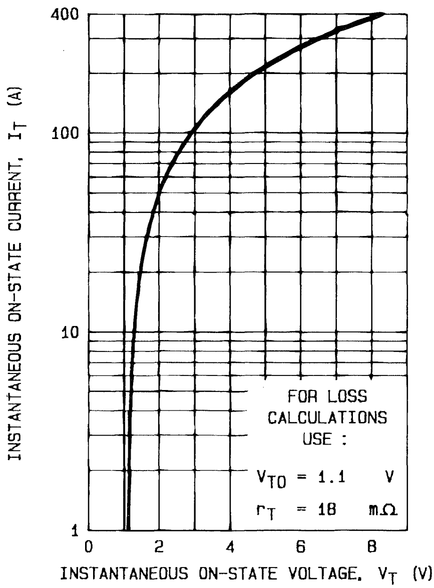


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

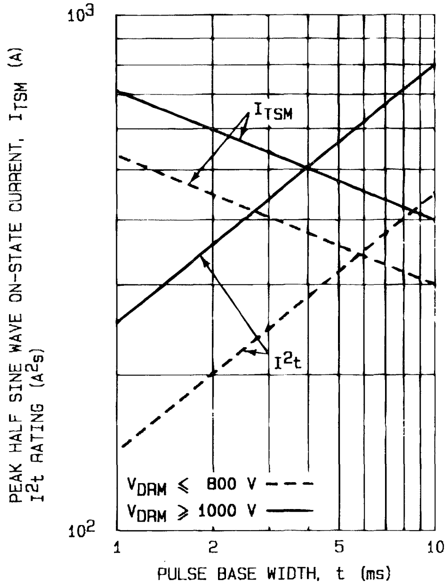


FIG.8 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 25 °C).

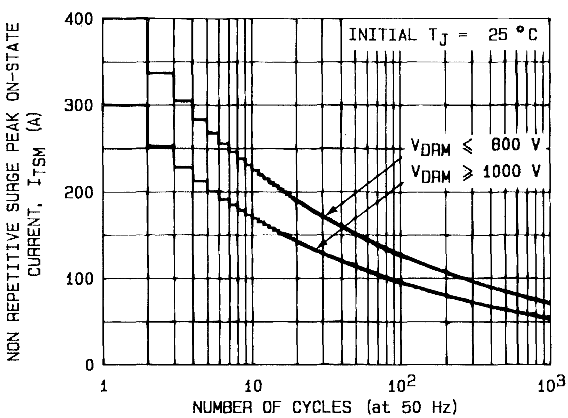


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

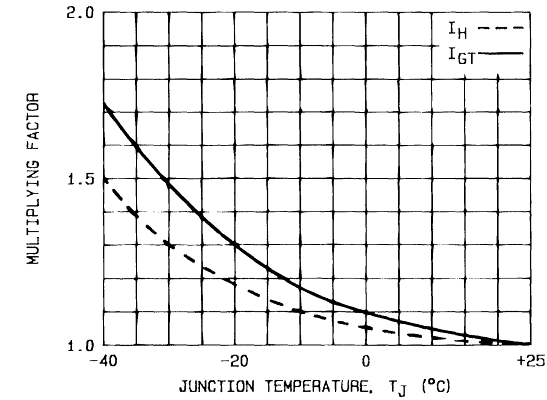


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

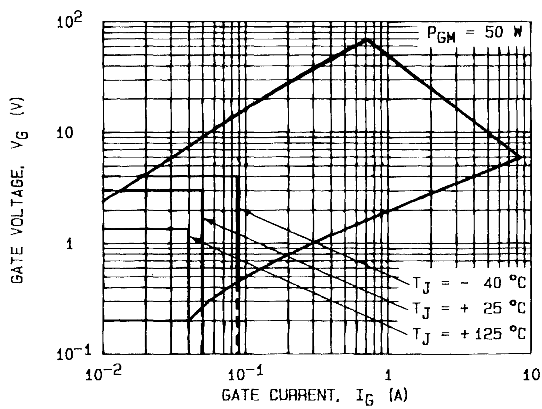
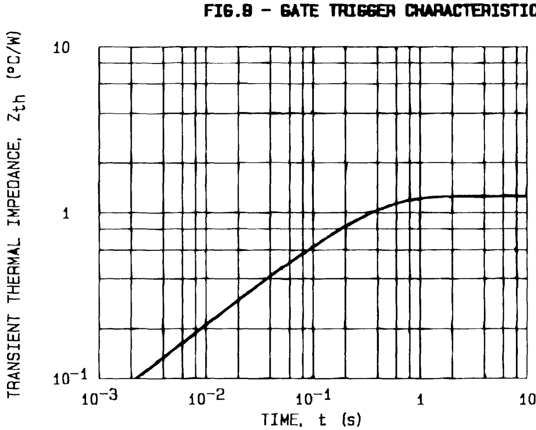


FIG.9 - GATE TRIGGER CHARACTERISTICS.



Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.35	1.33
120°	1.40	1.88
90°	1.50	2.13
60°	1.75	2.38
30°	2.25	3.00

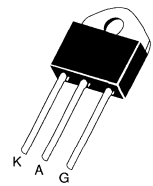
FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

SGS-THOMSON MICROELECTRONICS

BTW68-200N → 1200N

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- EASY MOUNTING ON HEATSINK



TOP 3
(Plastic)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		BTW68-200N → 800N	BTW68-1000N/1200N	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	35		A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	22		A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	420	315	A
		t = 10 ms	400	300	
I^2t	I^2t Value for Fusing	t = 10 ms	800	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100		A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125		°C °C

Symbol	Parameter	BTW68-						Unit
		200N	400N	600N	800N	1000N	1200N	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 500 mA dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.1	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.20	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 50 W (t_p = 10 µs) I_{FGM} = 2 A (t_p = 10 µs) V_{RGM} = 5 V

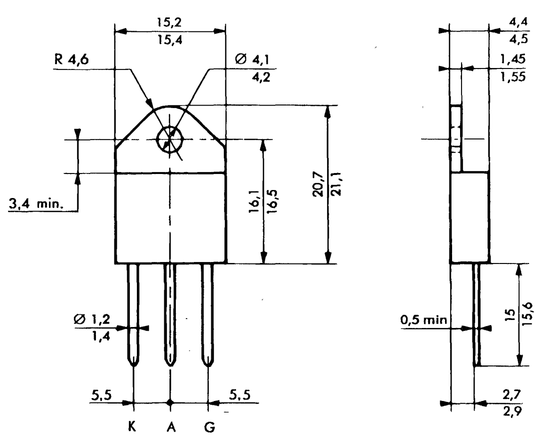
$P_{G\,(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

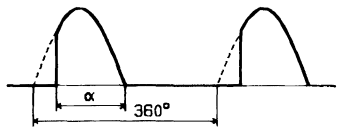
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			50	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20	75	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 100 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 70 A	t_p = 10 ms			2.25	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			3	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			3	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 0.2 A/µs	I_T = 70 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 70 A di/dt = 30 A/µs	V_R = 75 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open	V_{DRM} ≤ 800 V	500			V/µs
			V_{DRM} ≥ 1000 V	250			

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g.



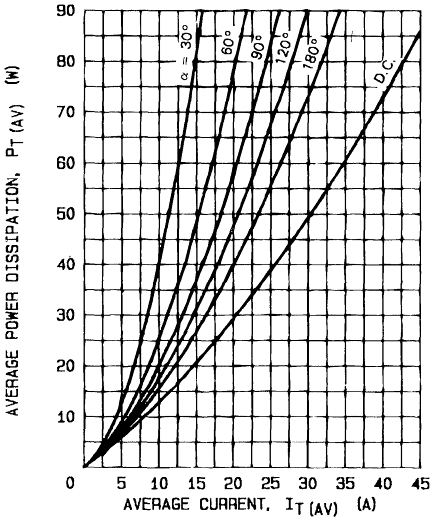


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

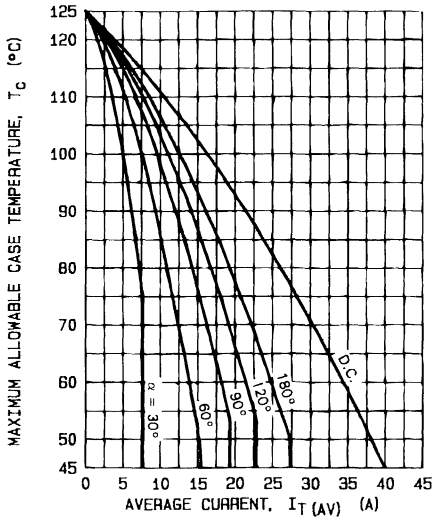
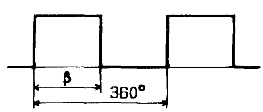


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



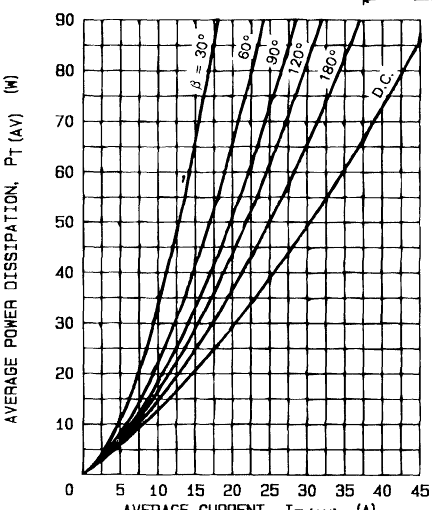


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

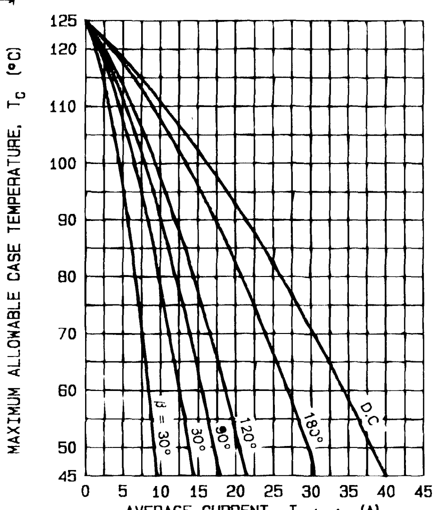


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

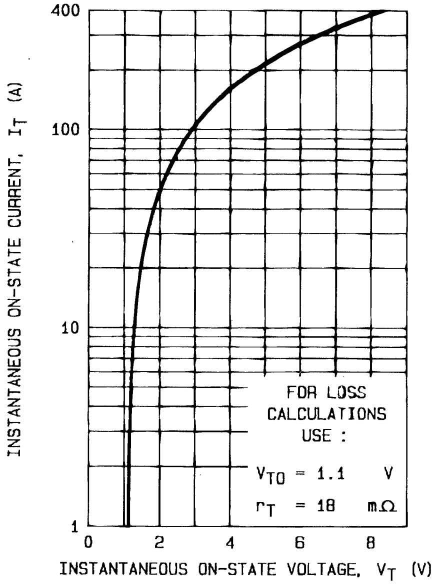


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

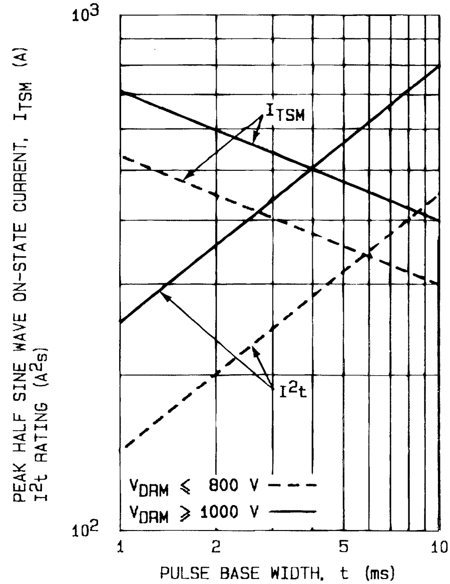


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 25 °C).

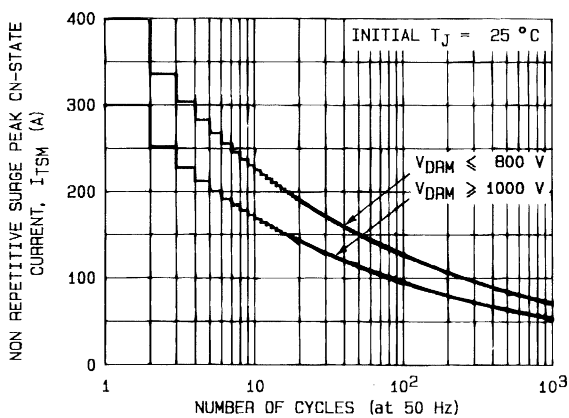


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

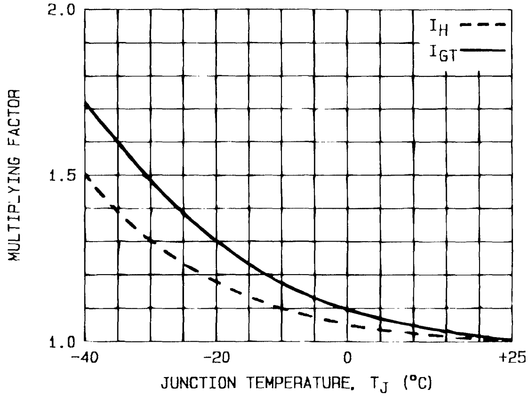


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

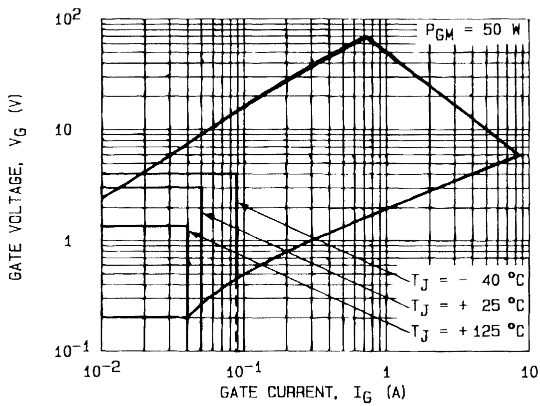
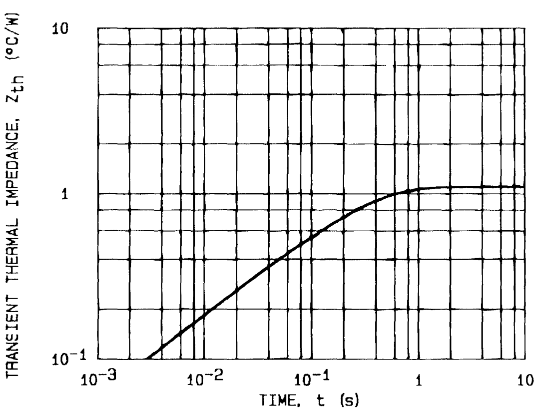


FIG.8 - GATE TRIGGER CHARACTERISTICS.



Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.19	1.17
120°	1.23	1.65
90°	1.32	1.87
60°	1.54	2.09
30°	1.98	2.64

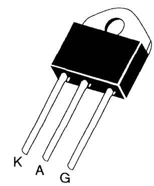
FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

SGS-THOMSON
MICROELECTRONICS

BTW69-200 → 1200

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- EASY MOUNTING ON HEATSINK
- ISOLATED PACKAGE :
  INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



TOP 3
(Plastic)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		BTW69-200 → 800	BTW69-1000/1200	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 70 °C	50		A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 70 °C	32		A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	525	420	A
		t = 10 ms	500	400	
I^2t	I^2t Value for Fusing	t = 10 ms	1250	800	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100		A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125		°C °C

Symbol	Parameter	BTW69-						Unit
		200	400	600	800	1000	1200	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 800 mA dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}c)}$	Junction-case for D.C.	1	°C/W
$R_{th\ (c\text{-}h)}$	Contact (case to heatsink)	0.20	°C/W

GATE CHARACTERISTICS (maximum values)

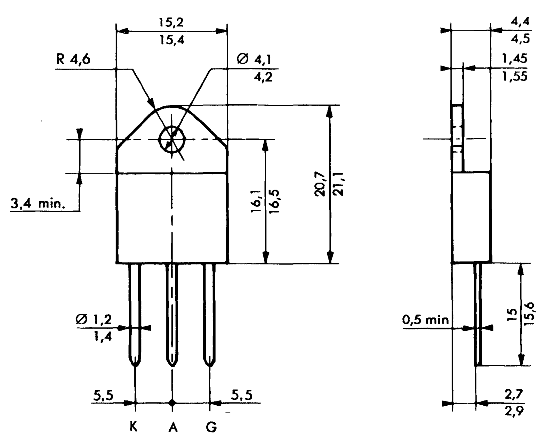
P_{GM} = 50 W (t_p = 10 µs) I_{FGM} = 2 A (t_p = 10 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

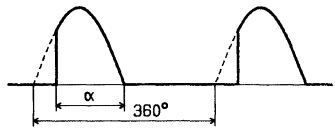
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C, Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			80	mA
V_{GT}	T_j = 25 °C, Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20	150	mA
I_L	T_j = 25 °C, Pulse Duration > 20 µs	V_D = 12 V	I_G = 160 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 100 A	t_p = 10 ms			1.9	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			6	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			6	
t_{gt}	T_j = 25 °C, I_G = 200 mA	V_D = V_{DRM}, dI_G/dt = 0.2 A/µs	I_T = 100 A		2		µs
t_q	T_j = 125 °C, V_D = 67 % V_{DRM}, Gate Open	I_T = 100 A, di/dt = 30 A/µs	V_R = 75 V, dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 125 °C, Linear Slope up to V_D = 67 % V_{DRM}	Gate Open	V_{DRM} ≤ 800 V	500			V/µs
			V_{DRM} ≥ 1000 V	250			

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g.



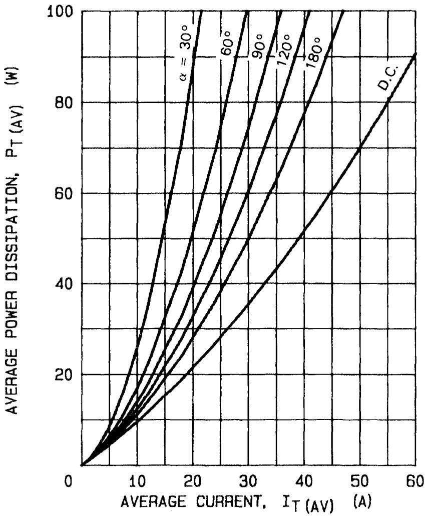


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

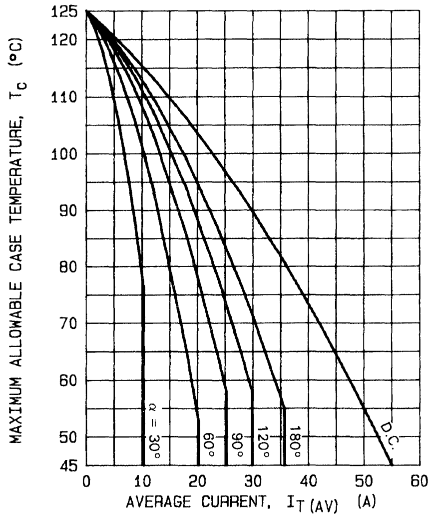
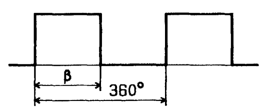


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



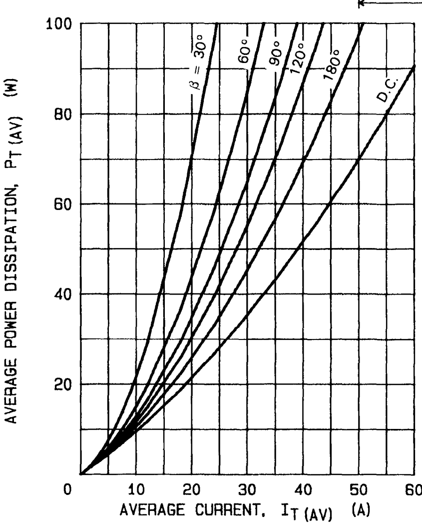


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

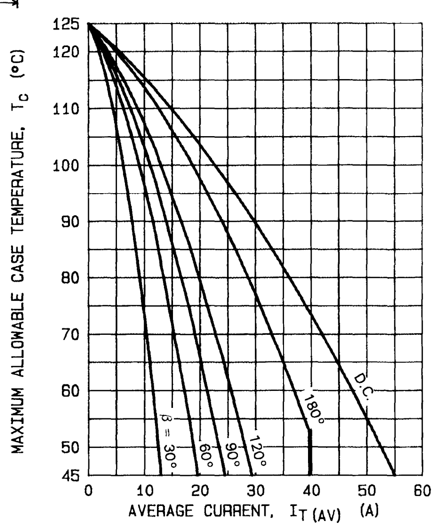


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

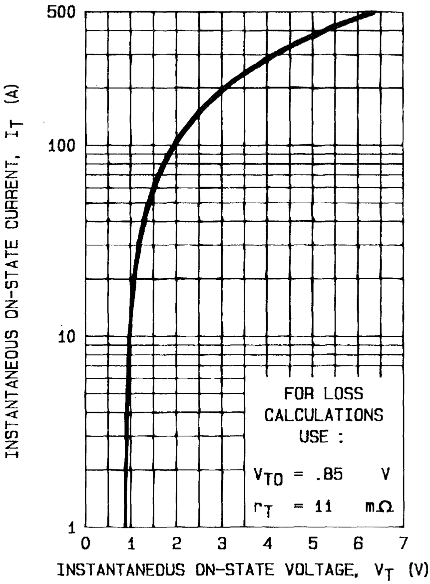


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

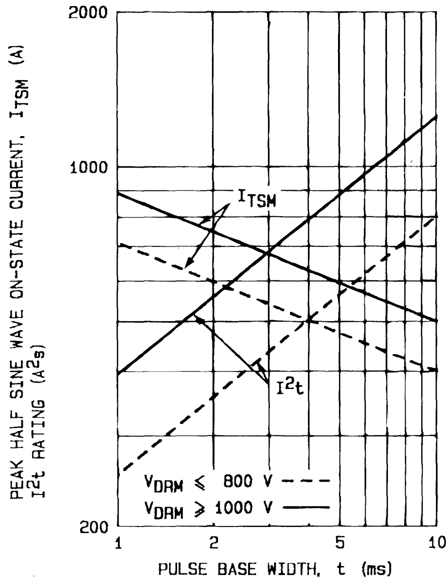


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 25 °C).

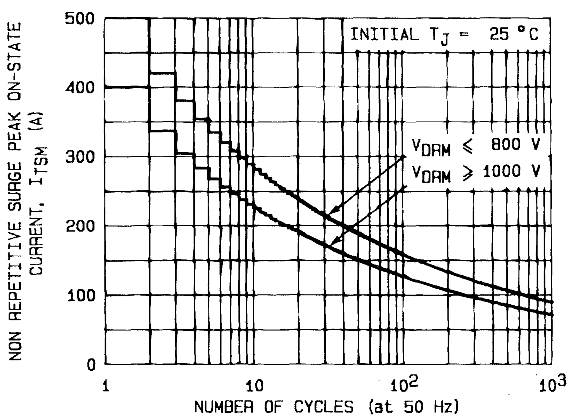


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

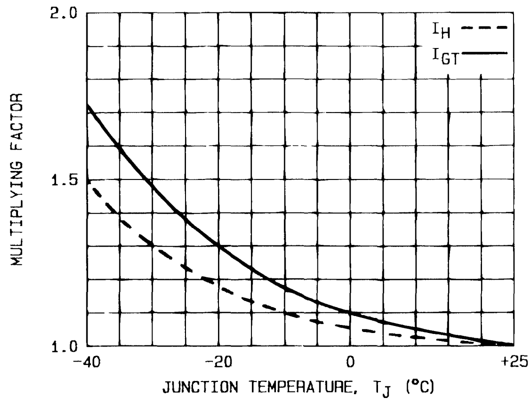


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

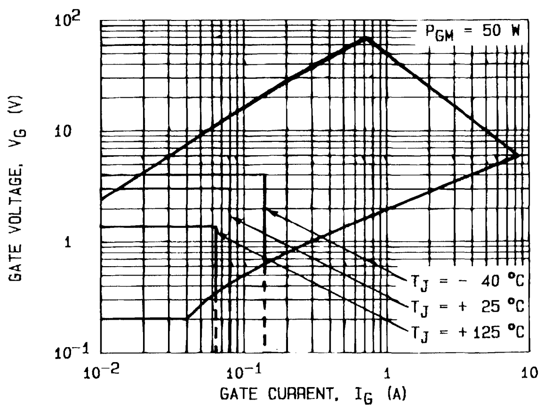


FIG.9 - GATE TRIGGER CHARACTERISTICS.

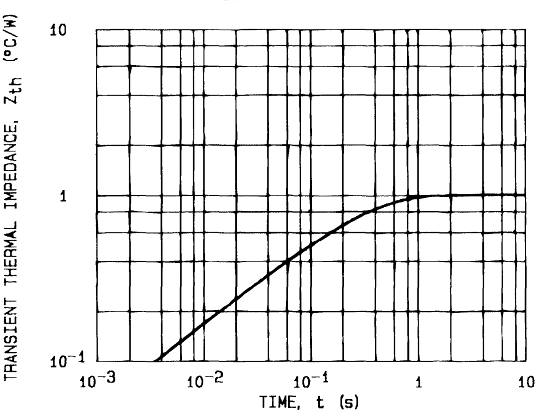


FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

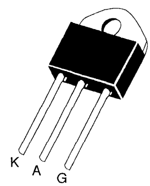
Conduction angle (α,β)	Effective thermal resistance (°C/W) junction to case	
	Sinusoidal	Rectangular
180°	1.08	1.06
120°	1.12	1.50
90°	1.20	1.70
60°	1.40	1.90
30°	1.80	2.40

SGS-THOMSON MICROELECTRONICS

BTW69-200N → 1200N

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- EASY MOUNTING ON HEATSINK



TOP 3
(Plastic)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		BTW69- 200N → 800N	BTW69- 1000N/1200N	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 70 °C	55		A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 70 °C	35		A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	525	420	A
		t = 10 ms	500	400	
I^2t	I^2t Value for Fusing	t = 10 ms	1250	800	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100		A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125		°C °C

Symbol	Parameter	BTW69-						Unit
		200N	400N	600N	800N	1000N	1200N	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 800 mA dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	0.87	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.20	°C/W

GATE CHARACTERISTICS (maximum values)

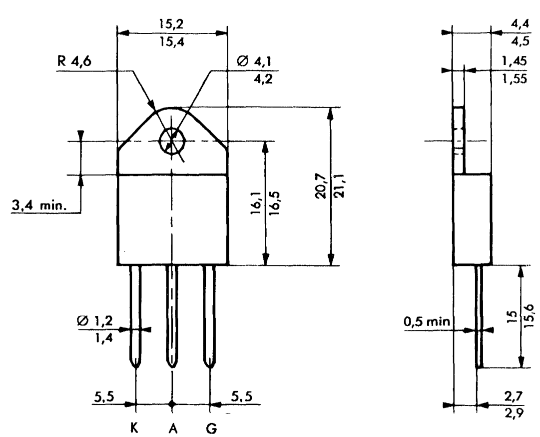
P_{GM} = 50 W (t_p = 10 µs) I_{FGM} = 2 A (t_p = 10 µs) V_{RGM} = 5 V
$P_{G\,(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

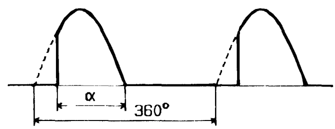
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs			80	mA
V_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 0.5 A	Gate Open		20	150	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 160 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 110 A	t_p = 10 ms			2	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			6	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.02	mA
			T_j = 125 °C			6	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 0.2 A/µs	I_T = 110 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 110 A di/dt = 30 A/µs	V_R = 75 V dv/dt = 20 V/µs		100		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open	V_{DRM} ≤ 800 V	500			V/µs
			V_{DRM} ≥ 1000 V	250			

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g.



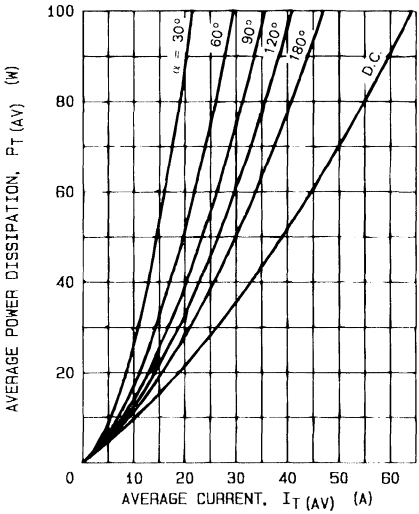


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

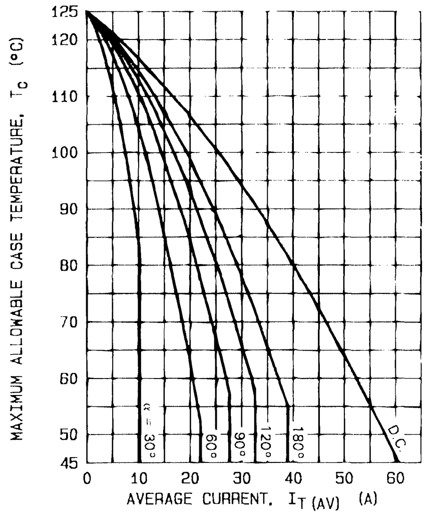
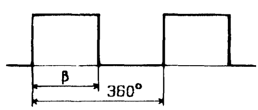


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM



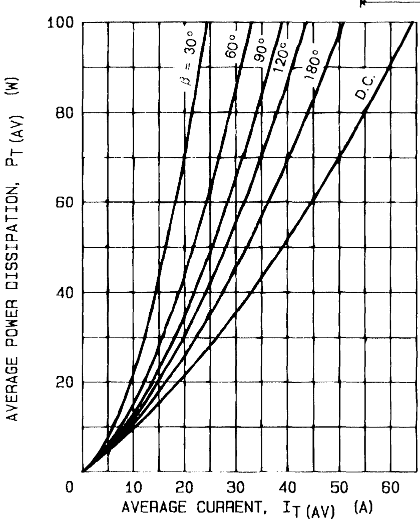


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

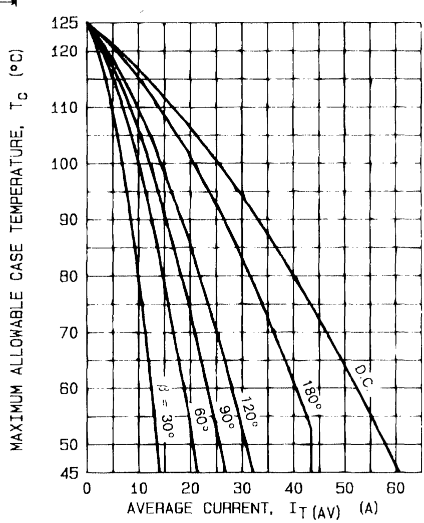


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

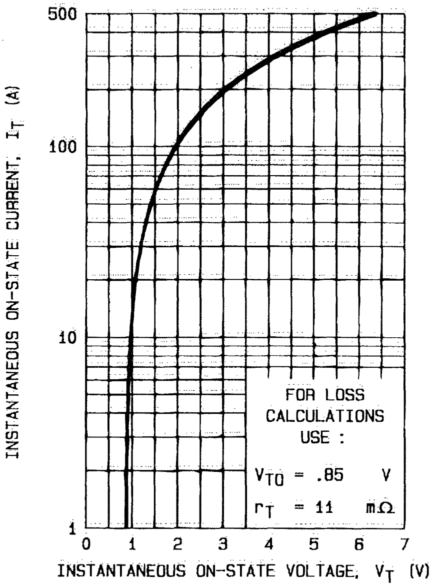


FIG.5 – MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

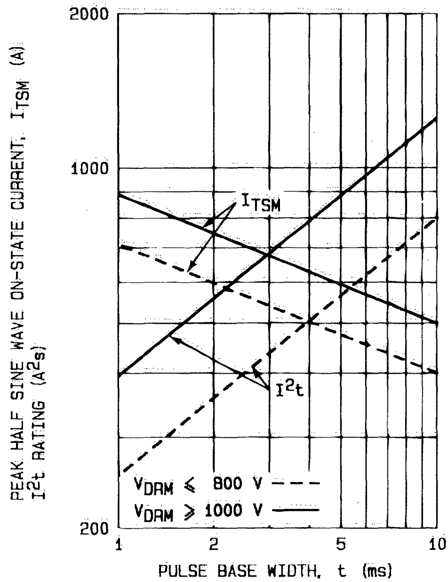


FIG.6 – NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 25 °C).

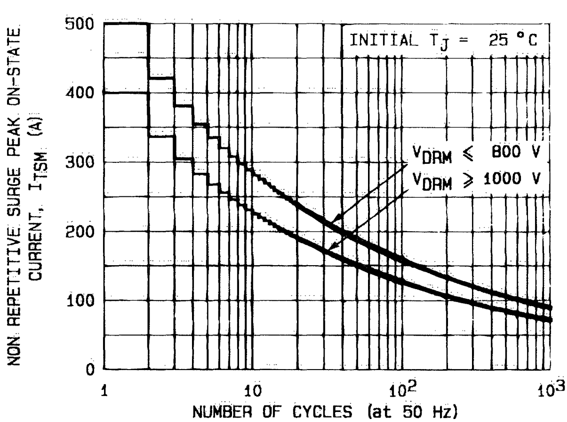


FIG.7 – NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

TGF148-600B → 1200B

FAST SWITCHING THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- EXCELLENT SURGE CAPABILITY
- HIGH di/dt AND dv/dt RATINGS
- $t_q \leq 40\ \mu s$

TO 65
(Metal)

DESCRIPTION

SCR designed for high frequency power switching applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_C = 65 °C	63	A
$I_{T(AV)}$	Mean on-state Current (1)	T_C = 65 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	700	A
		t = 10 ms	670	
I^2t	I^2t Value for Fusing	t = 10 ms	2245	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		200	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	TGF148-							Unit
		600B	700B	800B	900B	1000B	1100B	1200B	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	600	700	800	900	1000	1100	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 1 A di_G/dt = 1 A/µs.
(4) T_j = 125 °C .

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	0.61	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.30	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 80 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 2 W V_{FGM} = 15 V (t_p = 500 µs)

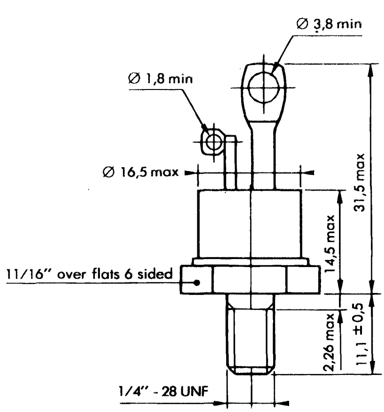
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			150	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 500 mA	Gate Open			200	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 300 mA			400	mA
V_{TM}	T_j = 25 °C	I_{TM} = 500 A	t_p = 10 ms			4	V
I_{DRM}	T_j = 125 °C	V_{DRM} Specified				12	mA
I_{RRM}	T_j = 125 °C	V_{RRM} Specified				12	mA
t_{gt}	T_j = 25 °C I_G = 1 A	V_D = V_{DRM} di_G/dt = 10 A/µs	I_T = 500 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} dv/dt = 20 V/µs	I_T = 500 A di/dt = 30 A/µs Gate Open	V_R = 50 V			40	µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 65 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 19 g without accessories
Polarity : anode to case
Stud torque : 3.5 mΛN min - 3.8 mΛN max.

SINUSOIDAL CURRENT PULSE DATA

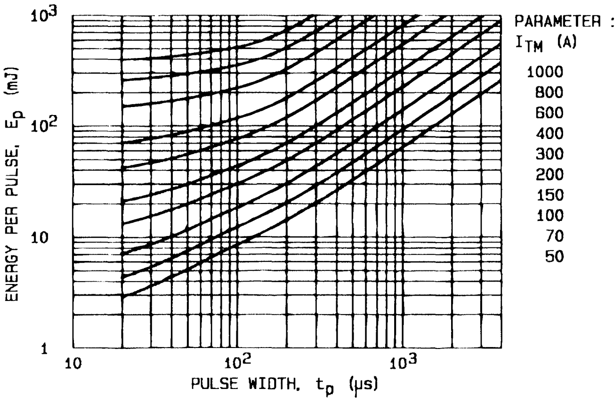
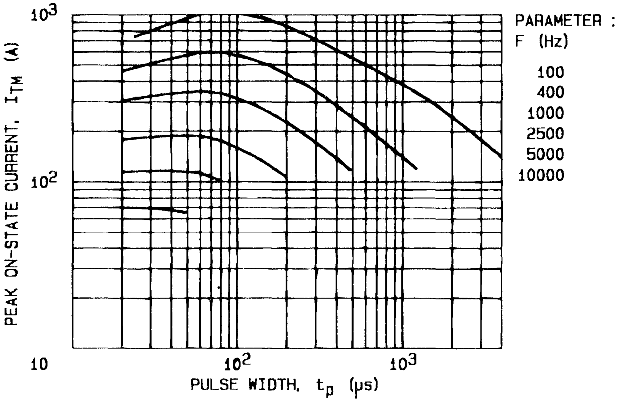


FIG.1 - ENERGY PER PULSE FOR SINUSOIDAL PULSES.



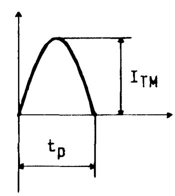
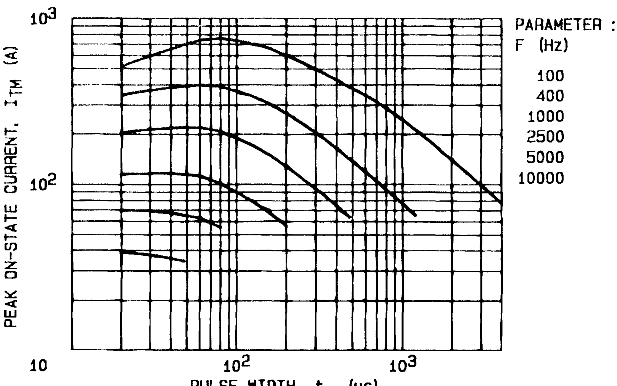


FIG.2 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 85 °C.



NOTES :

1. $V_D = V_R$ = 600 Volts.
2. R.C Snubber, C = 0.1 μF,
   R = 33 Ω .

FIG.3 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 80 °C.

TRAPEZOIDAL CURRENT PULSE DATA

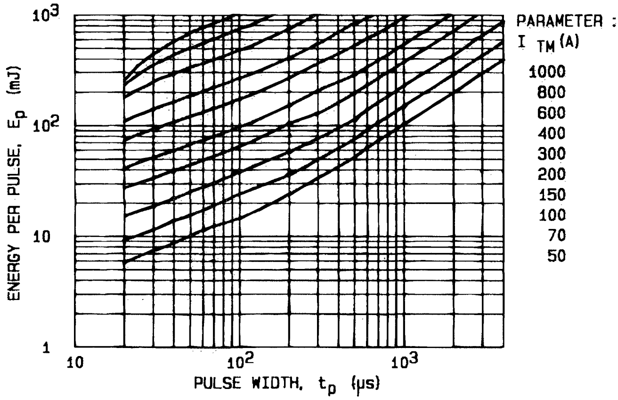


FIG.4 - ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.

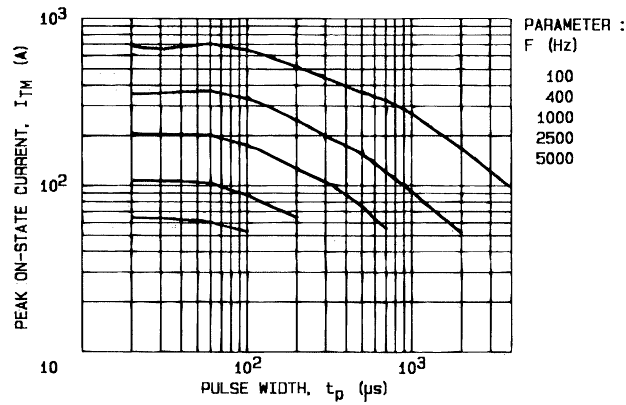
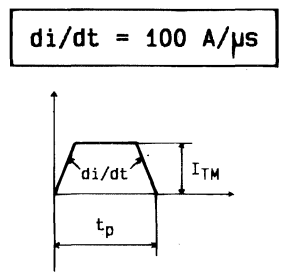
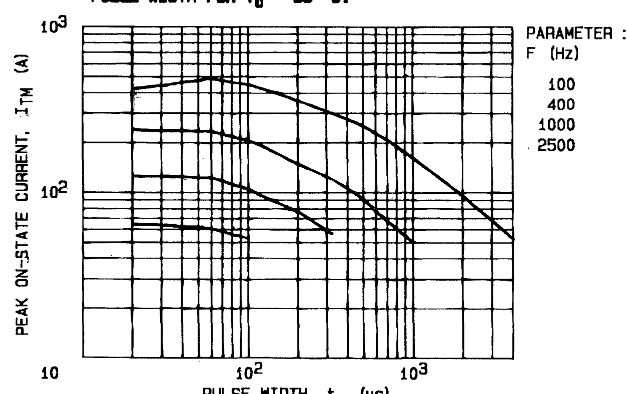


FIG.5 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_C = 85 °C.





NOTES :

1. $V_D = V_R$ = 600 Volts.
2. R.C Snubber, C = 0.1 µF, R = 33 Ω .

FIG.6 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_C = 90 °C.

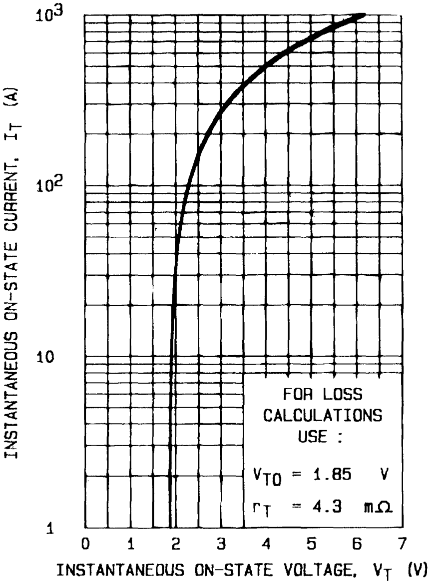


FIG.7 – MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

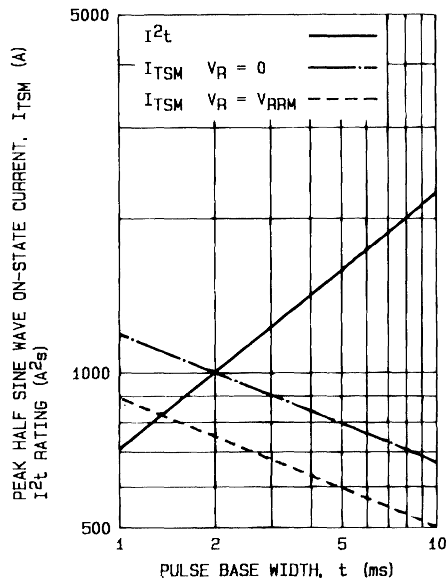


FIG.8 – NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

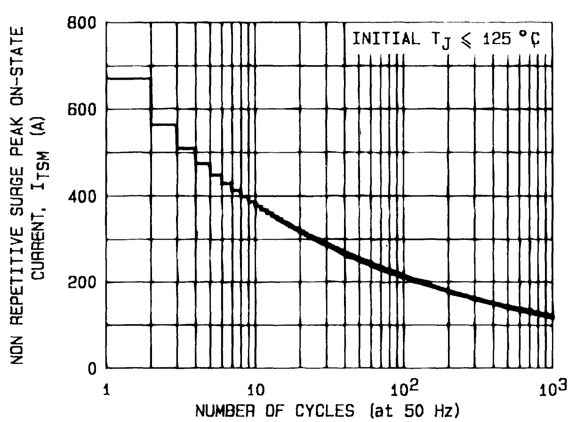


FIG.9 – NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

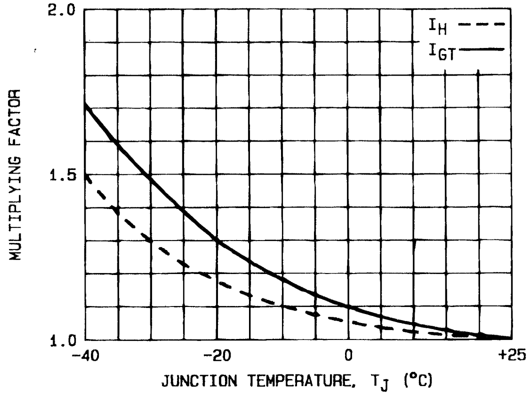


FIG.10 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

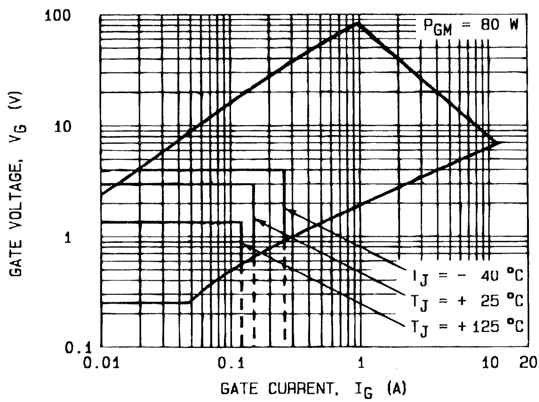


FIG.11 - GATE TRIGGER CHARACTERISTICS.

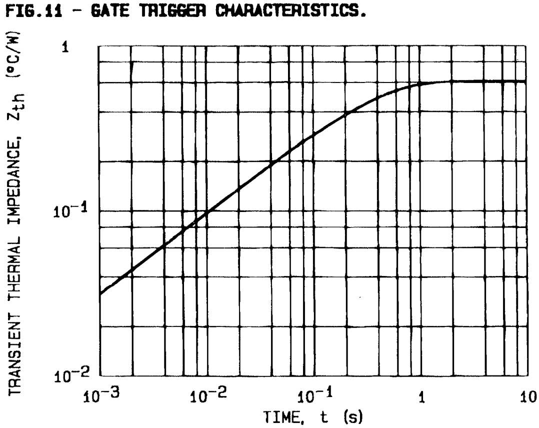
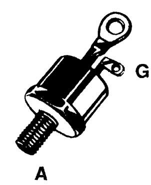


FIG.12 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

TGF149-100A → 600A

FAST SWITCHING THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- EXCELLENT SURGE CAPABILITY
- HIGH di/dt AND dv/dt RATINGS
- $t_q \leq 20$ µs



TO 65
(Metal)

DESCRIPTION

SCR designed for high frequency power switching applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_C = 65 °C	63	A
$I_{T(AV)}$	Mean on-state Current (1)	T_C = 65 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial ≤ 125 °C) (2)	t = 8.3 ms	960	A
		t = 10 ms	920	
I^2t	I^2t Value for Fusing	t = 10 ms	4230	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		200	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	TGF149-						Unit
		100A	200A	300A	400A	500A	600A	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	100	200	300	400	500	600	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 1 A di_G/dt = 1 A/µs.
(4) T_j = 125 °C .

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.08	°C/W
$R_{th\ (c-h)}$	Contact (case to heatsink)	0.30	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 80 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 2 W V_{FGM} = 15 V (t_p = 500 µs)

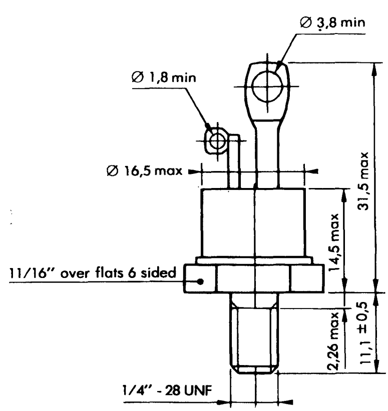
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			150	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 500 mA	Gate Open			200	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 300 mA			400	mA
V_{TM}	T_j = 25 °C	I_{TM} = 500 A	t_p = 10 ms			3	V
I_{DRM}	T_j = 125 °C	V_{DRM} Specified				12	mA
I_{RRM}	T_j = 125 °C	V_{RRM} Specified				12	mA
t_{gt}	T_j = 25 °C I_G = 1 A	V_D = V_{DRM} di_G/dt = 10 A/µs	I_T = 500 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} dv/dt = 20 V/µs	I_T = 500 A di/dt = 30 A/µs Gate Open	V_R = 50 V			20	µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 65 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 19 g without accessories
Polarity : anode to case
Stud torque : 3.5 mΛN min - 3.8 mΛN max.

SINUSOIDAL CURRENT PULSE DATA

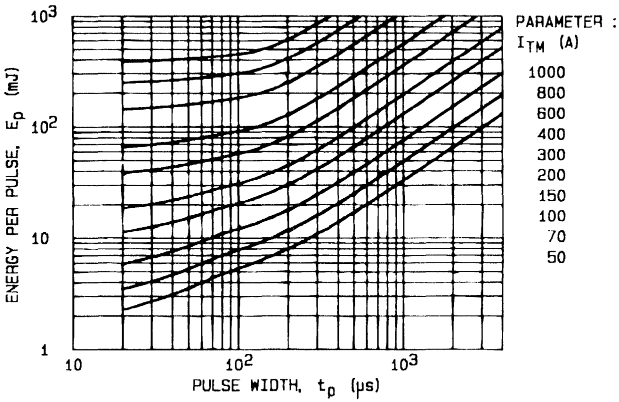
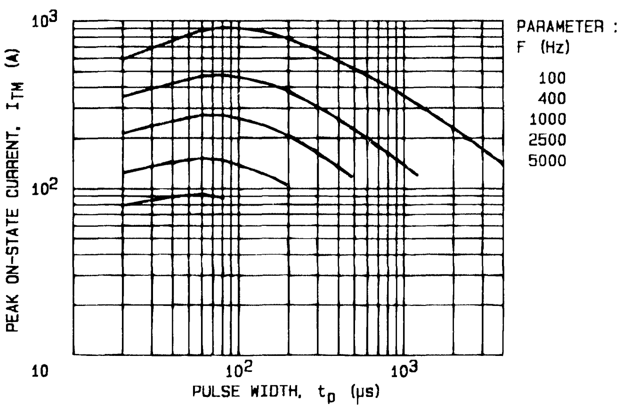


FIG.1 - ENERGY PER PULSE FOR SINUSOIDAL PULSES.



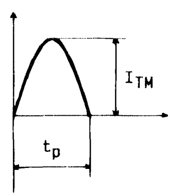
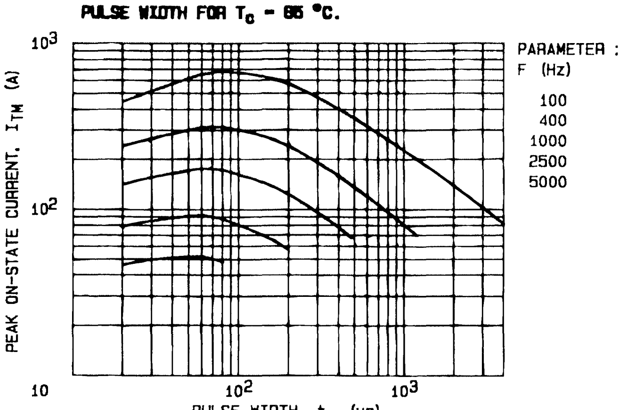


FIG.2 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 65 °C.



NOTES :

1. $V_D = V_R$ = 300 Volts.
2. R.C Snubber, C = 0.1 µF, R = 33 Ω .

FIG.3 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 80 °C.

TRAPEZOIDAL CURRENT PULSE DATA

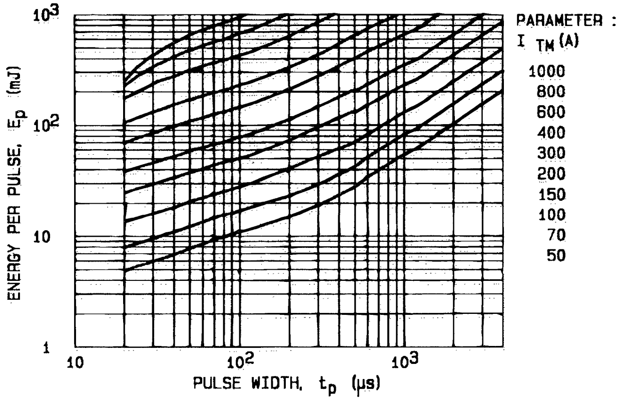


FIG.4 - ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.

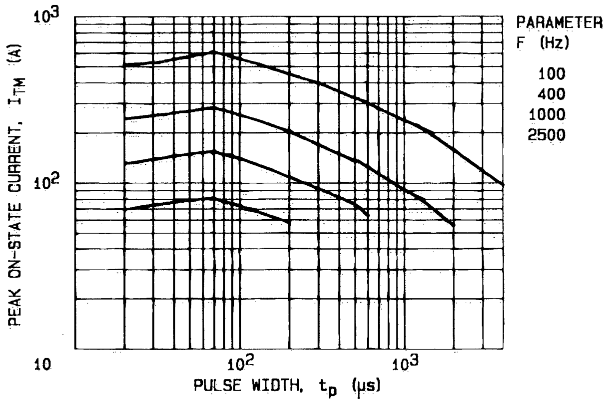
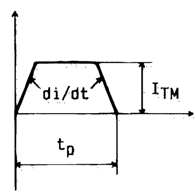


FIG.5 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 85 °C.

di/dt = 100 A/µs



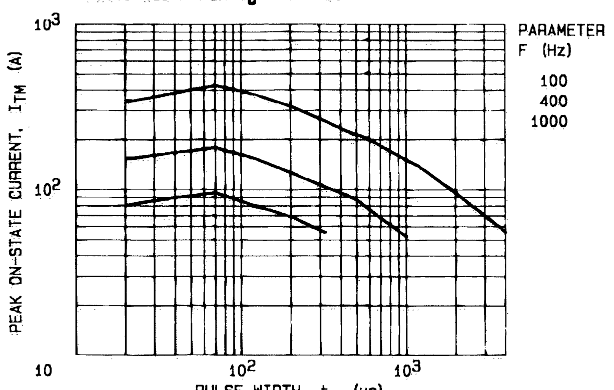


FIG.6 - MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR T_c = 90 °C.

NOTES :

1. $V_D = V_R$ = 300 Volts.
2. R.C Snubber, C = 0.1 µF, R = 33 Ω .

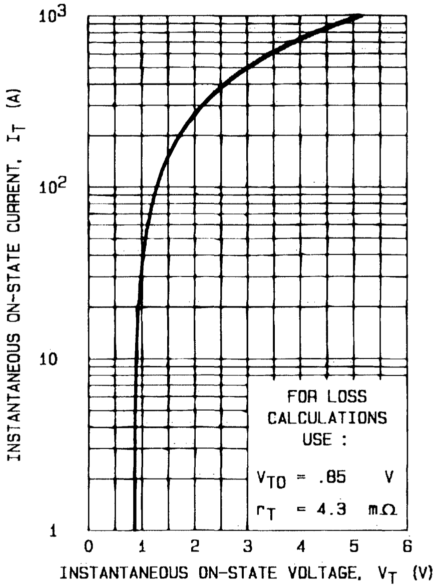


FIG.7 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC (T_J = 125 °C).

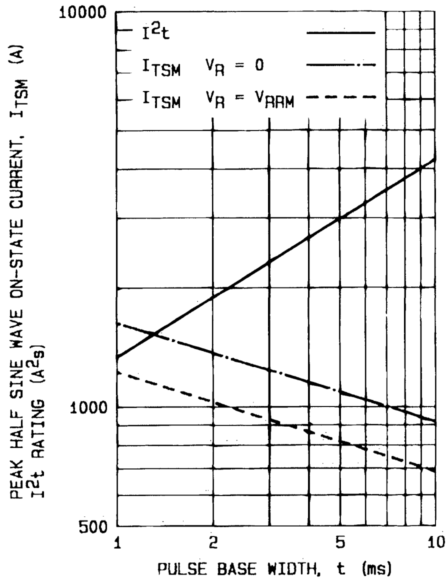


FIG.8 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING (INITIAL T_J = 125 °C).

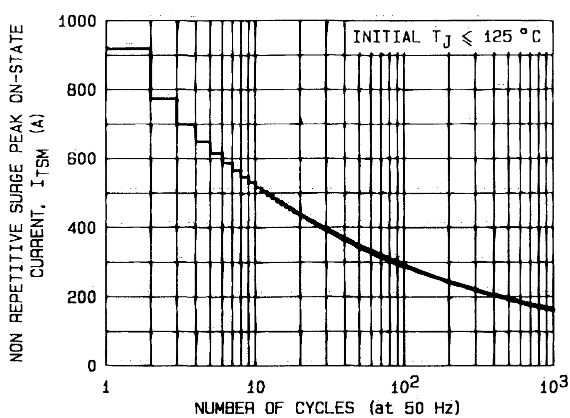


FIG.9 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

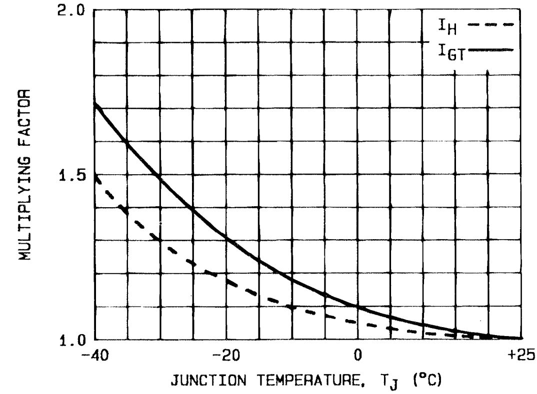


FIG.10 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

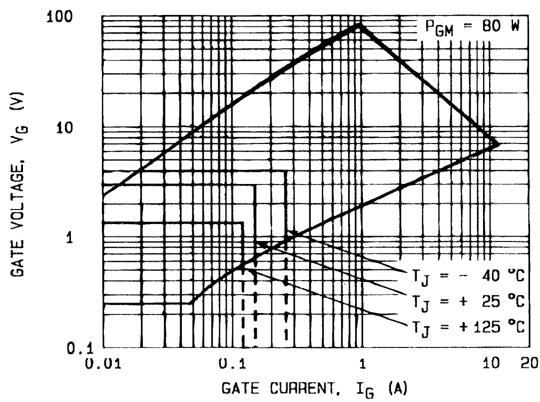


FIG.11 - GATE TRIGGER CHARACTERISTICS.

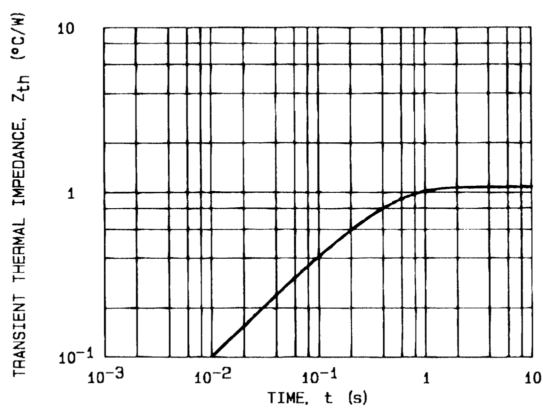


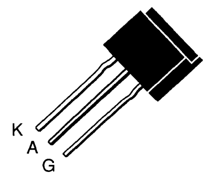
FIG.12 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.

SGS-THOMSON MICROELECTRONICS

TL 1006 → TL 8006

THYRISTORS

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT



TL
(Plastic)

DESCRIPTION

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_l = 50 °C	3	A
$I_{T(AV)}$	Mean on-state Current (1)	T_l = 50 °C	2	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	73	A
		t = 10 ms	70	
I^2t	I^2t Value for Fusing	t = 10 ms	25	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TL1006	TL2006	TL4006	TL6006	TL8006	Unit
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	100	200	400	600	800	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 150 mA di_G/dt = 1 A/µs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}l)}$	Junction-leads	15	°C/W
$R_{th\ (j\text{-}a)}$	Junction-ambient on Printed Circuit (with Cu 1 cm^2)	50	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 10 µs) I_{FGM} = 1 A (t_p = 10 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 0.1 W V_{FGM} = 15 V (t_p = 10 µs)

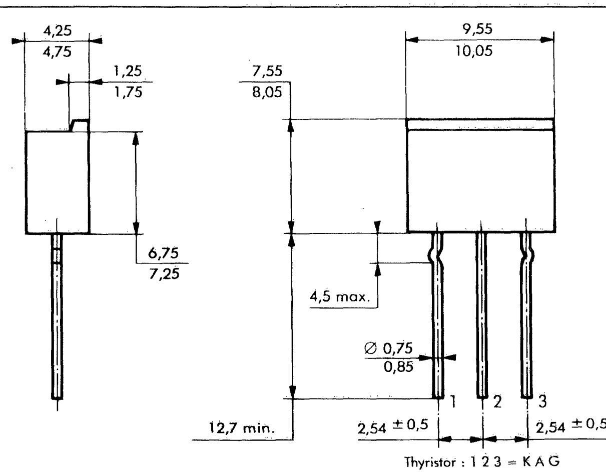
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			15	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω		1	1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 100 mA	Gate Open		20		mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 30 mA		40		mA
V_{TM}	T_j = 25 °C	I_{TM} = 6 A	t_p = 10 ms			1.9	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 110 °C			0.75	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 110 °C			0.75	
t_{gt}	T_j = 25 °C I_G = 100 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 6 A		1.5		µs
t_q	T_j = 110 °C V_D = 67 % V_{DRM} Gate Open	I_T = 6 A di/dt = 10 A/µs	V_R = 10 V dv/dt = 20 V/µs		70		µs
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TL Plastic



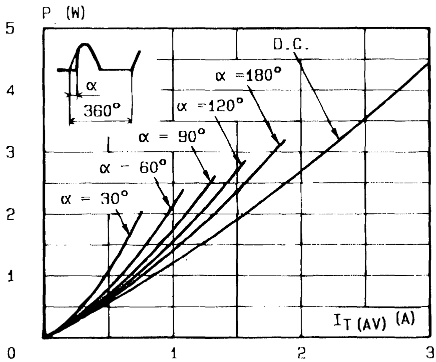


Fig.1 - Maximum mean power dissipation versus mean on-state current.

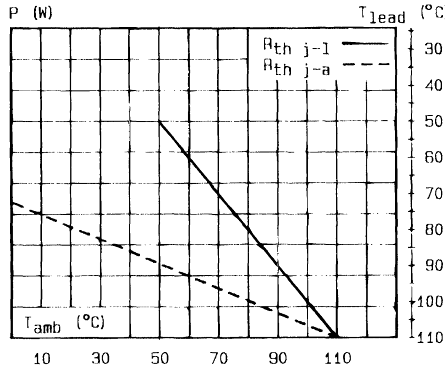


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).

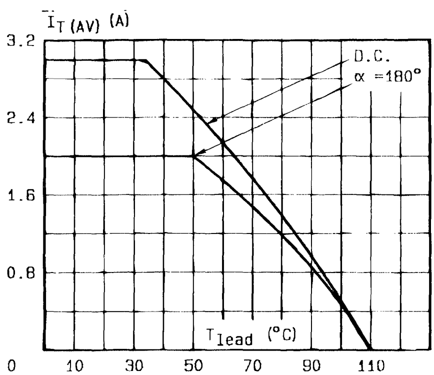


Fig.3 - Mean on-state current versus leads temperature.

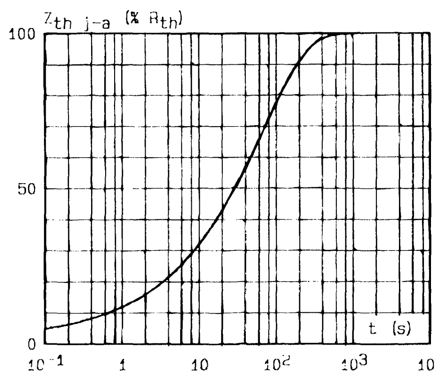


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

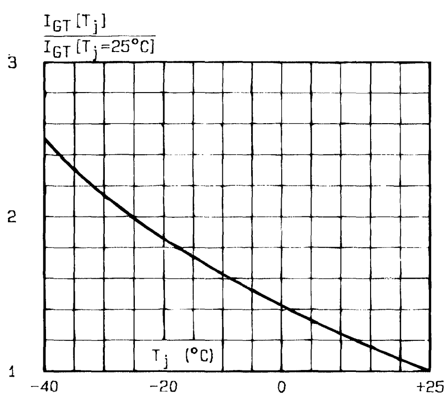


Fig.5 - Relative variation of gate trigger current versus junction temperature.

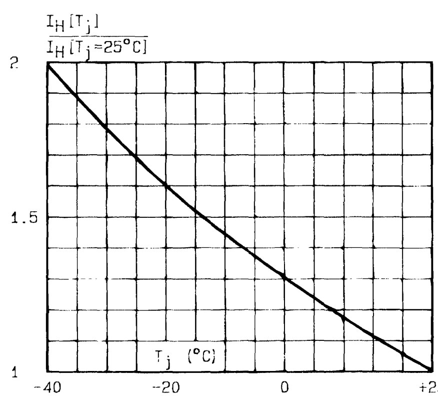


Fig.6 - Relative variation of holding current versus junction temperature.

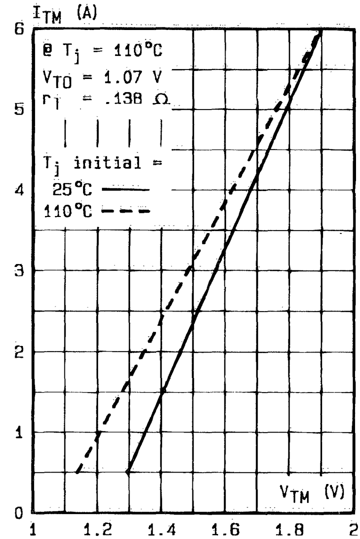


Fig.7 - On-state characteristics at low level (maximum values).

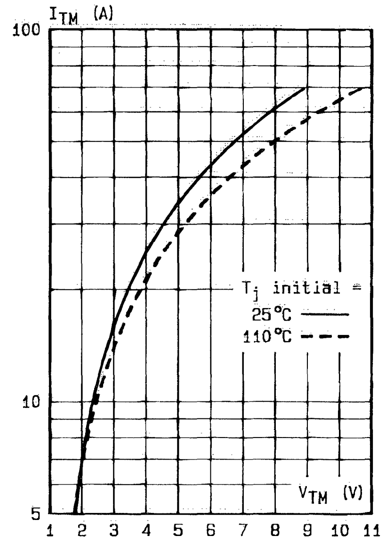


Fig.8 - On-state characteristics at high level (maximum values).

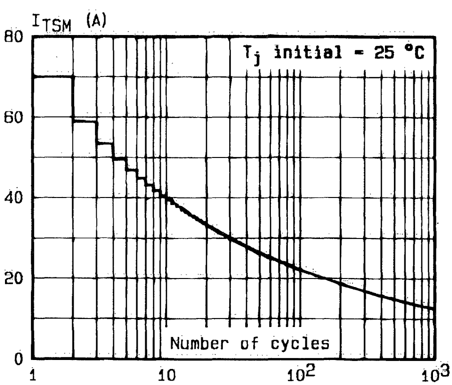


Fig.9 - Non repetitive surge peak on-state current versus number of cycles.

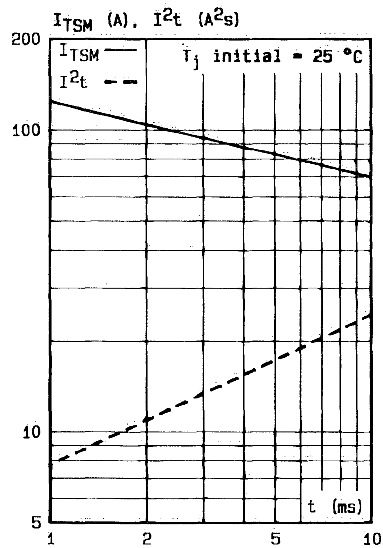


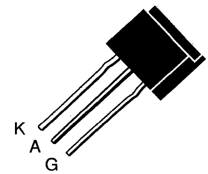
Fig.10 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

SGS-THOMSON MICROELECTRONICS

TLS 106-05 → 6
TLS 107-05 → 6

SENSITIVE GATE THYRISTORS

- OPERATES DIRECTLY FROM LOW SIGNAL
- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH ON-STATE CURRENT



TL
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T\ (RMS)}$	RMS on-state Current (1)	T_l = 25 °C	4	A
$I_{T\ (AV)}$	Mean on-state Current (1)	T_l = 25 °C	2.5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	37	A
		t = 10 ms	35	
I^2t	I^2t Value for Fusing	t = 10 ms	6	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLS106-.. or TLS107-..					Unit
		05	1	2	4	6	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 5 mA di_G/dt = 1 A/µs.
(4) T_j = 110 °C R_{GK} = 1 KΩ.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-l)}$	Junction-leads	15	°C/W
$R_{th\ (j-a)}$	Junction-ambient on Printed Circuit (with Cu 1 cm^2)	50	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 1 A (t_p = 20 µs) V_{RGM} = 5 V

$P_{G(AV)}$ = 10 mW V_{FGM} = 15 V (t_p = 20 µs)

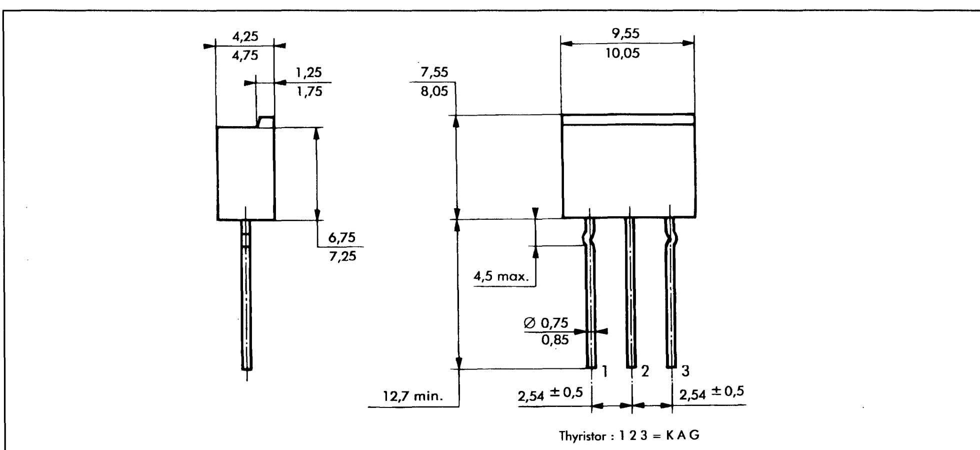
ELECTRICAL CHARACTERISTICS

Symbol	Types	Test Conditions	Min.	Typ.	Max.	Unit
I_{GT}	TLS106	T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs			0.2	mA
	TLS107				0.5	
V_{GT}		T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs			1.5	V
V_{GD}		T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ R_{GK} = 1 kΩ	0.1			V
I_H		T_j = 25 °C I_T = 50 mA R_{GK} = 1 kΩ			5	mA
I_L		T_j = 25 °C V_D = 12 V I_G = 10 mA Pulse Duration > 20 µs R_{GK} = 1 kΩ			7	mA
V_{TM}		T_j = 25 °C I_{TM} = 4 A t_p = 10 ms			1.9	V
I_{DRM}		V_{DRM} specified R_{GK} = 1 kΩ; T_j = 25 °C			0.01	mA
		T_j = 110 °C			0.3	
I_{RRM}		V_{RRM} specified R_{GK} = 1 kΩ; T_j = 25 °C			0.01	mA
		T_j = 110 °C			0.3	
t_{gt}		T_j = 25 °C V_D = V_{DRM} I_T = 4 A I_G = 10 mA dI_G /dt = 0.1 A/µs		1.5		µs
t_q		T_j = 110 °C I_T = 4 A V_R = 10 V V_D = 67 % V_{DRM} di/dt = 10 A/µs dv/dt = 10 V/µs R_{GK} = 1 kΩ		100		µs
dv/dt*		T_j = 110 °C R_{GK} = 1 kΩ Linear Slope up to V_D = 67 % V_{DRM}		10		V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TL Plastic



SGS-THOMSON MICROELECTRONICS

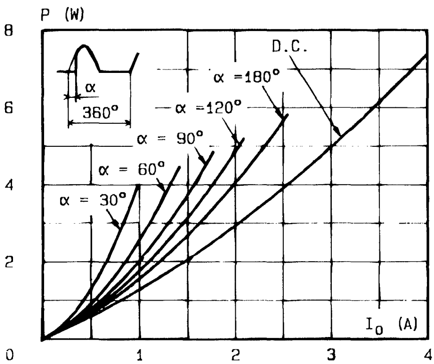


Fig.1 - Maximum mean power dissipation versus mean on-state current.

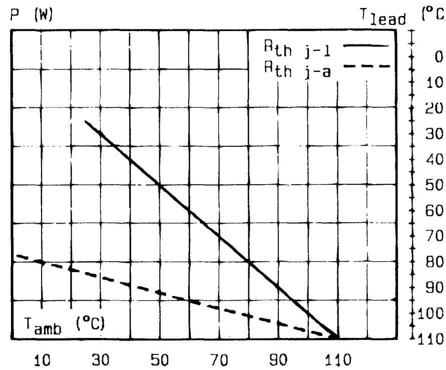


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).

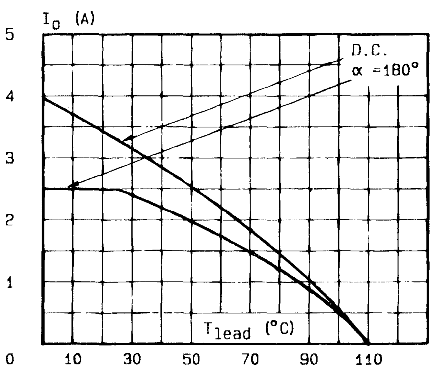


Fig.3 - Mean on-state current versus leads temperature.

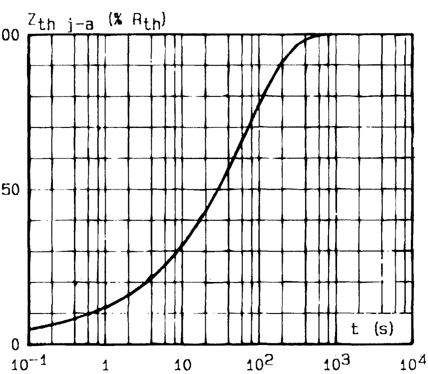


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

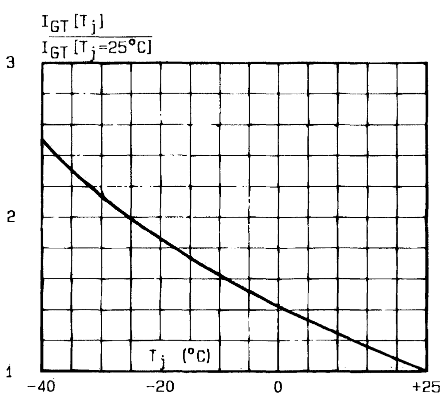


Fig.5 - Relative variation of gate trigger current versus junction temperature.

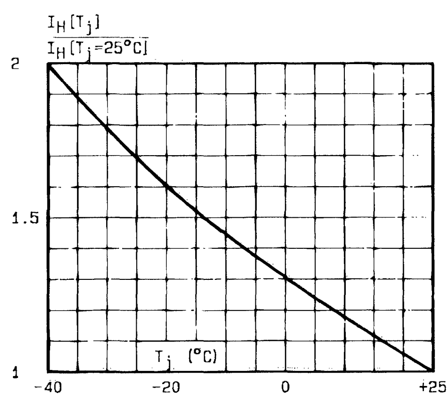


Fig.6 Relative variation of holding current versus junction temperature.

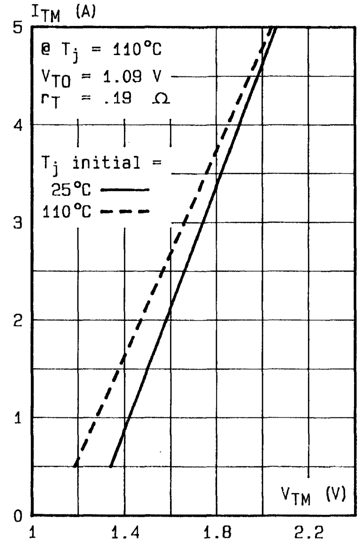


Fig.7 - On-state characteristics at low level (maximum values).

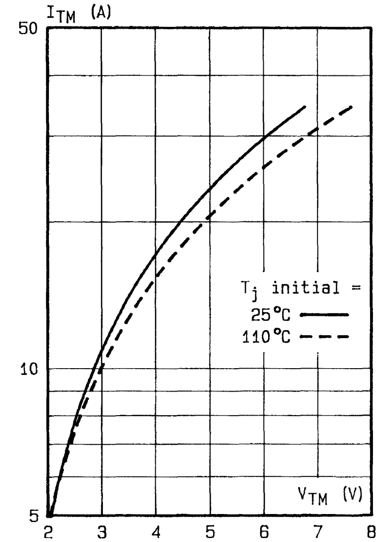


Fig.8 - On-state characteristics at high level (maximum values).

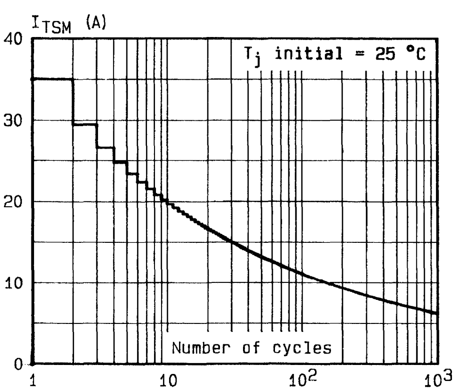


Fig.9 - Non repetitive surge peak on-state current versus number of cycles.

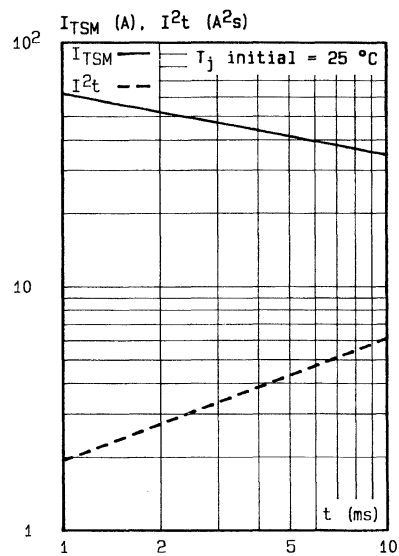
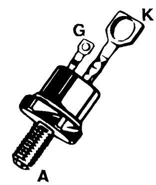


Fig.10 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

THYRISTORS FOR OVERVOLTAGE PROTECTION

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

DESCRIPTION

SCR designed for overvoltage protection in crowbar circuits.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	25	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	16	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	733	A
		t = 10 ms	700	
I^2t	I^2t Value for Fusing	t = 10 ms	2450	A^2s
I_{TM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (5)	t = 250 ms	145	A
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	TSP225	TSP525	TSP1025	Unit
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	25	50	100	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 500 mA dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.
(5) Rectangular pulse.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}c)}$ $R_{th\ (c\text{-}h)}$	Junction-case for D.C. Contact (case to heatsink)	2.92 0.40	°C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 60 W (t_p = 500 µs) I_{FGM} = 10 A (t_p = 500 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 1 W V_{FGM} = 15 V (t_p = 500 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			50	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 500 mA	Gate Open			50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 100 mA		50		mA
V_{TM}	T_j = 25 °C	I_{TM} = 140 A	t_p = 10 ms			1.5	V
	T_j = 25 °C	I_{TM} = 700 A	t = 10 ms		4		
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 125 °C			10	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 125 °C			10	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 1.5 A/µs	I_T = 140 A		1		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 140 A di/dt = 30 A/µs	V_R = 25 V dv/dt = 50 V/µs		50		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

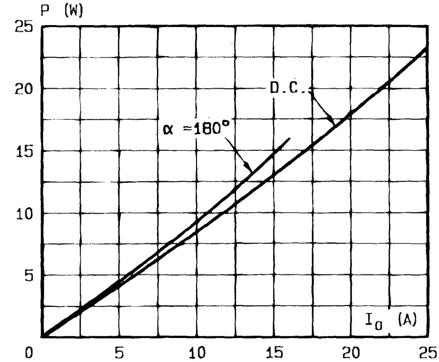


Fig.1 - Maximum average power dissipation versus average on-state current (half sine wave 50 Hz and D.C).

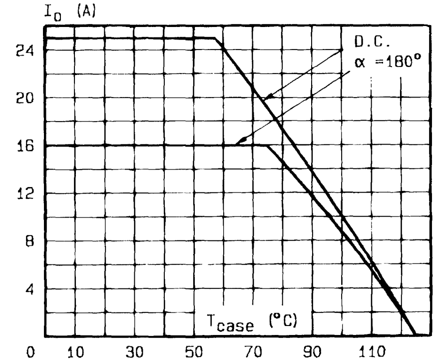


Fig.2 - Maximum average on-state current versus case temperature (half sine wave 50 Hz and D.C).

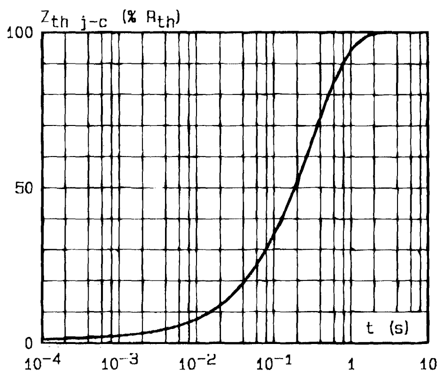


Fig.3 - Thermal transient impedance junction to case versus pulse duration.

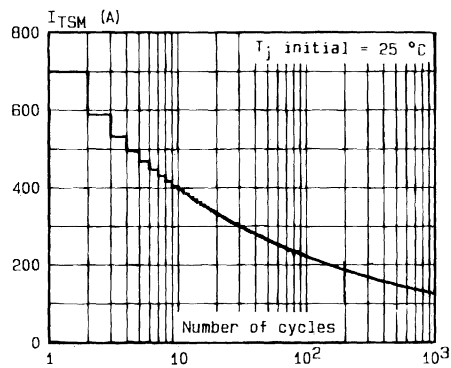


Fig.4 - Non repetitive surge peak on-state current versus number of cycles.

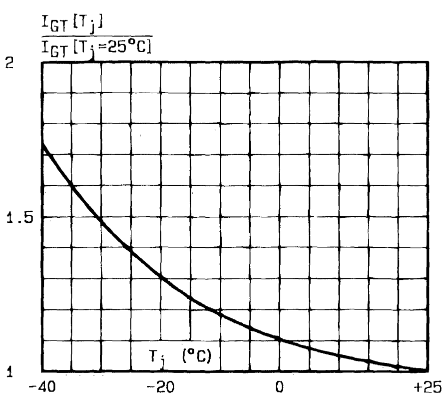


Fig.5 - Relative variation of gate trigger current versus junction temperature.

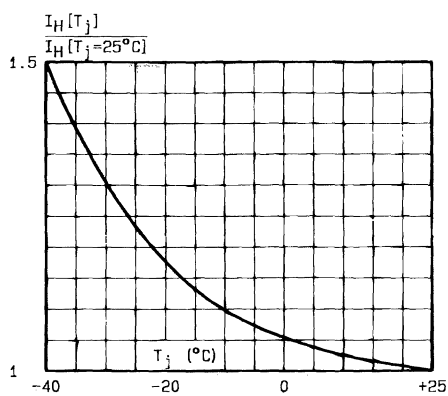


Fig.6 - Relative variation of holding current versus junction temperature.

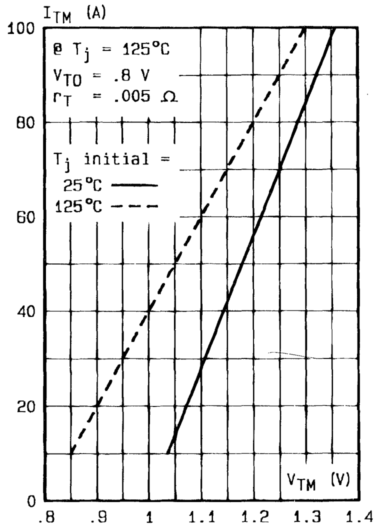


Fig.7 - On-state characteristics at low level (maximum values).

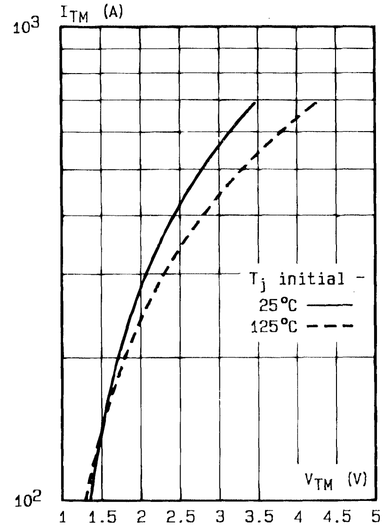


Fig.8 - On-state characteristics at high level (maximum values).

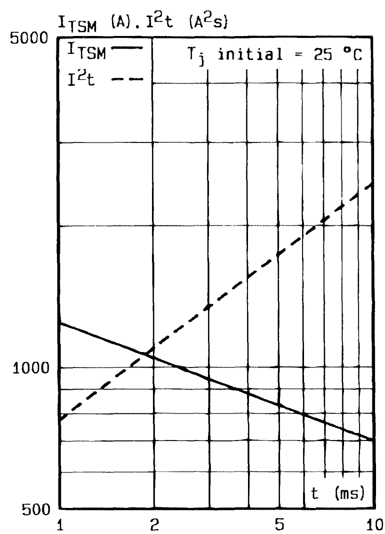


Fig.9 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

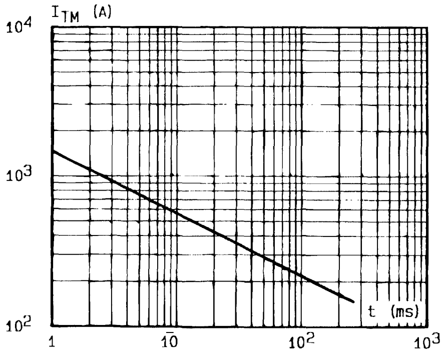
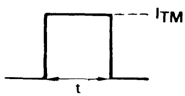


Fig.10 - Peak capacitor discharge current versus pulse width.



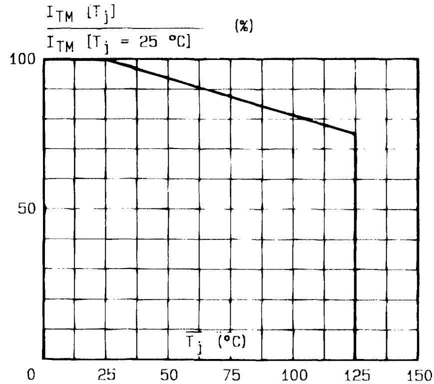
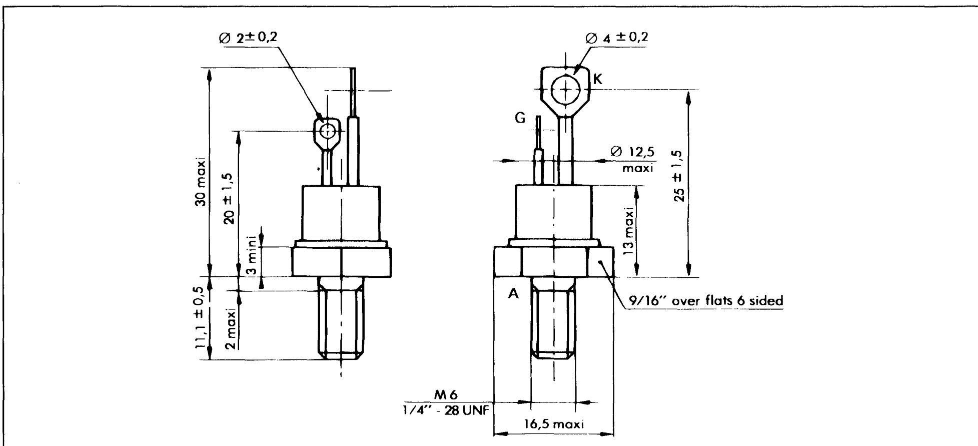


Fig.11 Allowable peak capacitor discharge current versus initial junction temperature.

PACKAGE MECHANICAL DATA

TO 48 Metal

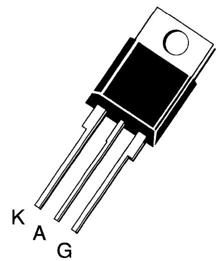


Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1 g
Polarity : anode to case
Stud torque : 3.5 mΛN min - 3.8 mΛN max.

TXN/TYN 054 → 1004

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT
- AVAILABLE IN NON-INSULATED VERSION –> TYN SERIES OR IN INSULATED VERSION –> TXN SERIES (INSULATING VOLTAGE 2500 V_{RMS})
- UL RECOGNIZED FOR TXN SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 90 °C	4	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 90 °C	2.5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	73	A
		t = 10 ms	70	
I^2t	I^2t Value for Fusing	t = 10 ms	24.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		50	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TXN/TYN							Unit
		054	104	204	404	604	804	1004	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	1000	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 150 mA di_G/dt = 1 A/µs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	5	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

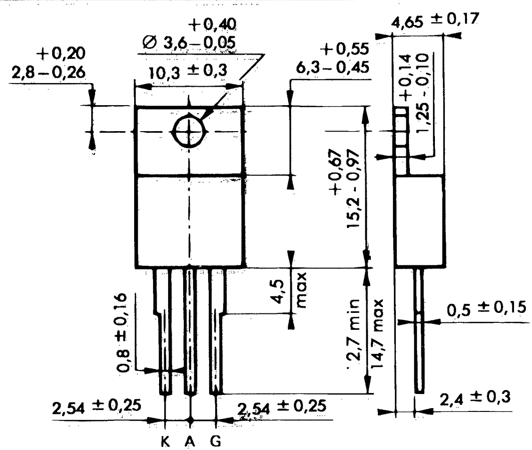
P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V
$P_{G\,(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			15	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 100 mA	Gate Open			30	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 30 mA		50		mA
V_{TM}	T_j = 25 °C	I_{TM} = 8 A	t_p = 10 ms			1.8	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 110 °C			1	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 110 °C			1	
t_{gt}	T_j = 25 °C I_G = 40 mA	V_D = V_{DRM} di_G/dt = 0.45 A/µs	I_T = 8 A		2		µs
t_q	T_j = 110 °C V_D = 67 % V_{DRM} Gate Open	I_T = 8 A di/dt = 30 A/µs	V_R = 25 V dv/dt = 50 V/µs		70		µs
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

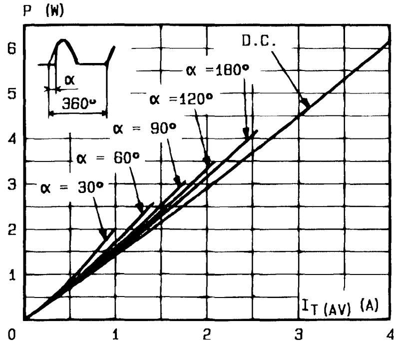


Fig.1 - Maximum mean power dissipation versus mean on-state current.

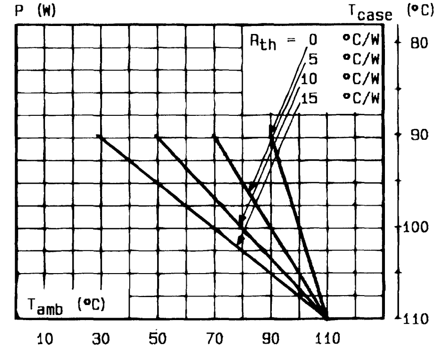


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

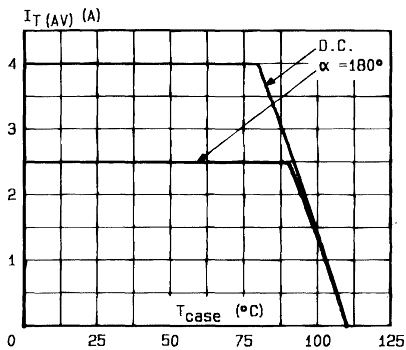


Fig.3 - Mean on-state current versus case temperature.

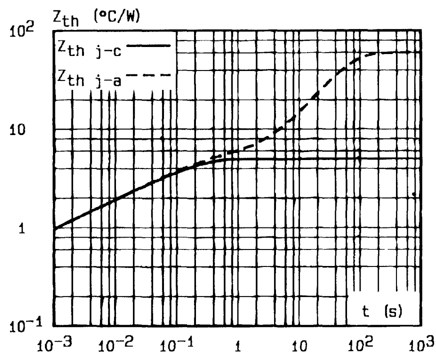


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

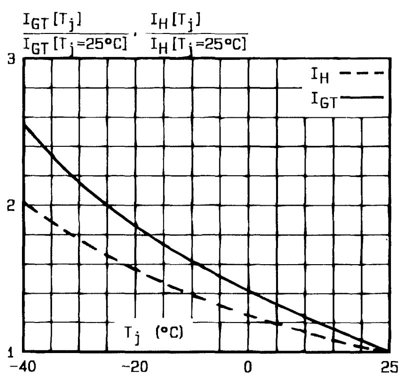


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

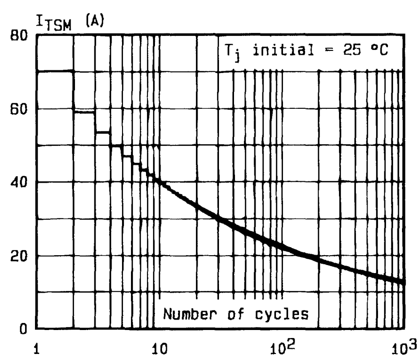


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

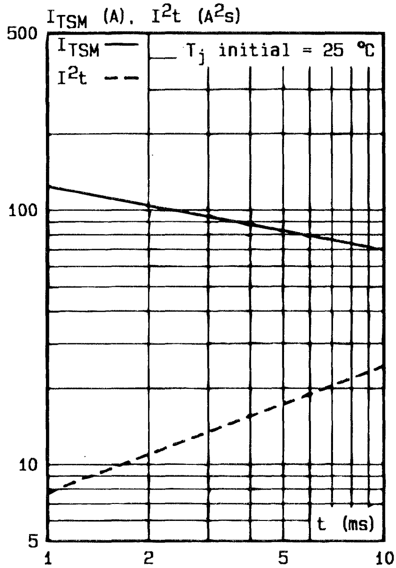


Fig.7 – Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

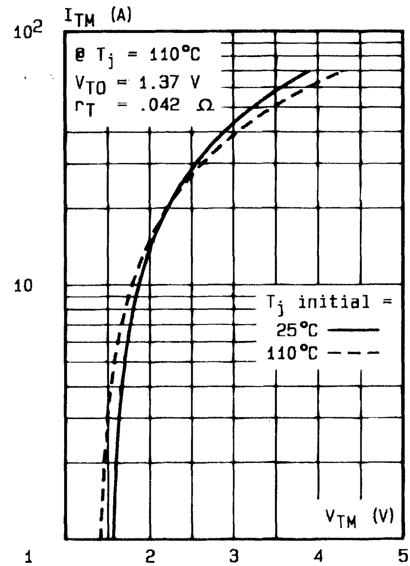


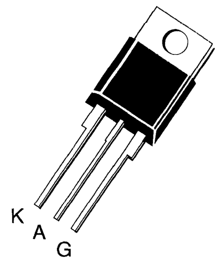
Fig.8 – On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

TXN/TYN 056 → 1006

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT
- AVAILABLE IN NON-INSULATED VERSION –> TYN SERIES OR IN INSULATED VERSION –> TXN SERIES (INSULATING VOLTAGE 2500 V_{RMS})
- UL RECOGNIZED FOR TXN SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 80 °C	6	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 80 °C	3.8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		50	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TXN/TYN							Unit
		056	106	206	406	606	806	1006	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	1000	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 150 mA dI_G/dt = 1 A/µs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	5	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 20$ W ($t_p = 20$ µs) $I_{FGM} = 2$ A ($t_p = 20$ µs) $V_{RGM} = 5$ V

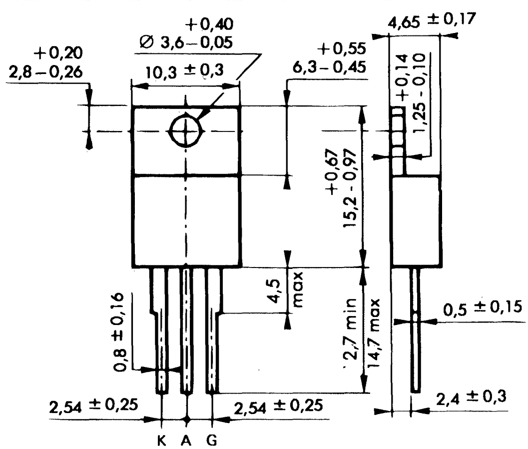
$P_{G\,(AV)} = 0.5$ W $V_{FGM} = 15$ V ($t_p = 20$ µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25$ °C $V_D = 12$ V $R_L = 33$ Ω Pulse Duration > 20 µs			15	mA
V_{GT}	$T_j = 25$ °C $V_D = 12$ V $R_L = 33$ Ω Pulse Duration > 20 µs			1.5	V
V_{GD}	$T_j = 110$ °C $V_D = V_{DRM}$ $R_L = 3.3$ kΩ	0.2			V
I_H	$T_j = 25$ °C $I_T = 100$ mA Gate Open			30	mA
I_L	$T_j = 25$ °C $V_D = 12$ V $I_G = 30$ mA Pulse Duration > 20 µs		50		mA
V_{TM}	$T_j = 25$ °C $I_{TM} = 12$ A $t_p = 10$ ms			1.6	V
I_{DRM}	V_{DRM} Specified $T_j = 25$ °C			0.01	mA
	$T_j = 110$ °C			1	
I_{RRM}	V_{RRM} Specified $T_j = 25$ °C			0.01	mA
	$T_j = 110$ °C			1	
t_{gt}	$T_j = 25$ °C $V_D = V_{DRM}$ $I_T = 12$ A $I_G = 40$ mA $di_G/dt = 0.45$ A/µs		2		µs
t_q	$T_j = 110$ °C $I_T = 12$ A $V_R = 25$ V $V_D = 67$ % V_{DRM} di/dt = 30 A/µs dv/dt = 50 V/µs Gate Open		70		µs
dv/dt*	$T_j = 110$ °C Gate Open Linear Slope up to $V_D = 67$ % V_{DRM}	200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

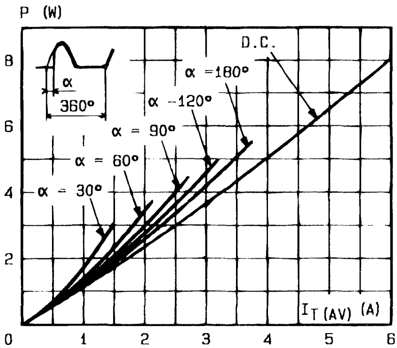


Fig.1 - Maximum mean power dissipation versus mean on-state current.

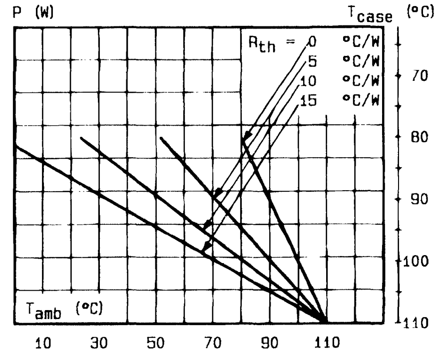


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

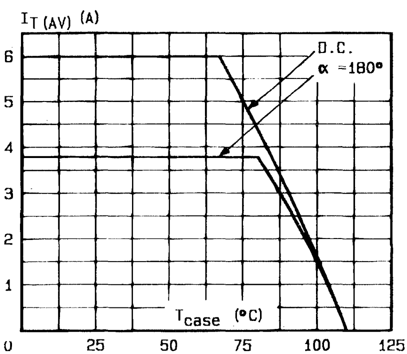


Fig.3 - Mean on-state current versus case temperature.

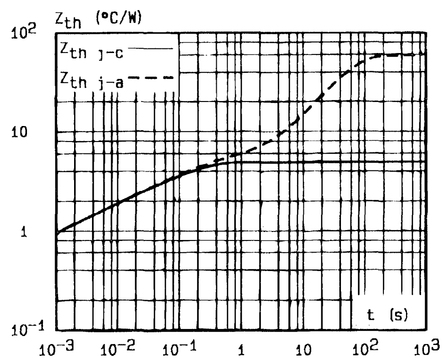


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

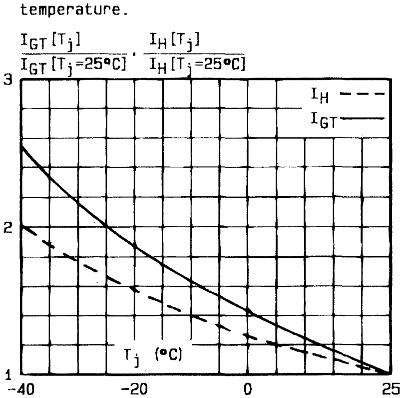


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

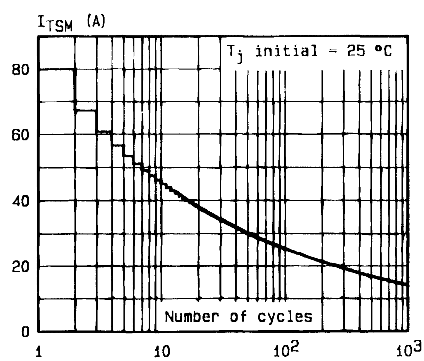


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

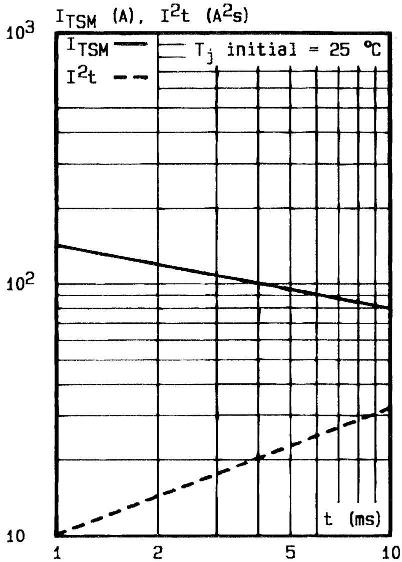


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

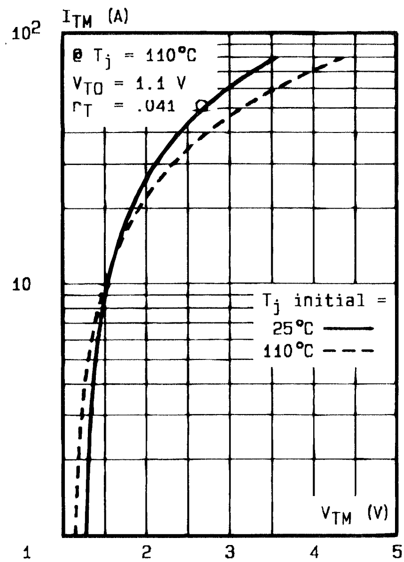


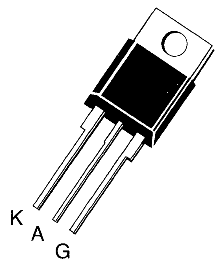
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

TXN/TYN 058,G,K → 1008,G,K

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT
- AVAILABLE IN NON-INSULATED VERSION -> TYN SERIES OR IN INSULATED VERSION -> TXN SERIES (INSULATING VOLTAGE 2500 V_{RMS})
- UL RECOGNIZED FOR TXN SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	8	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		50	A/μs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TXN/TYN ..., G, K							Unit
		058	108	208	408	608	808	1008	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	1000	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 400 mA $\quad$ di_G/dt = 1 A/μs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	4.7	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	Without Suffix			15	mA
		Suffix G			25	
		Suffix K			40	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs				1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ		0.2			V
I_H	T_j = 25 °C I_T = 100 mA Gate Open	Without Suffix			30	mA
		Suffix G			45	
		Suffix K			60	
I_L	T_j = 25 °C V_D = 12 V I_G = 80 mA Pulse Duration > 20 µs			50		mA
V_{TM}	T_j = 25 °C I_{TM} = 16 A t_p = 10 ms				1.6	V
I_{DRM}	V_{DRM} Specified	T_j = 25 °C			0.01	mA
		T_j = 110 °C			1	
I_{RRM}	V_{RRM} Specified	T_j = 25 °C			0.01	mA
		T_j = 110 °C			1	
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 16 A I_G = 40 mA di_G/dt = 0.45 A/µs			2		µs
t_q	T_j = 110 °C I_T = 16 A V_R = 25 V V_D = 67 % V_{DRM} di/dt = 30 A/µs Gate Open dv/dt = 50 V/µs			70		µs
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}	Without Suffix	200			V/µs
		Suffix G	500			
		Suffix K	750			

* For higher guaranteed values, please consult us.

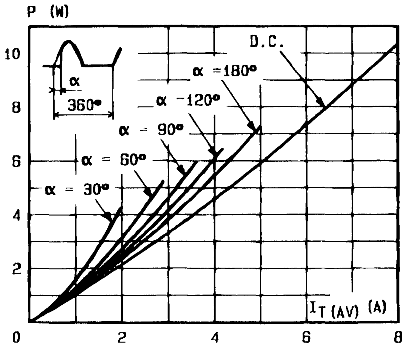


Fig.1 - Maximum mean power dissipation versus mean on-state current.

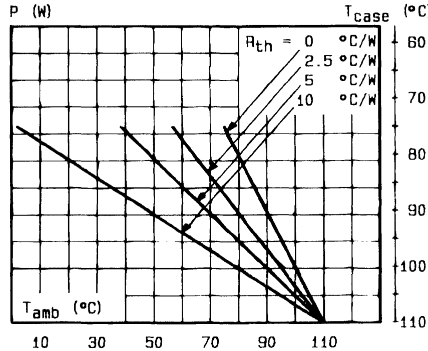


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

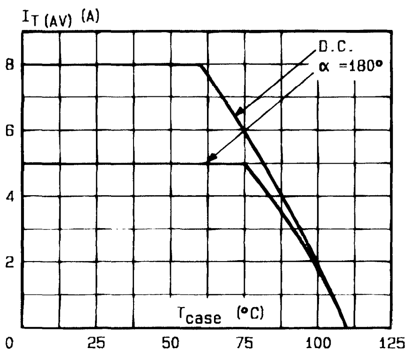


Fig.3 - Mean on-state current versus case temperature.

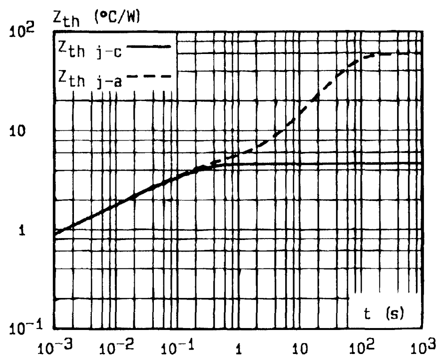


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

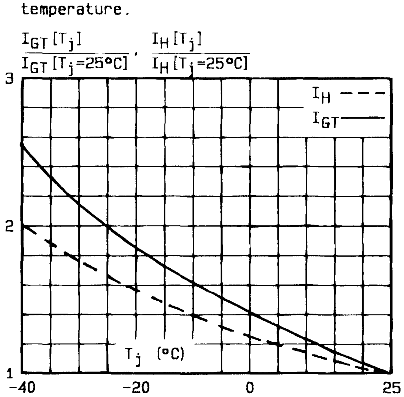


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

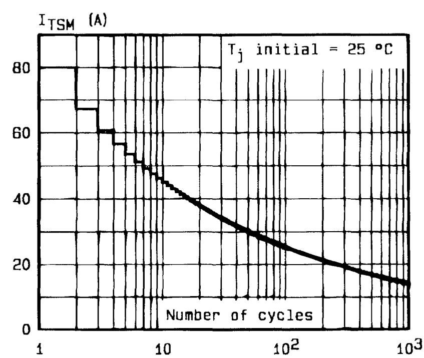


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

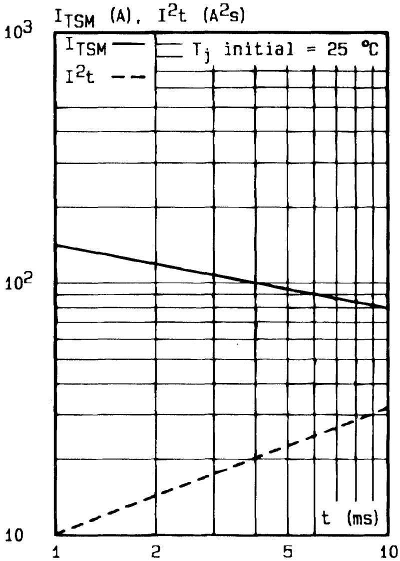


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

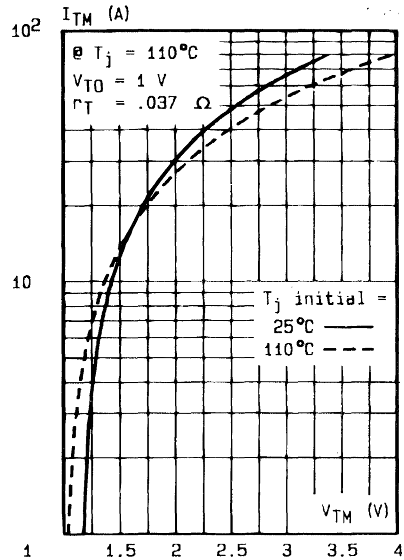
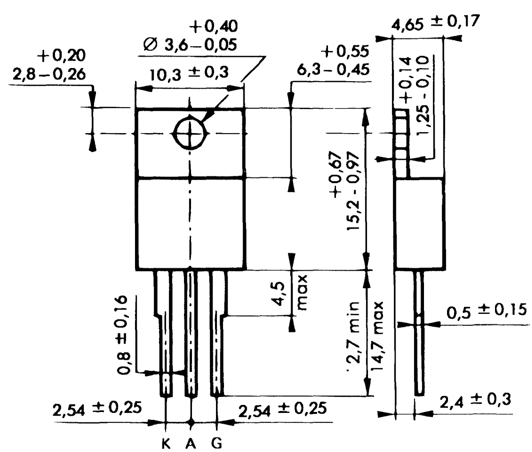


Fig.8 - On-state characteristics (maximum values).

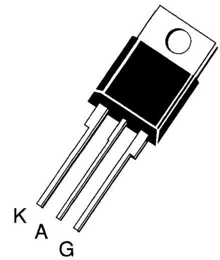
PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT
- AVAILABLE IN NON-INSULATED VERSION –> TYN SERIES OR IN INSULATED VERSION –> TXN SERIES (INSULATING VOLTAGE 2500 V_{RMS})
- UL RECOGNIZED FOR TXN SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	10	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	6.4	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t Value for Fusing	t = 10 ms	50	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		50	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TXN/TYN							Unit
		0510	110	210	410	610	810	1010	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	1000	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 150 mA dI_G/dt = 1 A/µs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	3.8	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 μs) I_{FGM} = 2 A (t_p = 20 μs) V_{RGM} = 5 V

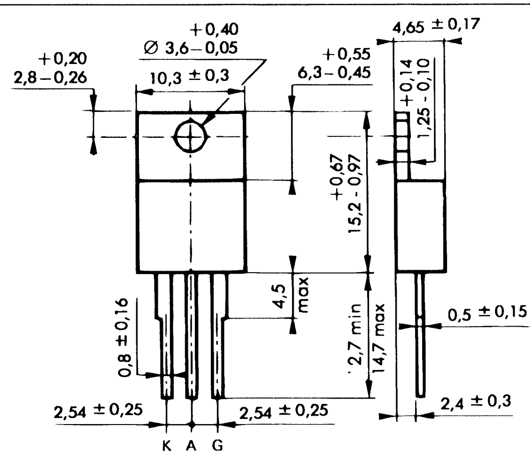
$P_{G\,(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 μs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 μs	V_D = 12 V	R_L = 33 Ω			15	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 μs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 100 mA	Gate Open			30	mA
I_L	T_j = 25 °C Pulse Duration > 20 μs	V_D = 12 V	I_G = 30 mA		50		mA
V_{TM}	T_j = 25 °C	I_{TM} = 20 A	t_p = 10 ms			1.6	V
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 110 °C			1	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 110 °C			1	
t_{gt}	T_j = 25 °C I_G = 40 mA	V_D = V_{DRM} di_G/dt = 0.45 A/μs	I_T = 20 A		2		μs
t_q	T_j = 110 °C V_D = 67 % V_{DRM} Gate Open	I_T = 20 A di/dt = 30 A/μs	V_R = 25 V dv/dt = 50 V/μs		70		μs
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/μs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

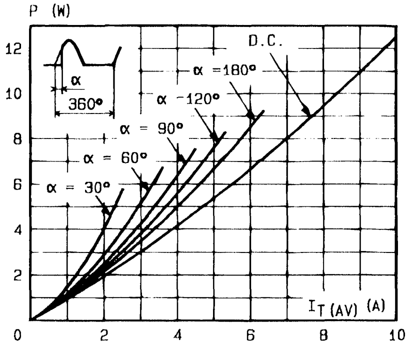


Fig.1 - Maximum mean power dissipation versus mean on-state current.

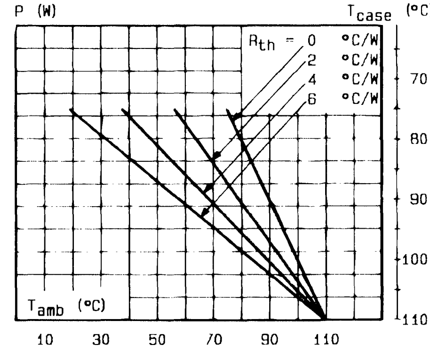


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

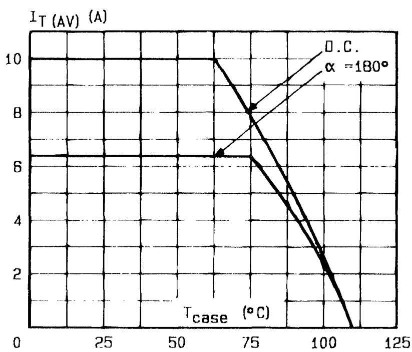


Fig.3 - Mean on-state current versus case temperature.

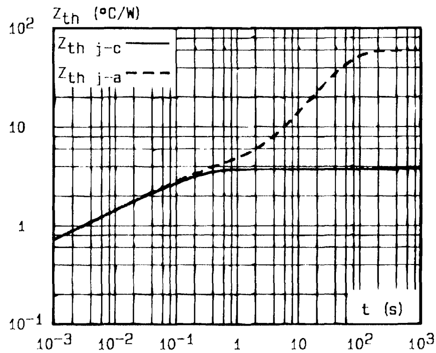


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

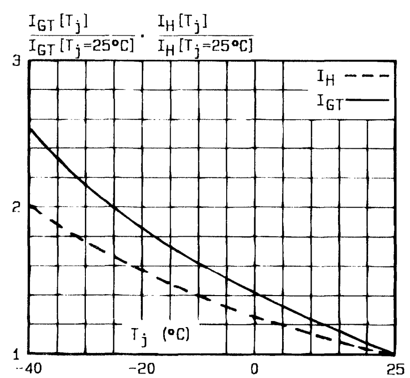


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

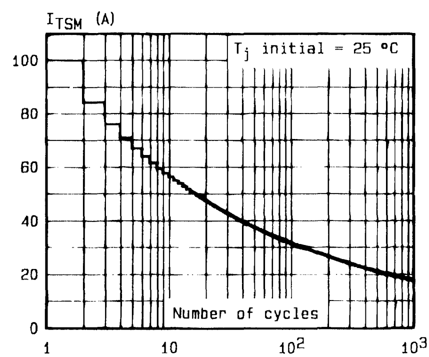


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

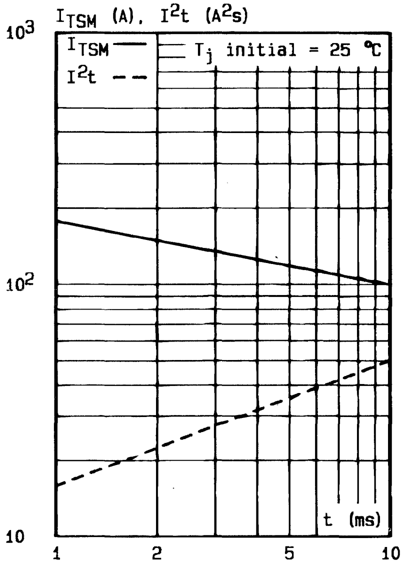


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

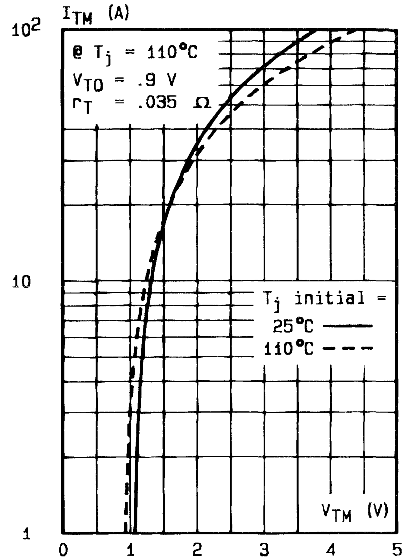
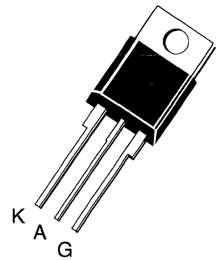


Fig.8 - On-state characteristics (maximum values) .

SGS-THOMSON MICROELECTRONICS

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT
- AVAILABLE IN NON-INSULATED VERSION -> TYN SERIES OR IN INSULATED VERSION -> TXN SERIES (INSULATING VOLTAGE 2500 V_{RMS})
- UL RECOGNIZED FOR TXN SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 80 °C	12	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 80 °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	125	A
		t = 10 ms	120	
I^2t	I^2t Value for Fusing	t = 10 ms	72	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TXN/TYN							Unit
		0512	112	212	412	612	812	1012	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	1000	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 150 mA di_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	3.8	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V
$P_{G\,(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			15	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 100 mA	Gate Open			30	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 30 mA		50		mA
V_{TM}	T_j = 25 °C	I_{TM} = 24 A	t_p = 10 ms			1.6	V
I_{DRM}	T_j = 25 °C	V_{DRM} Specified				0.01	mA
	T_j = 125 °C		$V_{DRM} \leq$ 800 V			2	
			V_{DRM} = 1000 V			3	
I_{RRM}	T_j = 25 °C	V_{RRM} Specified				0.01	mA
	T_j = 125 °C		$V_{RRM} \leq$ 800 V			2	
			V_{RRM} = 1000 V			3	
t_{gt}	T_j = 25 °C I_G = 40 mA	V_D = V_{DRM} di_G/dt = 0.45 A/µs	I_T = 24 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 24 A di/dt = 30 A/µs	V_R = 25 V dv/dt = 50 V/µs		70		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

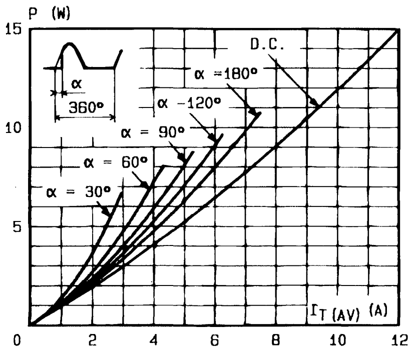


Fig.1 - Maximum mean power dissipation versus mean on-state current.

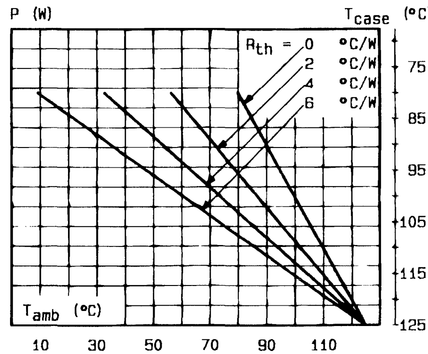


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

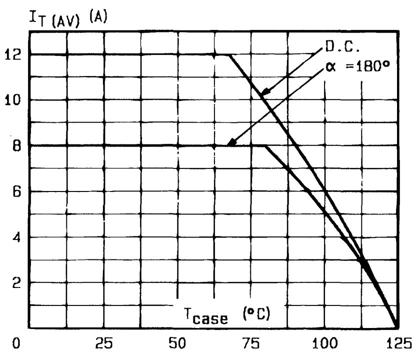


Fig.3 - Mean on-state current versus case temperature.

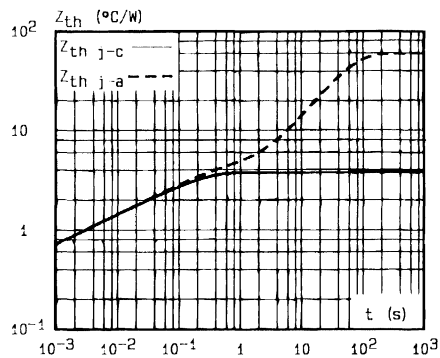


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

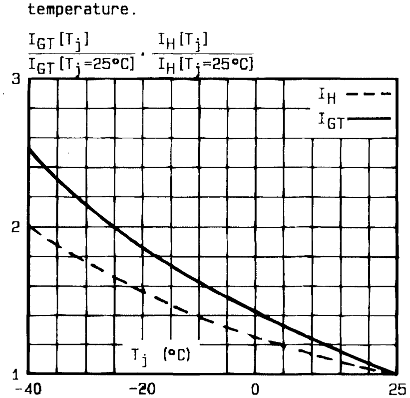


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

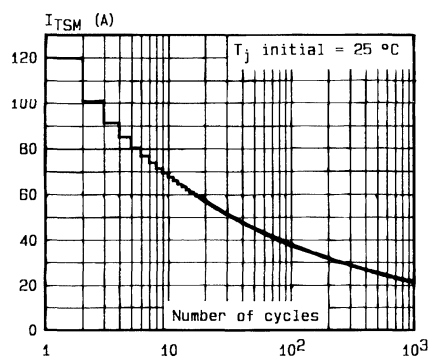


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

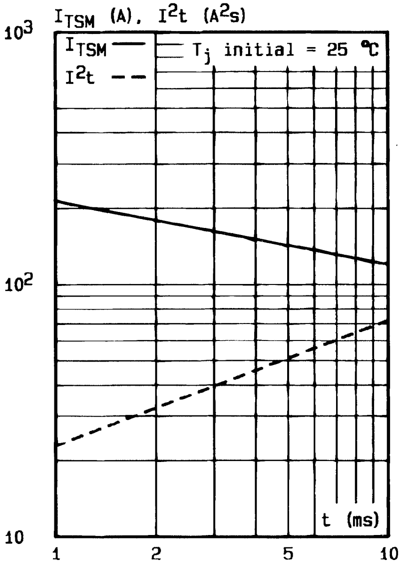


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

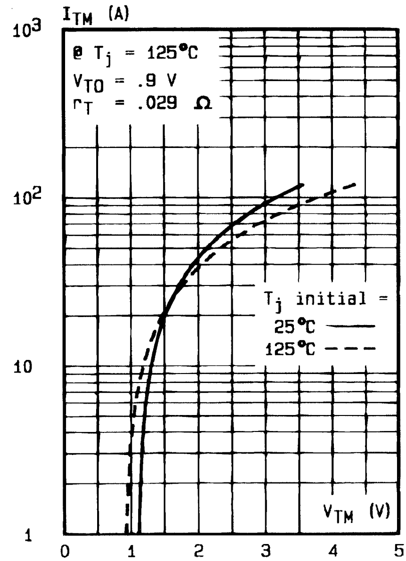
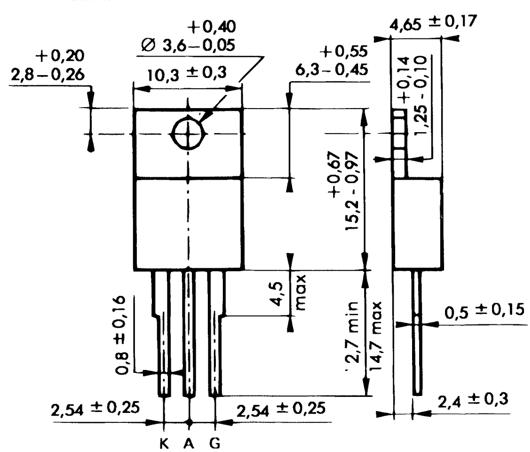


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



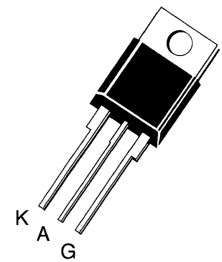
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

TYN 0516 → 816

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 90 °C	16	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 90 °C	10	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	167	A
		t = 10 ms	160	
I^2t	I^2t Value for Fusing	t = 10 ms	128	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TYN						Unit
		0516	116	216	416	616	816	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 250 mA di_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	2.5	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

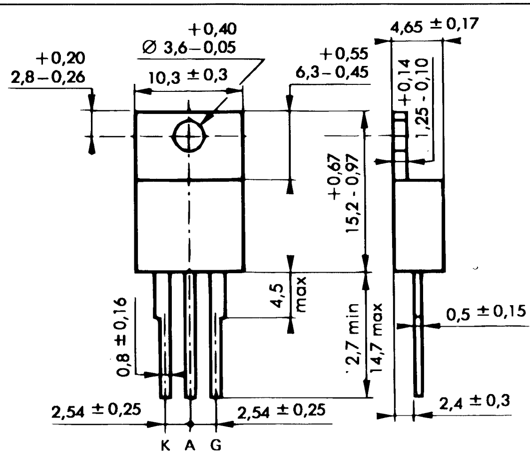
P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V
$P_{G\,(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs			25	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C I_T = 100 mA Gate Open			40	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 50 mA Pulse Duration > 20 µs		70		mA
V_{TM}	T_j = 25 °C I_{TM} = 32 A t_p = 10 ms			1.6	V
I_{DRM}	V_{DRM} Specified T_j = 25 °C			0.01	mA
	T_j = 125 °C			2	
I_{RRM}	V_{RRM} Specified T_j = 25 °C			0.01	mA
	T_j = 125 °C			2	
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 32 A I_G = 80 mA di_G/dt = 0.85 A/µs		2		µs
t_q	T_j = 125 °C I_T = 32 A V_R = 25 V V_D = 67 % V_{DRM} di/dt = 30 A/µs dv/dt = 50 V/µs Gate Open		70		µs
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}	500			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

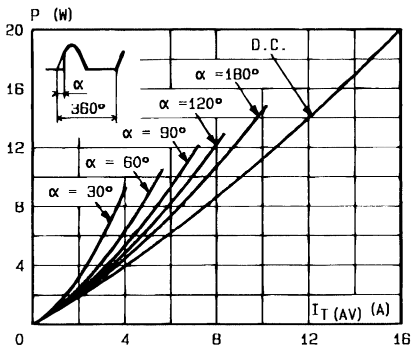


Fig.1 - Maximum mean power dissipation versus mean on-state current.

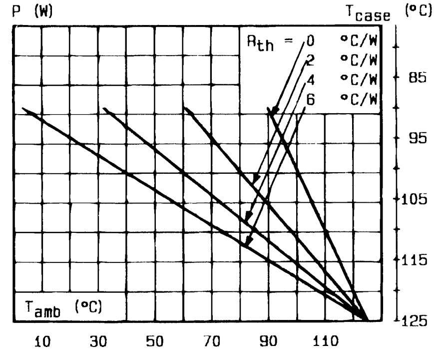


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

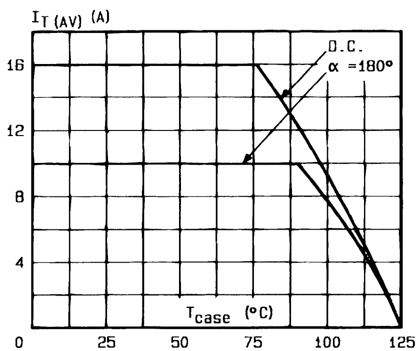


Fig.3 - Mean on-state current versus case temperature.

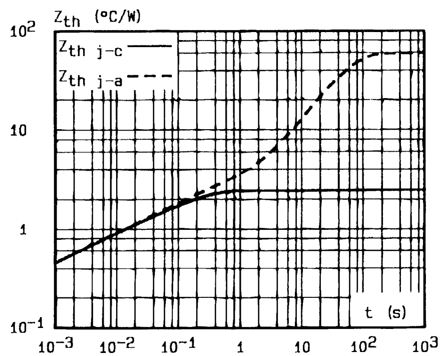


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

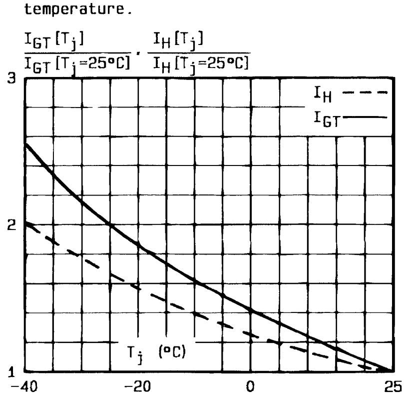


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

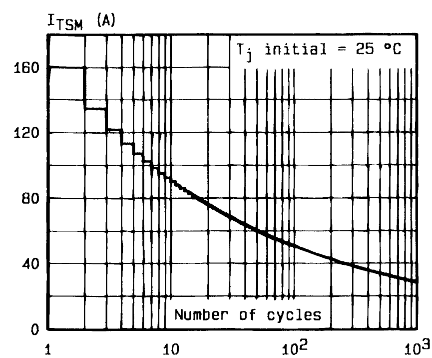


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

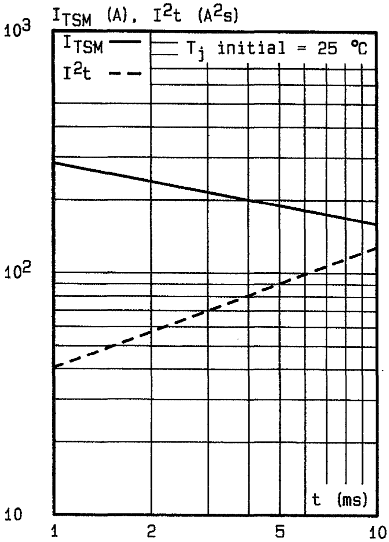


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

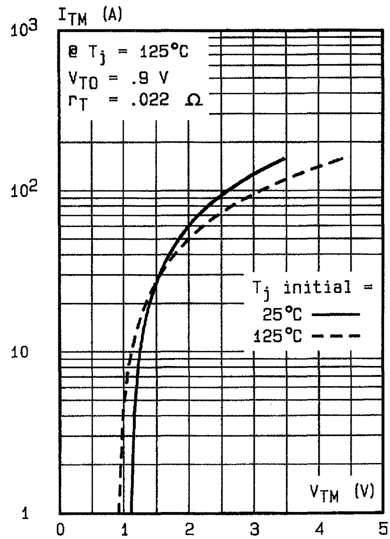
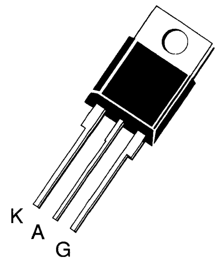


Fig.8 - On-state characteristics (maximum values) .

TYN 682 → 692

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 85 °C	20	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 85 °C	13	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	210	A
		t = 10 ms	200	
I^2t	I^2t Value for Fusing	t = 10 ms	200	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TYN						Unit
		682	683	685	688	690	692	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 250 mA dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	2.5	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 20$ W ($t_p = 20$ µs) $I_{FGM} = 2$ A ($t_p = 20$ µs) $V_{RGM} = 5$ V

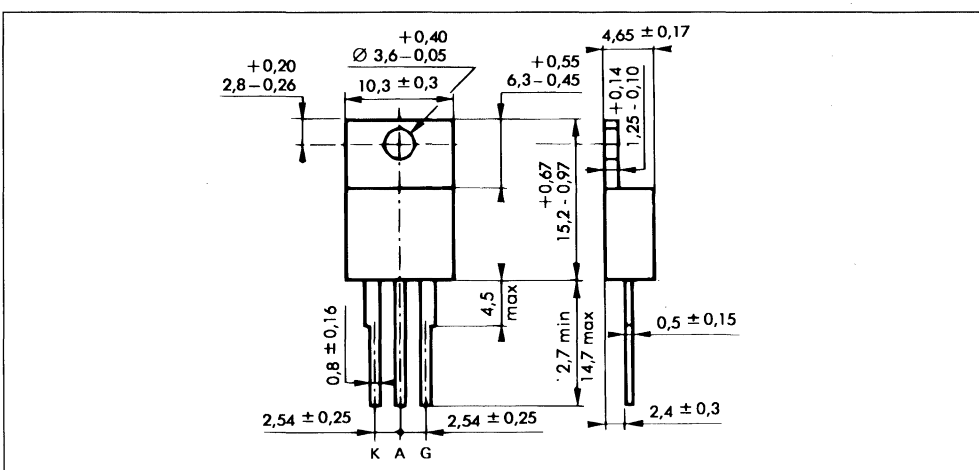
$P_{G\,(AV)} = 0.5$ W $V_{FGM} = 15$ V ($t_p = 20$ µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$R_L = 33\ \Omega$			25	mA
V_{GT}	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$R_L = 33\ \Omega$			1.5	V
V_{GD}	$T_j = 125$ °C	$V_D = V_{DRM}$	$R_L = 3.3$ kΩ	0.2			V
I_H	$T_j = 25$ °C	$I_T = 100$ mA	Gate Open			40	mA
I_L	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$I_G = 50$ mA		70		mA
V_{TM}	$T_j = 25$ °C	$I_{TM} = 50$ A	$t_p = 10$ ms			1.4	V
I_{DRM}	V_{DRM} Specified		$T_j = 25$ °C			0.01	mA
			$T_j = 125$ °C			2	
I_{RRM}	V_{RRM} Specified		$T_j = 25$ °C			0.01	mA
			$T_j = 125$ °C			2	
t_{gt}	$T_j = 25$ °C $I_G = 80$ mA	$V_D = V_{DRM}$ $di_G/dt = 0.85$ A/µs	$I_T = 50$ A		2		µs
t_q	$T_j = 125$ °C $V_D = 67$ % V_{DRM} Gate Open	$I_T = 50$ A $di/dt = 30$ A/µs	$V_R = 25$ V $dv/dt = 50$ V/µs		70		µs
dv/dt*	$T_j = 125$ °C Linear Slope up to $V_D = 67$ % V_{DRM}	Gate Open		500			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

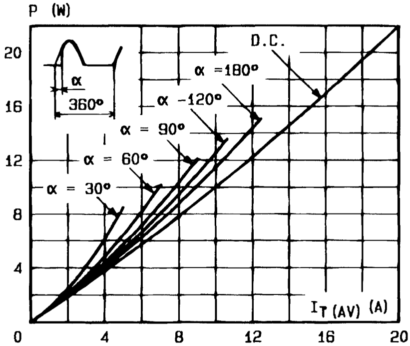


Fig.1 - Maximum mean power dissipation versus mean on-state current.

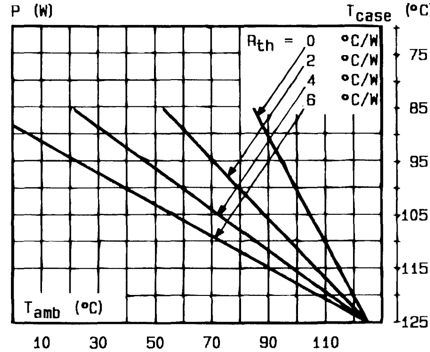


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

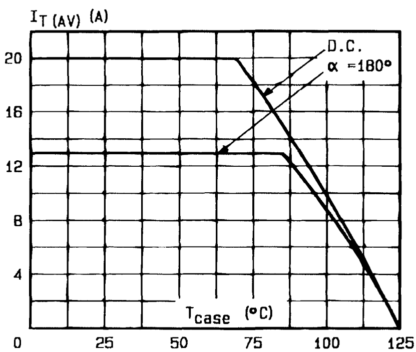


Fig.3 - Mean on-state current versus case temperature.

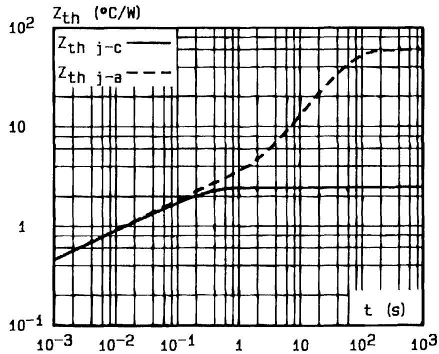


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

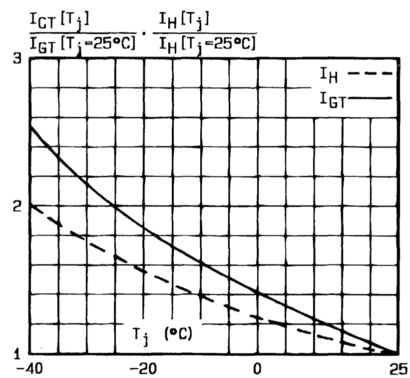


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

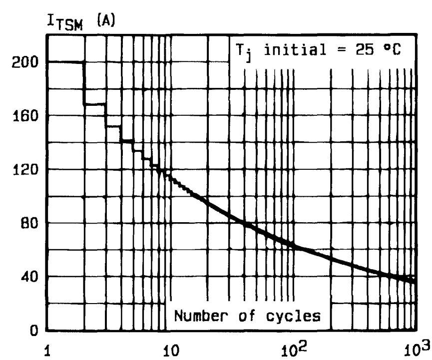


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

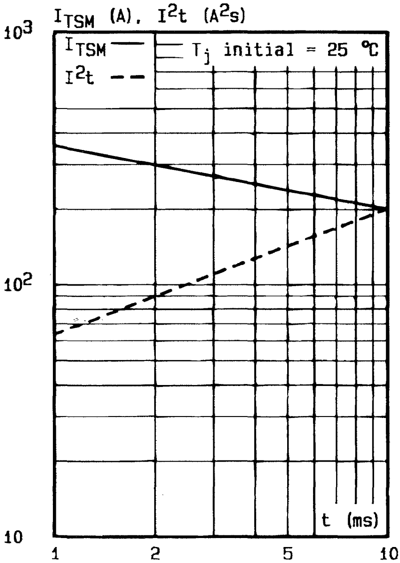


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

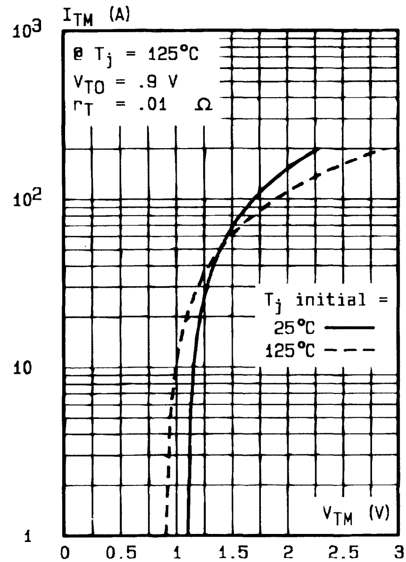


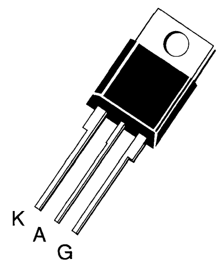
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

SGS-THOMSON MICROELECTRONICS TYN 225 → TYN 1225

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		TYN 225 to 825	TYN 1025 - 1225	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 90 °C	25		A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 90 °C	16		A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	315	260	A
		t = 10 ms	300	250	
I^2t	I^2t Value for Fusing	t = 10 ms	450	310	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100		A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125		°C °C

Symbol	Parameter	TYN 225	425	625	825	1025	1225	Unit
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 400 mA $\quad di_G/dt$ = 1 A/µs.
(4) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.5	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V

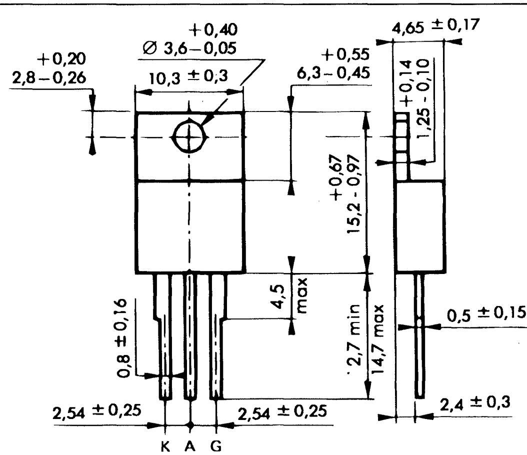
$P_{G(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			40	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 100 mA	Gate Open			50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 80 mA		80		mA
V_{TM}	T_j = 25 °C	I_{TM} = 50 A	t_p = 10 ms			1.6	V
I_{DRM}	T_j = 125 °C	V_{DRM} Specified	TYN 225 → 825		0.2	2.5	mA
			TYN 1025 - 1225		0.5	5	
I_{RRM}	T_j = 125 °C	V_{RRM} Specified	TYN 225 → 825		0.2	2.5	mA
			TYN 1025 - 1225		0.5	5	
t_{gt}	T_j = 25 °C I_G = 80 mA	V_D = V_{DRM} di_G/dt = 0.85 A/µs	I_T = 50 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 50 A di/dt = 30 A/µs	V_R = 25 V dv/dt = 50 V/µs		70		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open	TYN 225 → 825	500	750		V/µs
			TYN 1025 - 1225	250	500		

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

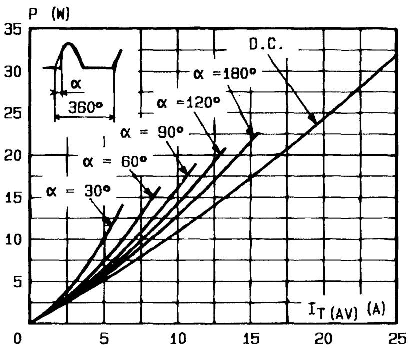


Fig.1 - Maximum mean power dissipation versus mean on-state current.

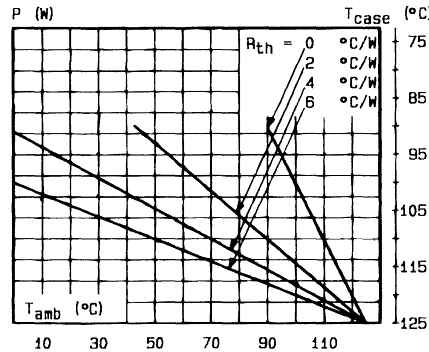


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

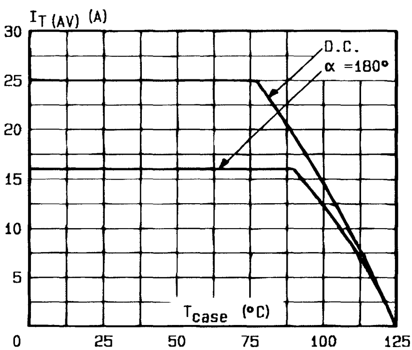


Fig.3 - Mean on-state current versus case temperature.

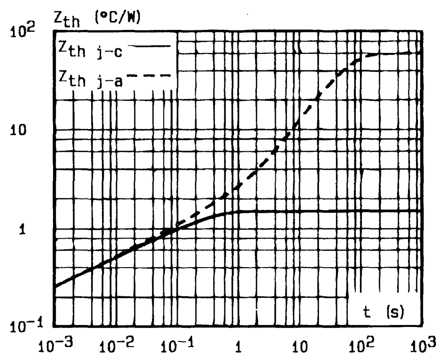


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

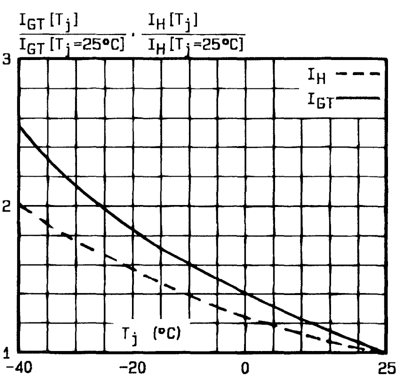


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

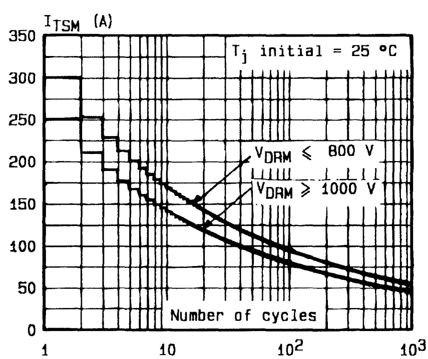


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

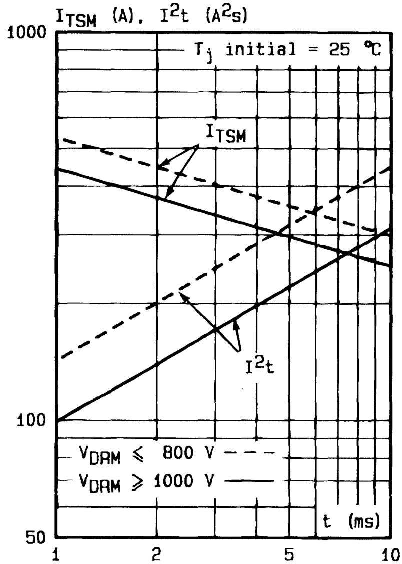


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

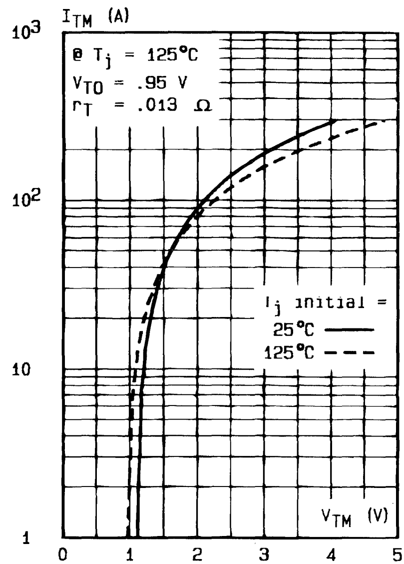


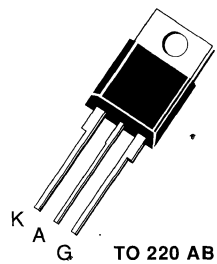
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

TYP 212 → 2012

THYRISTORS FOR OVERVOLTAGE PROTECTION

- GLASS PASSIVATED CHIP
- HIGH STABILITY AND RELIABILITY
- HIGH SURGE CAPABILITY
- HIGH di/dt RATING



TO 220 AB
(Plastic)

DESCRIPTION

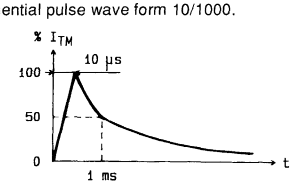
SCR designed for overvoltage protection in crowbar circuits.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	12	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	315	A
		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
I_{TM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (5)	t = 1 ms	750	A
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TYP212	TYP512	TYP1012	TYP2012	Unit
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	25	50	100	200	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 300 mA dI_G/dt = 1 A/µs.
(4) T_j = 125 °C.
(5) Exponential pulse wave form 10/1000.



D88THYPROTEC1

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	4.74	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V

$P_{G(AV)}$ = 0.5 W V_{FGM} = 10 V (t_p = 20 µs)

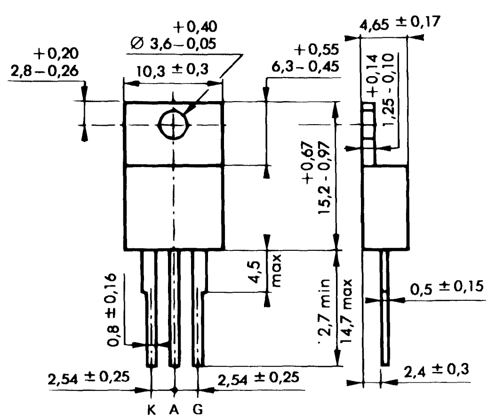
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			30	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	0.2			V
I_H	T_j = 25 °C	I_T = 100 mA	Gate Open			50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 60 mA		60		mA
V_{TM}	T_j = 25 °C	I_{TM} = 50 A	t_p = 10 ms			1.5	V
	T_j = 25 °C See note 5 on page 1/5.	I_{TM} = 750 A	t = 10 ms		6		
I_{DRM}	V_{DRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 125 °C			2	
I_{RRM}	V_{RRM} Specified		T_j = 25 °C			0.01	mA
			T_j = 125 °C			2	
t_{gt}	T_j = 25 °C I_G = 200 mA	V_D = V_{DRM} di_G/dt = 1.5 A/µs	I_T = 50 A		1		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 50 A di/dt = 30 A/µs	V_R = 25 V dv/dt = 50 V/µs		100		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open		200			V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



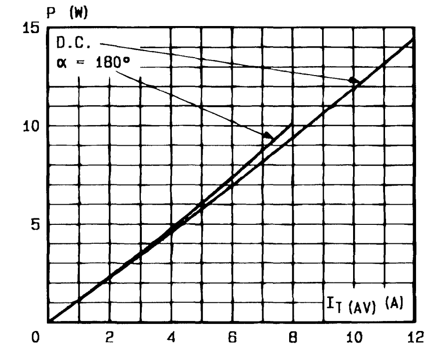


Fig.1 - Maximum average power dissipation versus average on-state current (half sine wave 50 Hz and D.C).

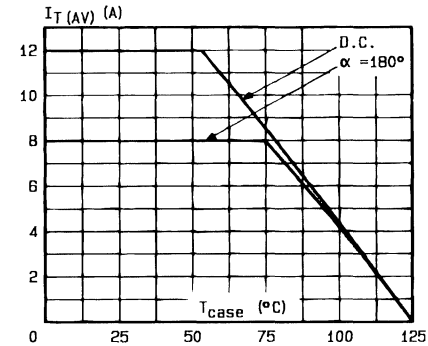


Fig.2 - Maximum average on-state current versus case temperature (half sine wave 50 Hz and D.C).

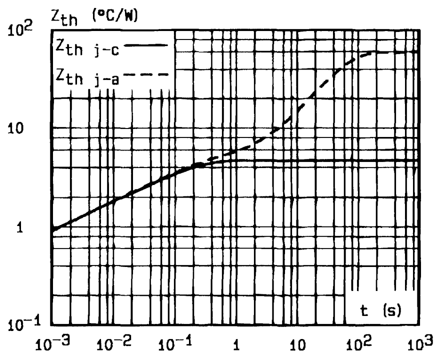


Fig.3 - Thermal transient impedance junction to case and junction to ambient. versus pulse duration.

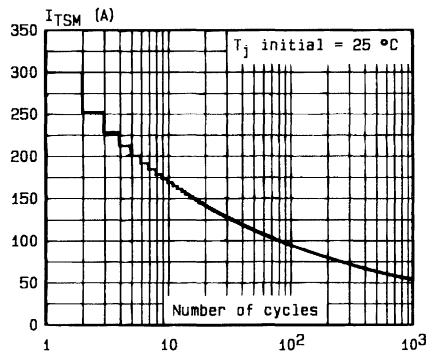


Fig.4 - Non repetitive surge peak on-state current versus number of cycles.

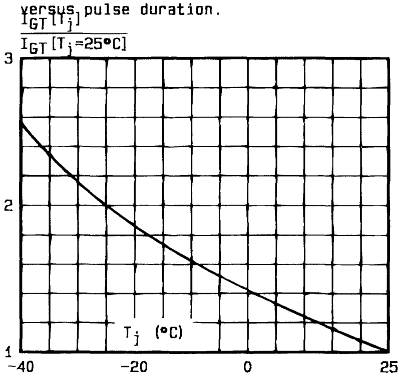


Fig.5 - Relative variation of gate trigger current versus junction temperature.

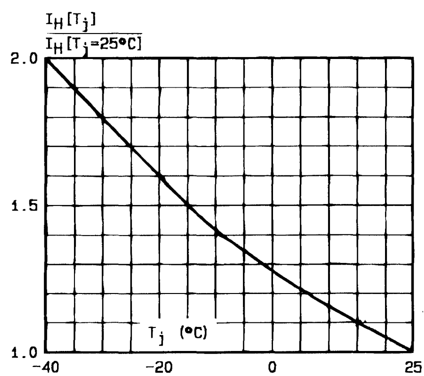


Fig.6 - Relative variation of holding current versus junction temperature.

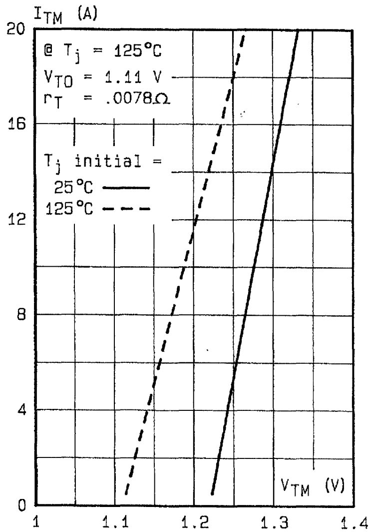


Fig.7 - On-state characteristics at low level (maximum values).

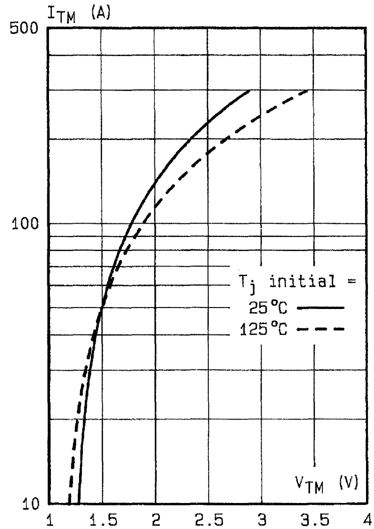


Fig.8 - On-state characteristics at high level (maximum values).

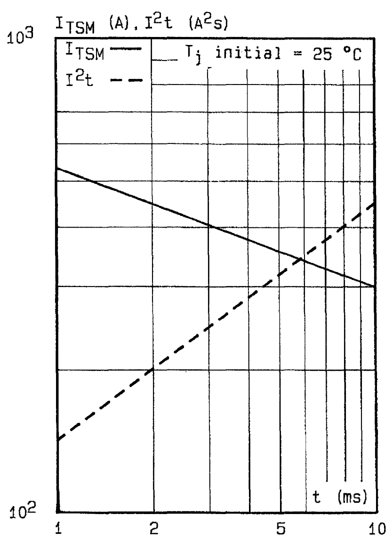


Fig.9 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leqslant 10$ ms, and corresponding value of I^2t.

SGS-THOMSON MICROELECTRONICS

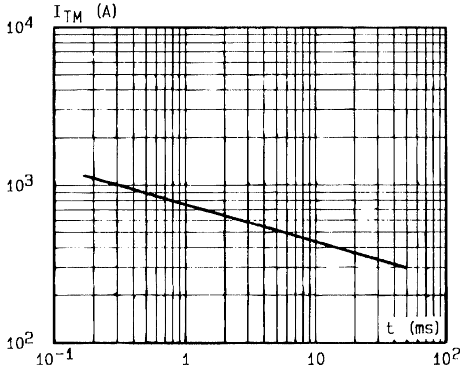


Fig.10 - Peak capacitor discharge current versus pulse width.

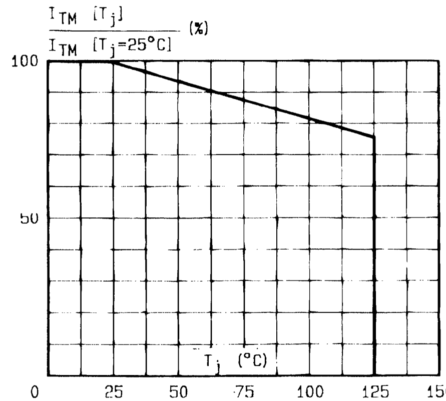
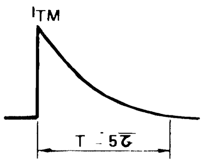


Fig.11 - Allowable peak capacitor discharge current versus initial junction temperature.

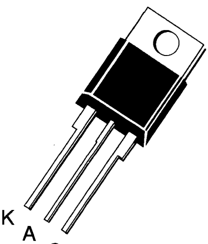


SGS-THOMSON
MICROELECTRONICS

TYS 406-05 → 8
TYS 407-05 → 8

SENSITIVE GATE THYRISTORS

- OPERATES DIRECTLY FROM LOW SIGNAL
- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



TO 220 AB
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T\ (RMS)}$	RMS on-state Current (1)	T_c = 90 °C	4	A
$I_{T\ (AV)}$	Mean on-state Current (1)	T_c = 90 °C	2.5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TYS406-.. or TYS407-..						Unit
		05	1	2	4	6	8	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 5 mA di_G/dt = 1 A/µs.
(4) T_j = 110 °C R_{GK} = 1 KΩ.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for DC	5.5	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V
$P_{G(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

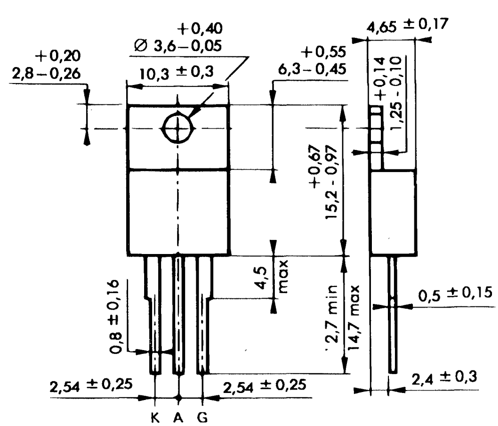
ELECTRICAL CHARACTERISTICS

Symbol	Types	Test Conditions	Min.	Typ.	Max.	Unit
I_{GT}	TYS406	T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs			0.2	mA
	TYS407				0.5	
V_{GT}		T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs			1.5	V
V_{GD}		T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ R_{GK} = 1 kΩ	0.1			V
I_H		T_j = 25 °C I_T = 50 mA R_{GK} = 1 kΩ			6	mA
I_L		T_j = 25 °C V_D = 12 V I_G = 10 mA Pulse Duration > 20 µs R_{GK} = 1 kΩ		10		mA
V_{TM}		T_j = 25 °C I_{TM} = 8 A t_p = 10 ms			1.6	V
I_{DRM}		V_{DRM} specified R_{GK} = 1 kΩ — T_j = 25 °C			0.01	mA
		T_j = 110 °C			0.5	
I_{RRM}		V_{RRM} specified R_{GK} = 1 kΩ — T_j = 25 °C			0.01	mA
		T_j = 110 °C			0.5	
t_{gt}		T_j = 25 °C V_D = V_{DRM} I_T = 8 A I_G = 10 mA di_G/dt = 0.15 A/µs		1.5		µs
t_q		T_j = 110 °C I_T = 8 A V_R = 24 V V_D = 67 % V_{DRM} di/dt = 10 A/µs dv/dt = 10 V/µs R_{GK} = 1kΩ		100		µs
dv/dt*		T_j = 110 °C R_{GK} = 1 kΩ Linear Slope up to V_D = 67 % V_{DRM}		10		V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



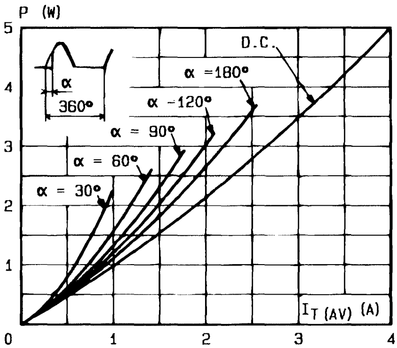


Fig.1 - Maximum mean power dissipation versus mean on-state current.

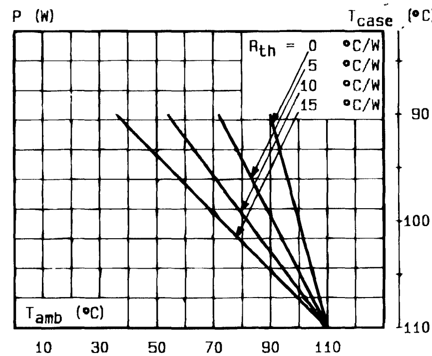


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

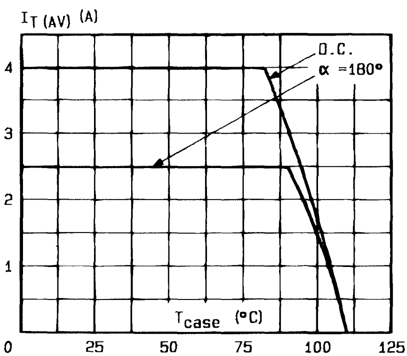


Fig.3 - Mean on-state current versus case temperature.

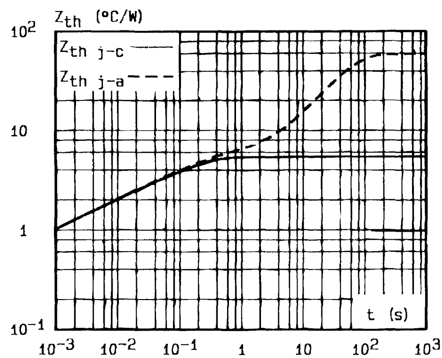


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

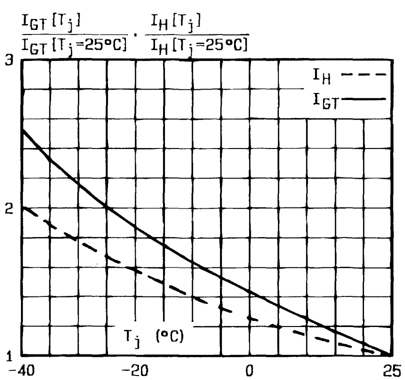


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

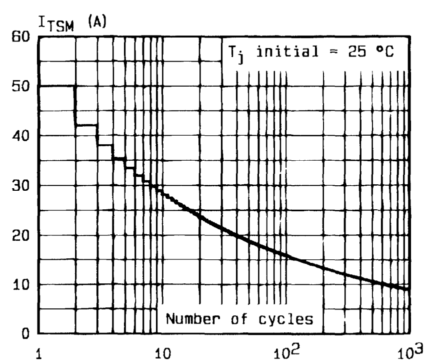


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

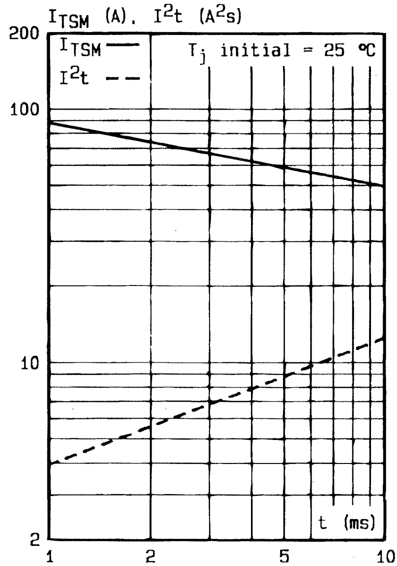


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

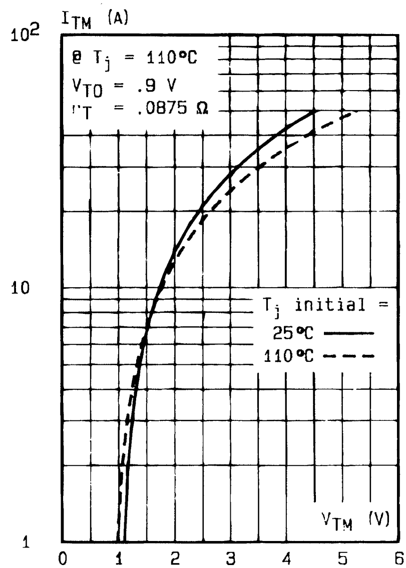
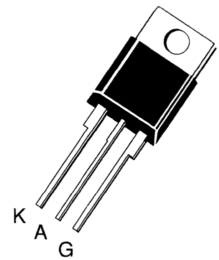


Fig.8 - On-state characteristics (maximum values).

TYS 606-05 → 8
TYS 607-05 → 8

SENSITIVE GATE THYRISTORS

- OPERATES DIRECTLY FROM LOW SIGNAL
- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



TO 220 AB
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T\,(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	6	A
$I_{T\,(AV)}$	Mean on-state Current (1)	T_c = 75 °C	3.8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TYS606-.. or TYS607-..						Unit
		05	1	2	4	6	8	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 5 mA dI_G/dt = 1 A/µs.
(4) T_j = 110 °C R_{GK} = 1 KΩ.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\,(j-c)}$	Junction-case for DC	5.5	°C/W
$R_{th\,(j-a)}$	Junction-ambient	60	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs) I_{FGM} = 2 A (t_p = 20 µs) V_{RGM} = 5 V
$P_{G\,(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

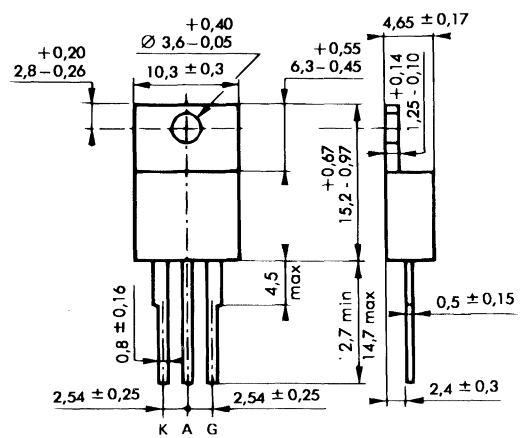
ELECTRICAL CHARACTERISTICS

Symbol	Types	Test Conditions		Min.	Typ.	Max.	Unit
I_{GT}	TYS606	T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs				0.2	mA
	TYS607					0.5	
V_{GT}		T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs				1.5	V
V_{GD}		T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ R_{GK} = 1 kΩ		0.1			V
I_H		T_j = 25 °C I_T = 50 mA R_{GK} = 1 kΩ				6	mA
I_L		T_j = 25 °C V_D = 12 V I_G = 10 mA Pulse Duration > 20 µs R_{GK} = 1 kΩ			10		mA
V_{TM}		T_j = 25 °C I_{TM} = 12 A t_p = 10 ms				1.85	V
I_{DRM}		V_{DRM} specified R_{GK} = 1 kΩ	T_j = 25 °C			0.01	mA
			T_j = 110 °C			0.5	
I_{RRM}		V_{RRM} specified R_{GK} = 1 kΩ	T_j = 25 °C			0.01	mA
			T_j = 110 °C			0.5	
t_{gt}		T_j = 25 °C V_D = V_{DRM} I_T = 12 A I_G = 10 mA di_G/dt = 0.15 A/µs			1.5		µs
t_q		T_j = 110 °C I_T = 12 A V_R = 24 V V_D = 67 % V_{DRM} di/dt = 10 A/µs dv/dt = 10 V/µs R_{GK} = 1 kΩ			100		µs
dv/dt*		T_j = 110 °C R_{GK} = 1 kΩ Linear Slope up to V_D = 67 % V_{DRM}			10		V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



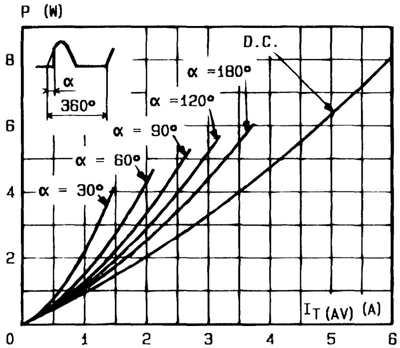


Fig.1 - Maximum mean power dissipation versus mean on-state current.

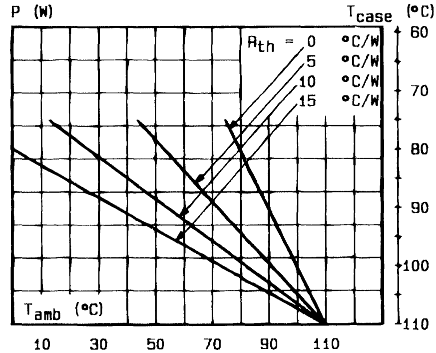


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

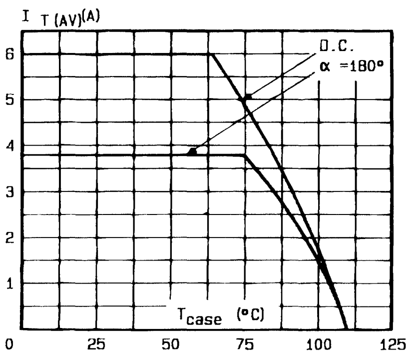


Fig.3 - Mean on-state current versus case temperature.

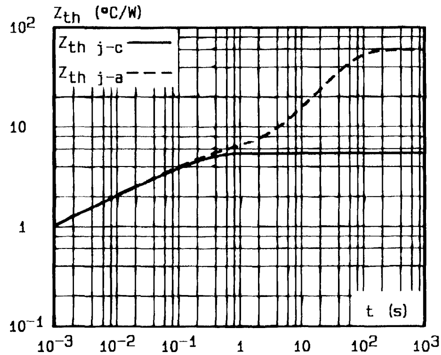


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

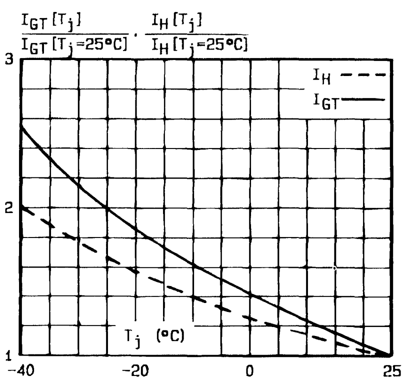


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

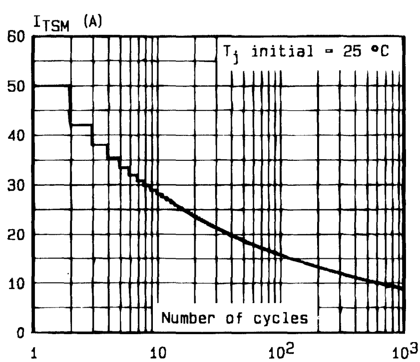


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

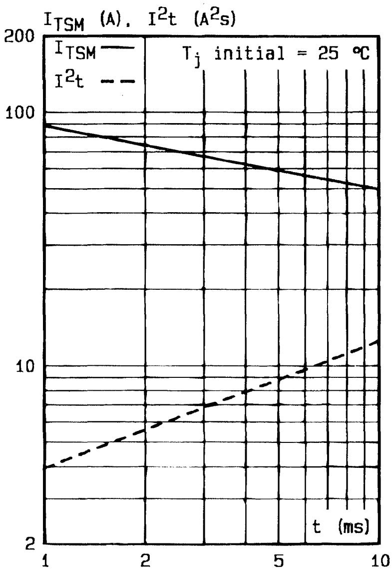


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

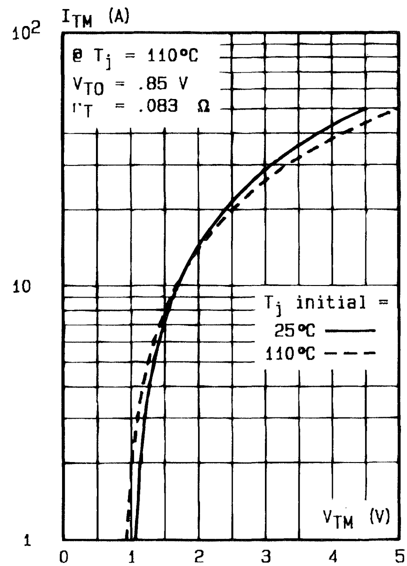


Fig.8 - On-state characteristics (maximum values).

TRIAC DATASHEETS

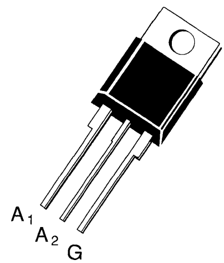
BTA 04 GP

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE : 2500 V_{RMS}
- UL RECOGNIZED (E81734)

ADVANTAGES

- I_H < 13 mA
- HIGH SURGE CURRENT : I_{TSM} = 50 A



TO 220 AB
(Plastic)

DESCRIPTION

Insulated triacs specified for light dimmer applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	4	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 110	°C °C

Symbol	Parameter	BTA 04–			Unit
		200GP	400GP	600GP	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	V

(1) I_G = 750 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	8.7	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	6.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G (AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

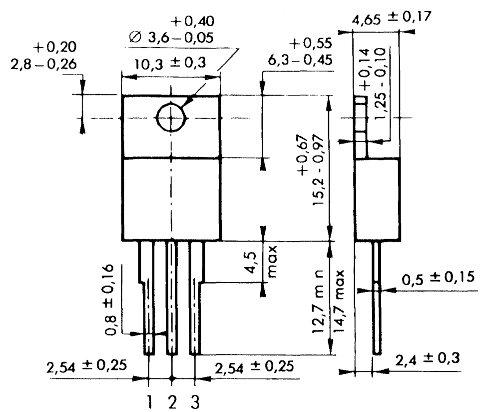
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III		15	50	mA
		IV		25	75	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				13	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 150 mA Pulse Duration > 20 µs	I-III-IV		25		mA
		II		50		
V_{TM}*	T_j = 25 °C I_{TM} = 5.5 A t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		10			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 5.5 A $(di/dt)_c$ = 1.8 A/ms			1		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 5.5 A I_G = 100 mA di_G/dt = 1 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A_1 A_2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

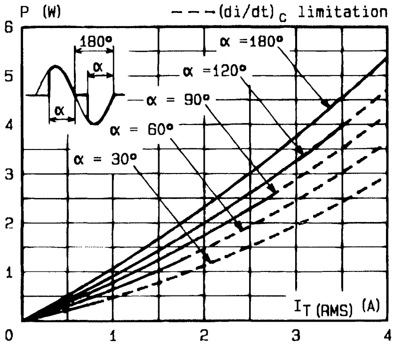


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

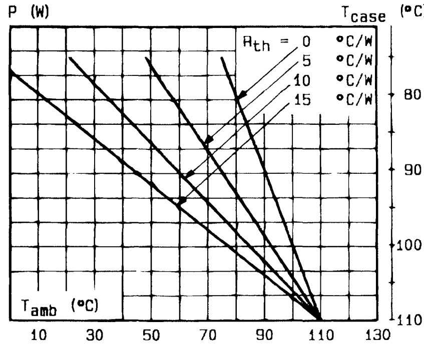


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

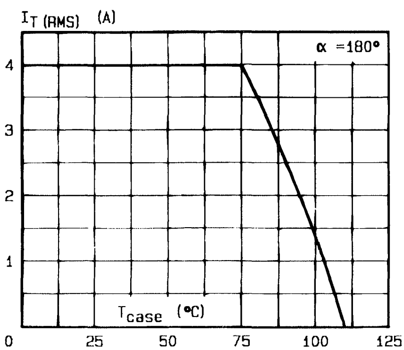


Fig.3 - RMS on-state current versus case temperature.

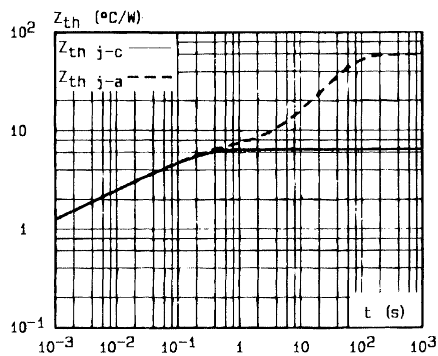


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

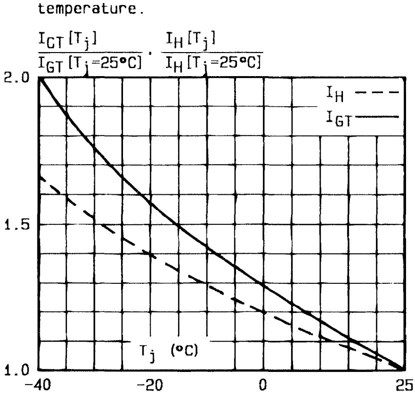


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

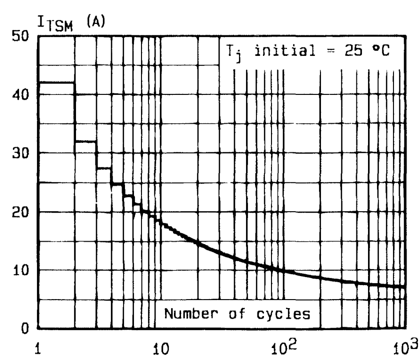


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

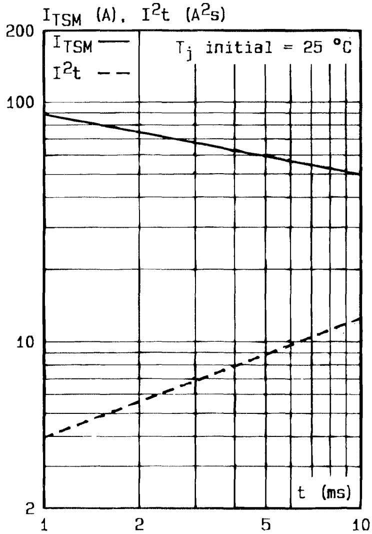


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

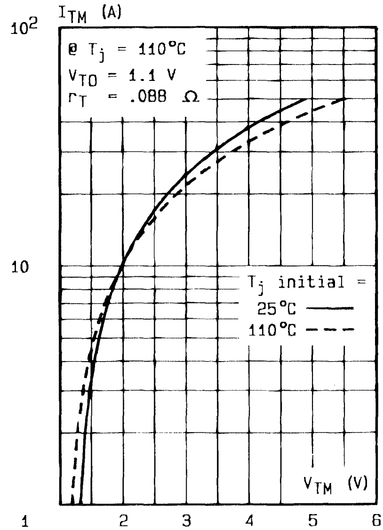
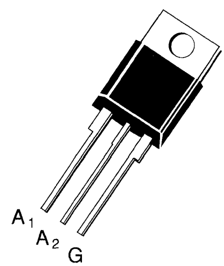


Fig.8 - On-state characteristics (maximum values).

BTA 06 AW

SNUBBERLESS TRIACS

- I_{TRMS} = 6 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 60 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 8 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t value	t = 10 ms	18	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		– 40, + 150 – 40, + 125	°C °C

Symbol	Parameter	BTA 06-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G/dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	4.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\,(AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III			75	mA
		II			150	
V_{TM} *	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		8	16		A / ms
t_{gt}	T_j = 25 °C di_G/dt =3.5 A/µs I_G = 500 mA I_T = 8.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

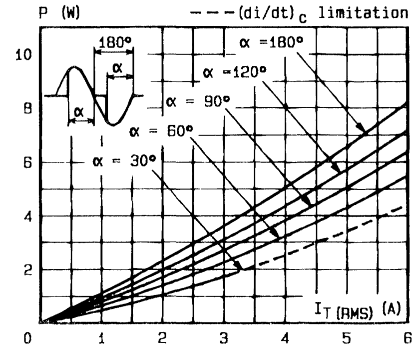


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

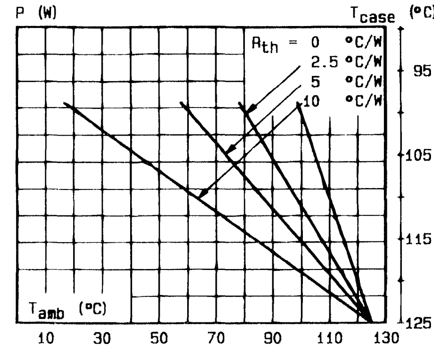


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

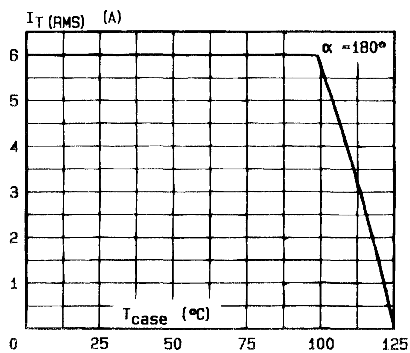


Fig.3 - RMS on-state current versus case temperature.

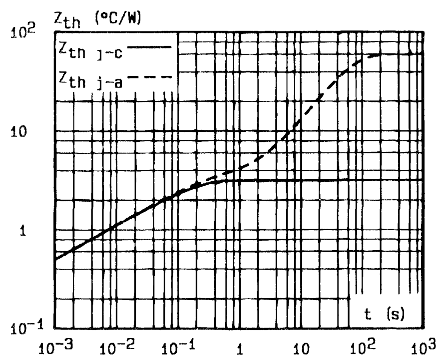


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

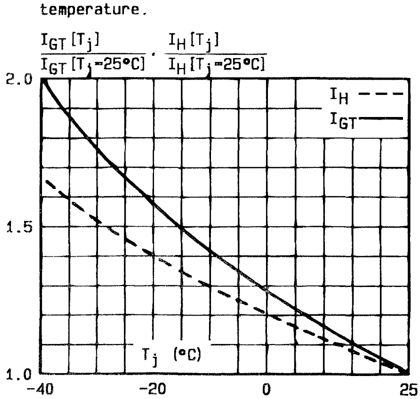


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

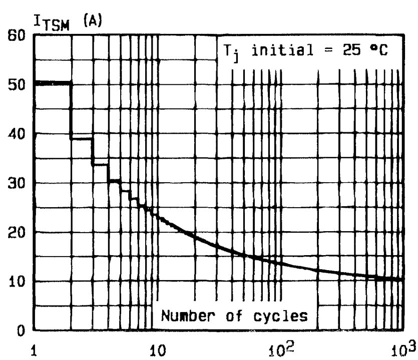


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

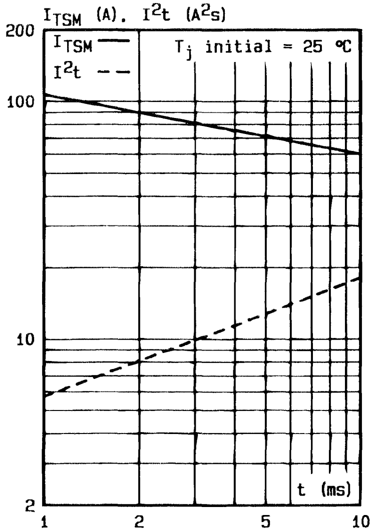


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms. and corresponding value of I^2t.

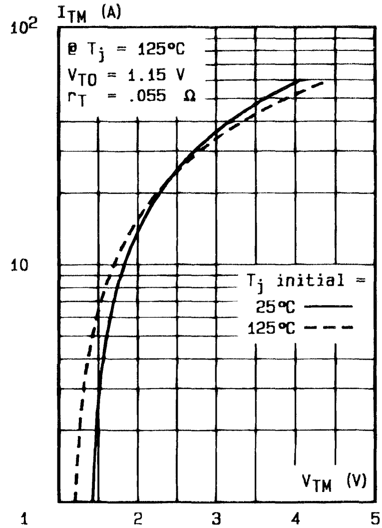
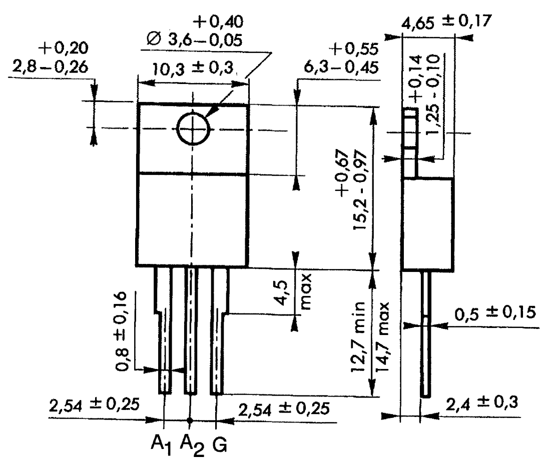


Fig.8 - On-state characteristics (maximum values).

D88BTA06ABCWP4

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

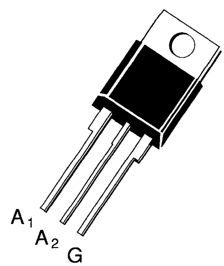


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTA 06 BW

SNUBBERLESS TRIACS

- I_{TRMS} = 6 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 60 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 5 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t value	t = 10 ms	18	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 06-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – di_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	4.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM} *	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		5	10		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 8.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

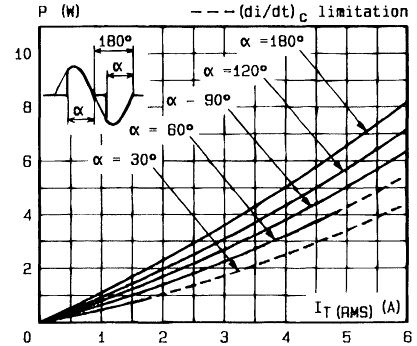


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

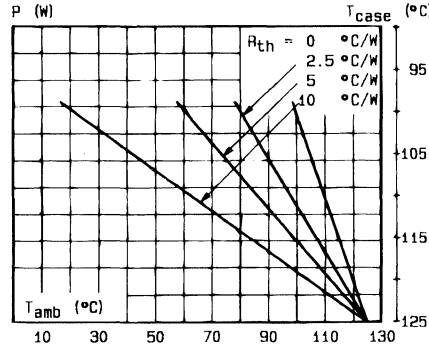


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

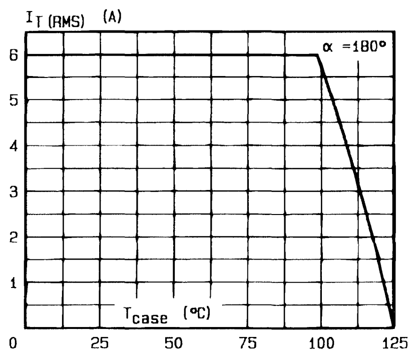


Fig.3 - RMS on-state current versus case temperature.

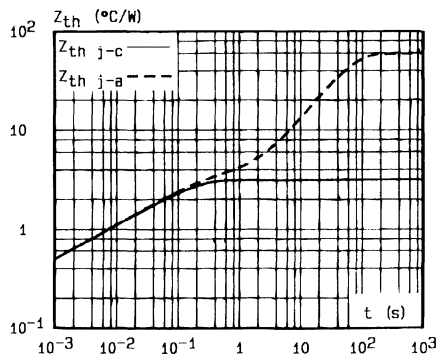


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

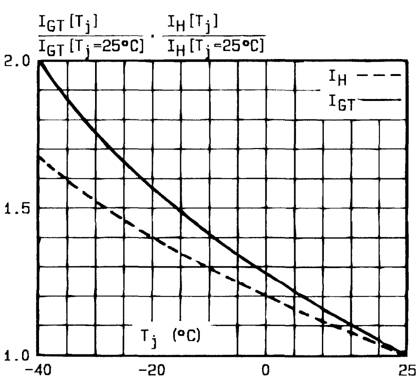


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

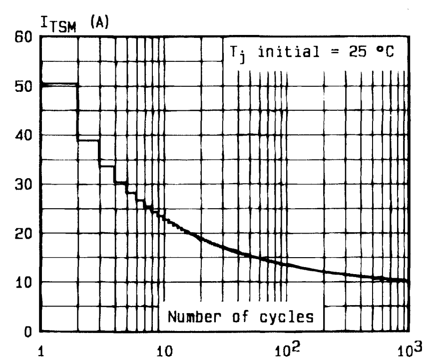


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

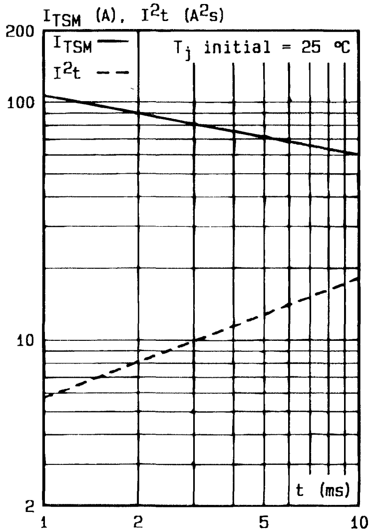


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

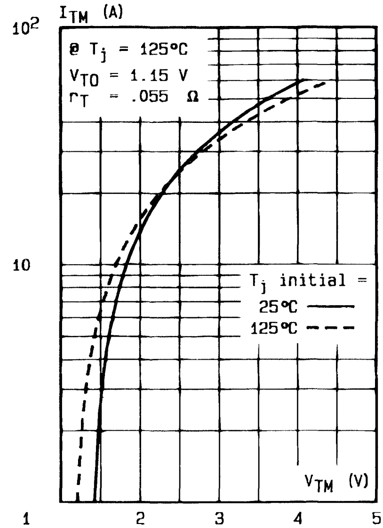
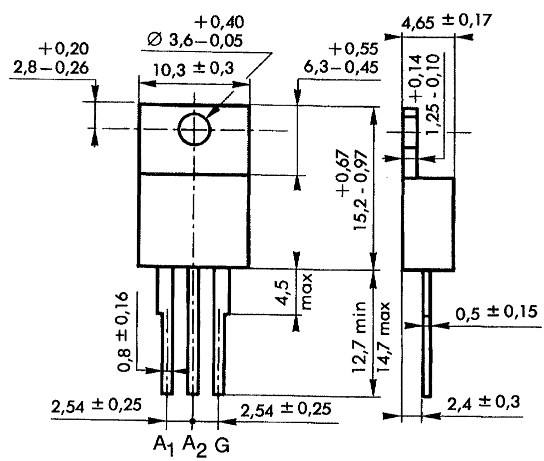


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

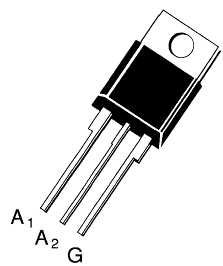


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTA 06 CW

SNUBBERLESS TRIACS

- I_{TRMS} = 6 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 60 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 3.5 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t value	t = 10 ms	18	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 06-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\,(j-a)}$	Junction to ambient	60	°C/W
$R_{th\,(j-c)}$ DC	Junction to case for DC	4.3	°C/W
$R_{th\,(j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\,(AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM}*	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.75	V
I_{DRM}*	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
$(di/dt)_c$*	T_j = 125 °C V_{DRM} rated Without snubber		3.5	7		A / ms
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 350 mA I_T = 8.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

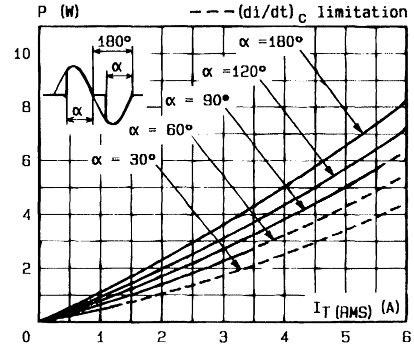


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

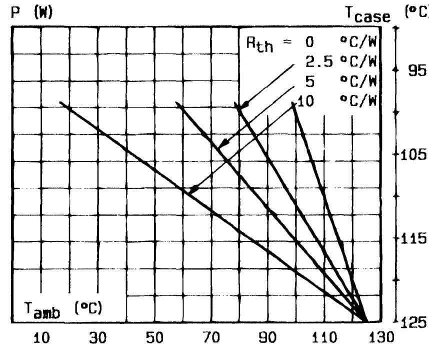


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

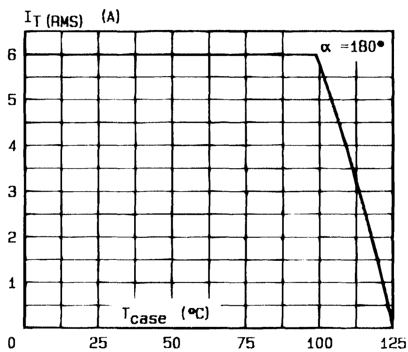


Fig.3 - RMS on-state current versus case temperature.

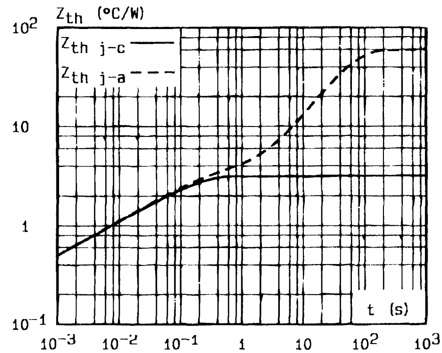


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

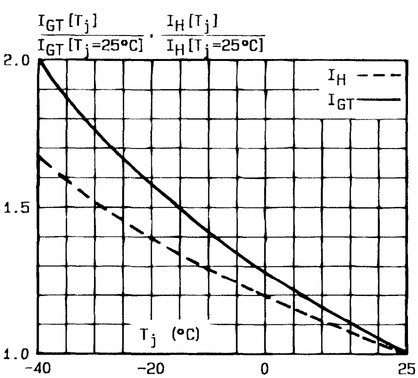


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

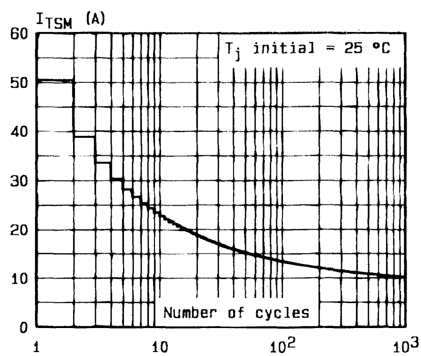


Fig 6 - Non repetitive surge peak on-state current versus number of cycles.

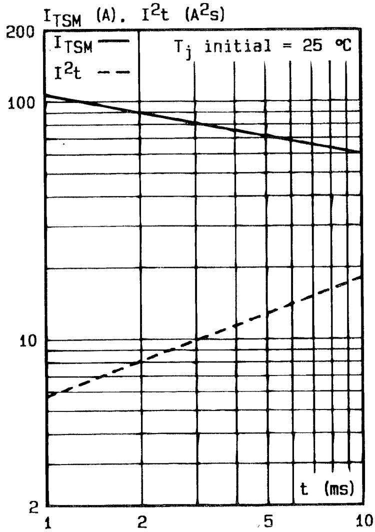


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

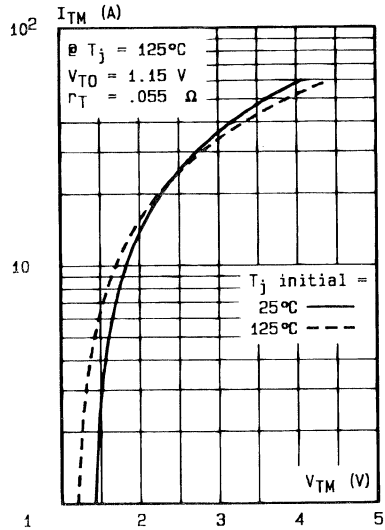
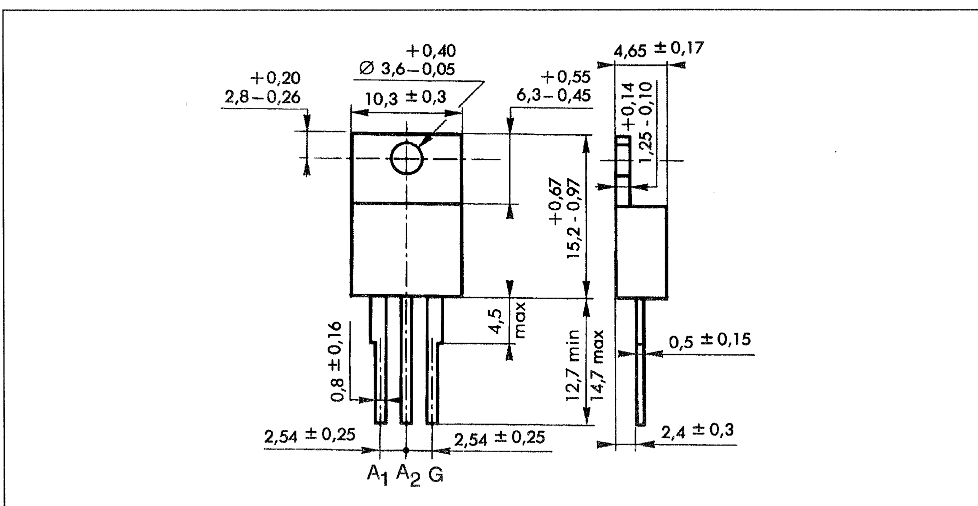


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

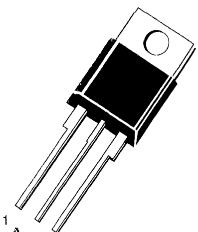
BTA 06 GP

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE : 2500 V_{RMS}
- UL RECOGNIZED (E81734)

ADVANTAGES

- I_H < 13 mA
- HIGH SURGE CURRENT : I_{TSM} = 100 A



TO 220 AB
(Plastic)

DESCRIPTION

Insulated triacs specified for light dimmer applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 85 °C	6	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t Value for Fusing	t = 10 ms	50	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 110	°C °C

Symbol	Parameter	BTA 06–			Unit
		200GP	400GP	600GP	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	V

(1) I_G = 750 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	5.1	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	3.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

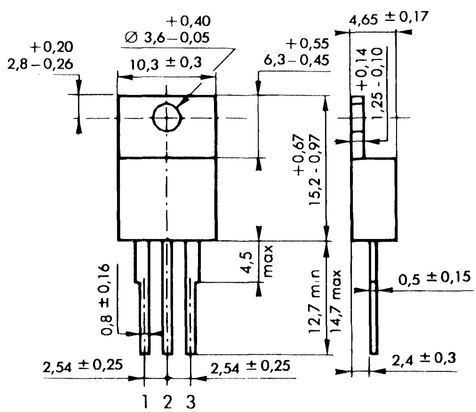
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III		15	50	mA
				IV		25	75	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				13	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 150 mA	I-III-IV		25		mA
				II		50		
V_{TM}*	T_j = 25 °C	I_{TM} = 8.5 A	t_p = 10 ms				1.4	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			30	100		V/µs
(dv/dt)$_c$*	T_C = 85 °C (di/dt)$_c$ = 1.8 A/ms	V_D = V_{DRM}	I_T = 8.5 A		1	10		V/µs
t_{gt}	T_j = 25 °C I_G = 100 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 8.5 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A_1 A_2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

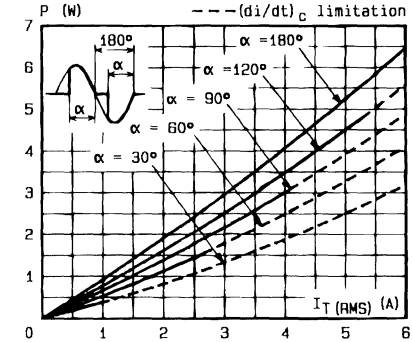


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

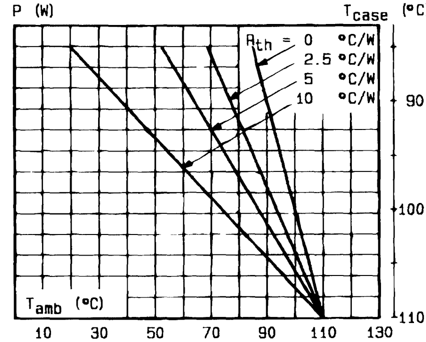


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

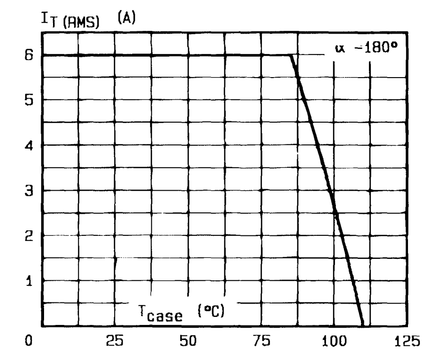


Fig.3 - RMS on-state current versus case temperature.

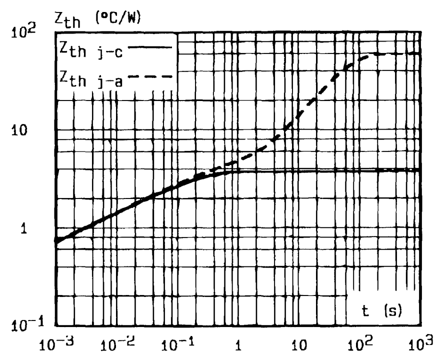


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

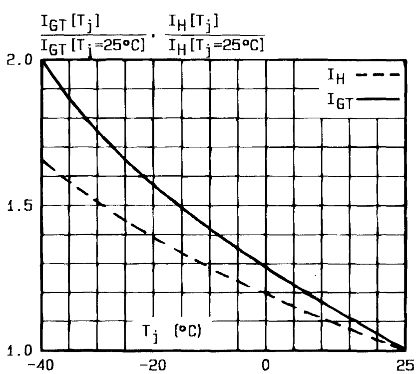


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

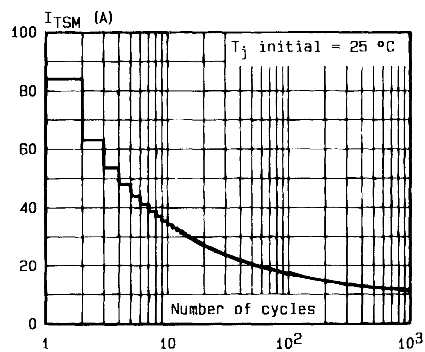


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

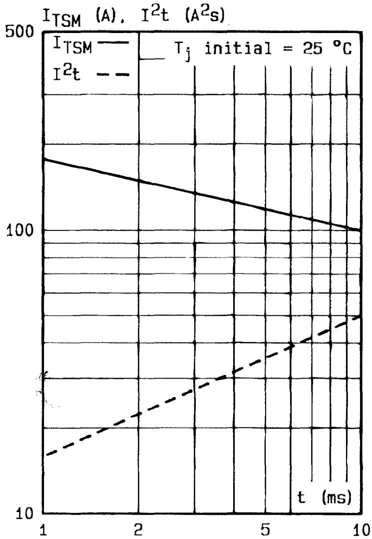


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

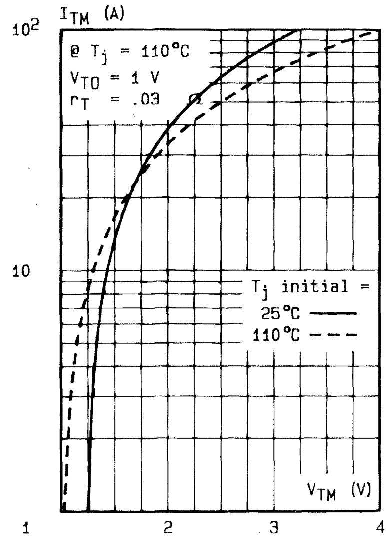


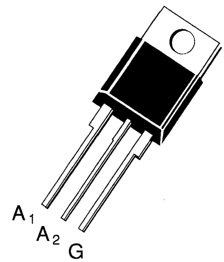
Fig.8 - On-state characteristics (maximum values)

SGS-THOMSON MICROELECTRONICS

BTA 08 AW

SNUBBERLESS TRIACS

- I_{TRMS} = 8 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 80 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 10 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	85	A
		t = 10 ms	80	
I^2t	I^2t value	t = 10 ms	32	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 08-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$ $R_{th(j-c)}$ DC $R_{th(j-c)}$ AC	Junction to ambient Junction to case for DC Junction to case for 360 ° conduction angle (F = 50 Hz)	60 4.3 3.2	°C/W °C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G(AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		75		mA
		II		150		
V_{TM} *	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		10	20		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

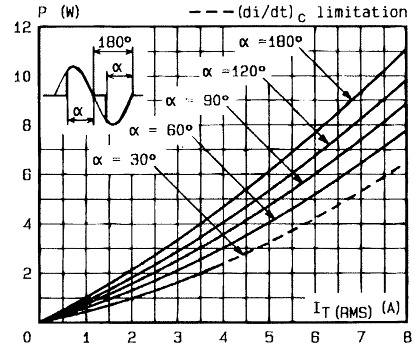


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

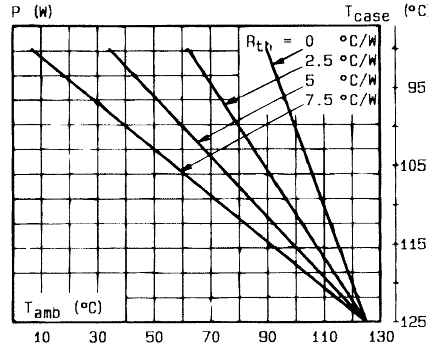


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

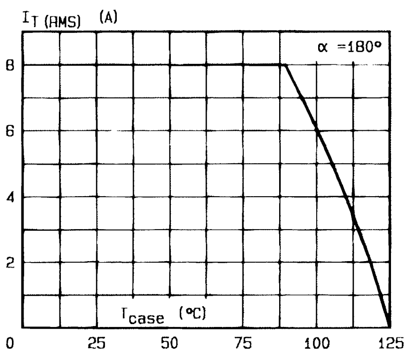


Fig.3 - RMS on-state current versus case temperature.

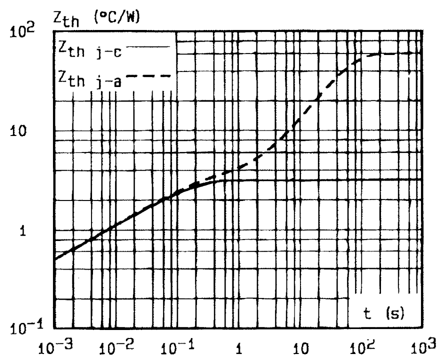


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

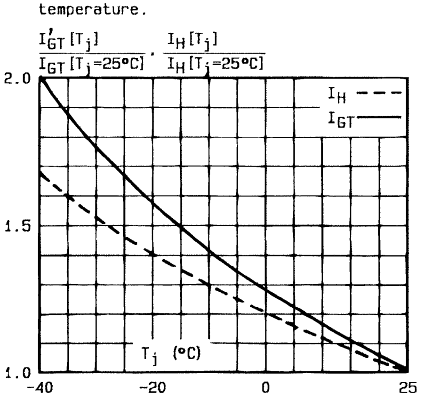


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

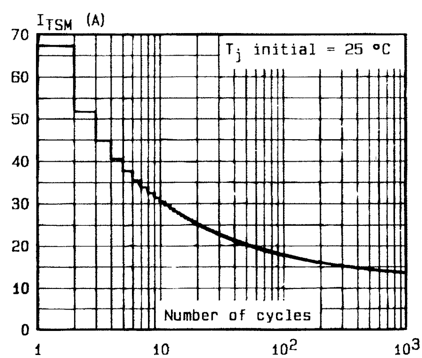


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

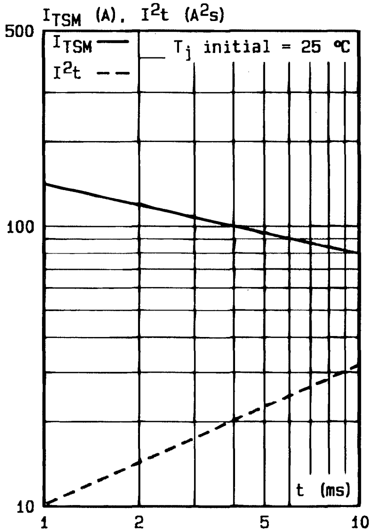


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

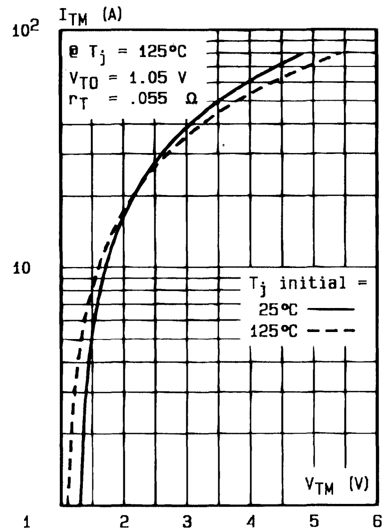
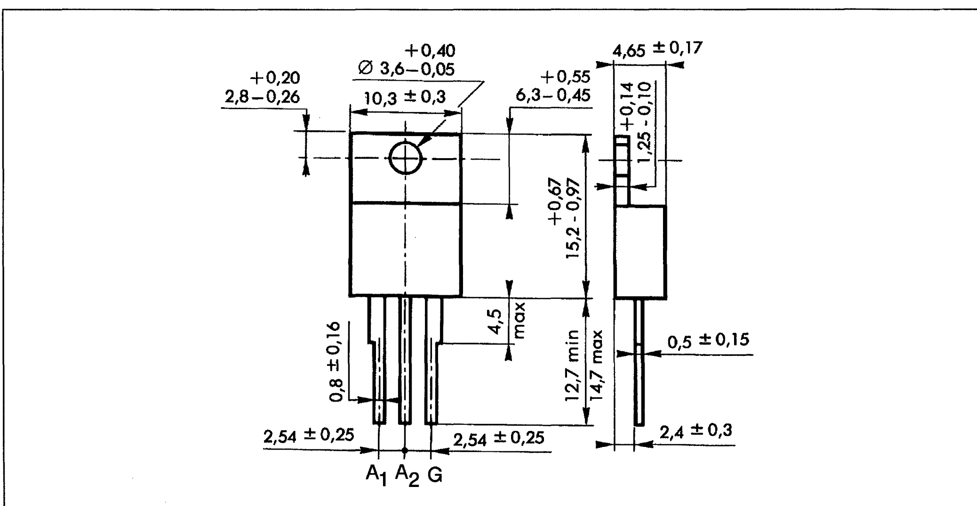


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

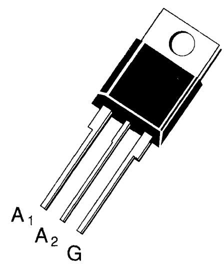


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTA 08 BW

SNUBBERLESS TRIACS

- I_{TRMS} = 8 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 80 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 7 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	85	A
		t = 10 ms	80	
I^2t	I^2t value	t = 10 ms	32	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 08-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	4.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM} *	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
(di/dt) $_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		7	14		A/ms
t_{gt}	T_j = 25 °C dI_G/dt = 3.5 A/µs I_G = 500 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

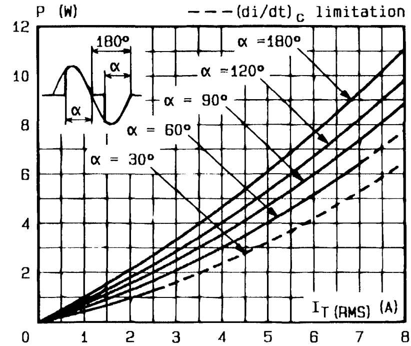
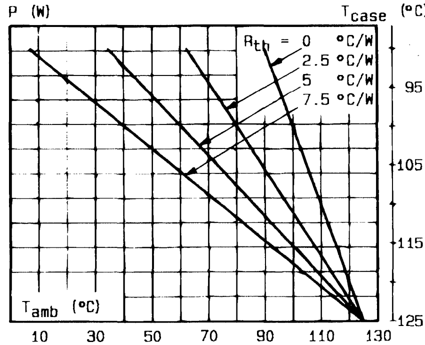


Fig.1 – Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).



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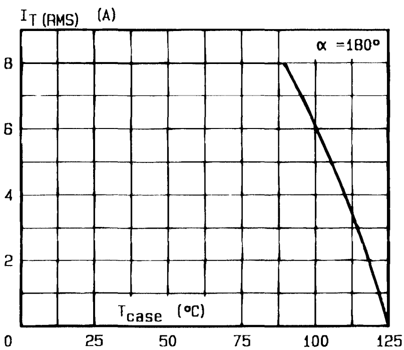


Fig.3 – RMS on-state current versus case temperature.

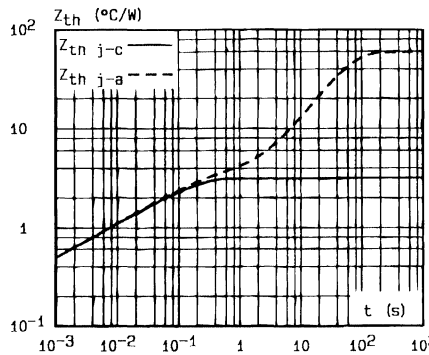


Fig.4 – Thermal transient impedance junction to case and junction to ambient versus pulse duration.

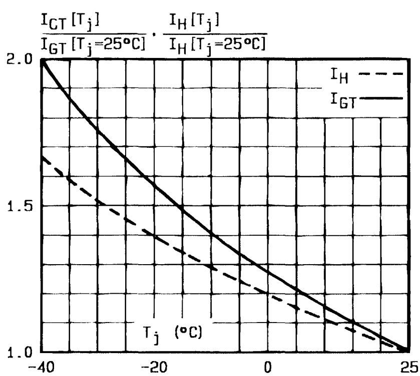


Fig.5 – Relative variation of gate trigger current and holding current versus junction temperature.

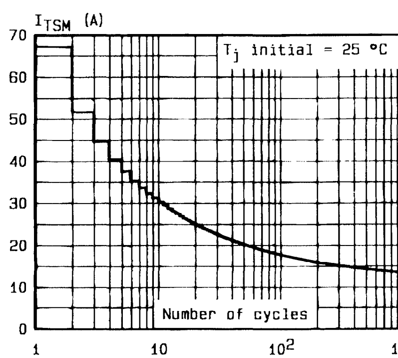


Fig.6 – Non repetitive surge peak on-state current versus number of cycles.

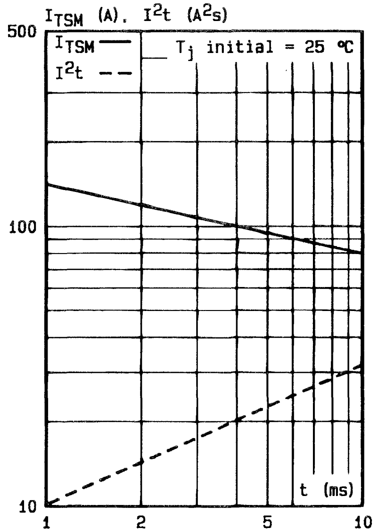


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

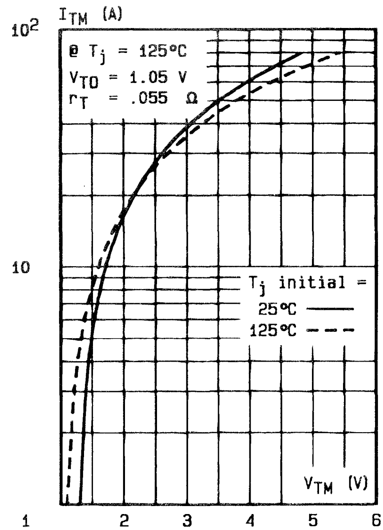
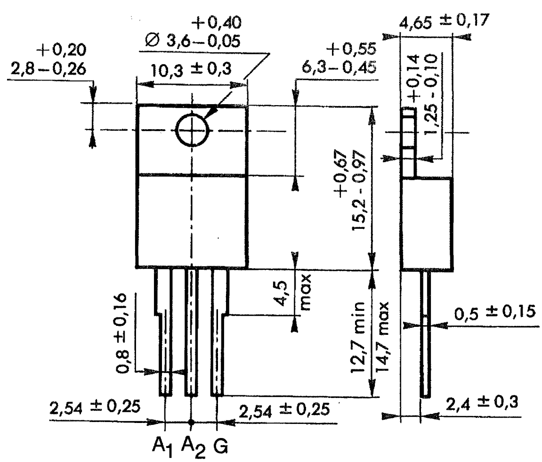


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

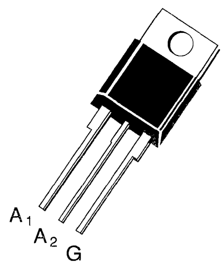
SGS-THOMSON MICROELECTRONICS

SGS-THOMSON
MICROELECTRONICS

BTA 08 CW

SNUBBERLESS TRIACS

- I_{TRMS} = 8 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 80 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 4.5 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	85	A
		t = 10 ms	80	
I^2t	I^2t value	t = 10 ms	32	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 08-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G/dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	4.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM} *	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		4.5	9		A/ms
t_{gt}	T_j = 25 °C dI_G/dt = 1 A/µs I_G = 350 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

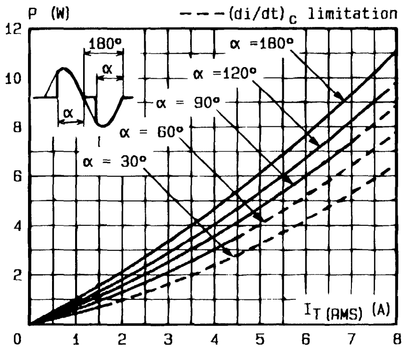


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

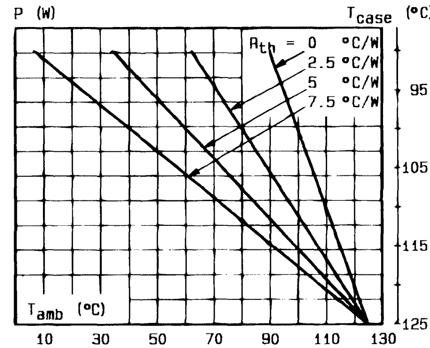


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

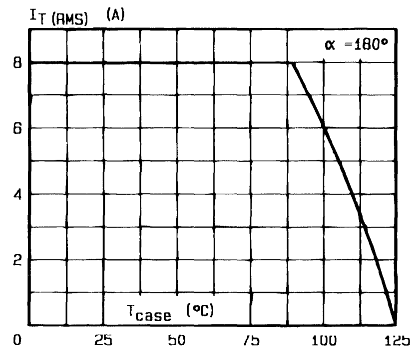


Fig.3 - RMS on-state current versus case temperature.

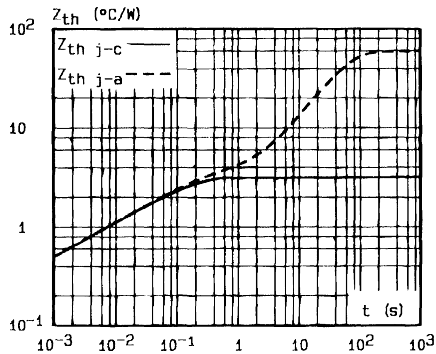


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

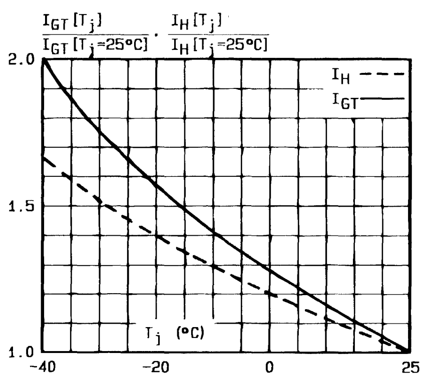


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

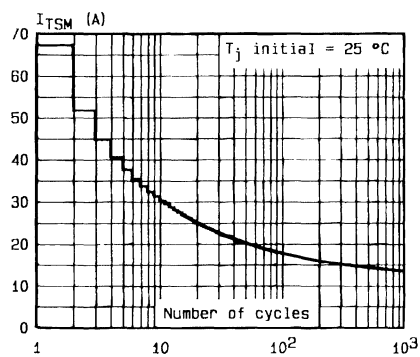


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

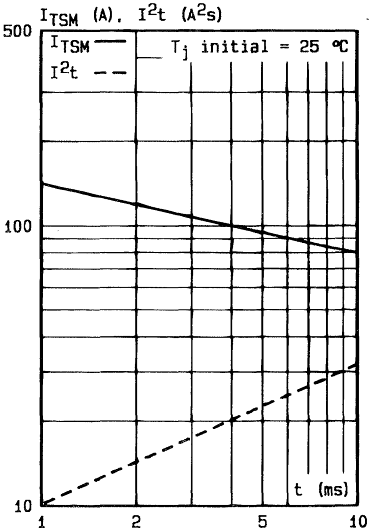


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

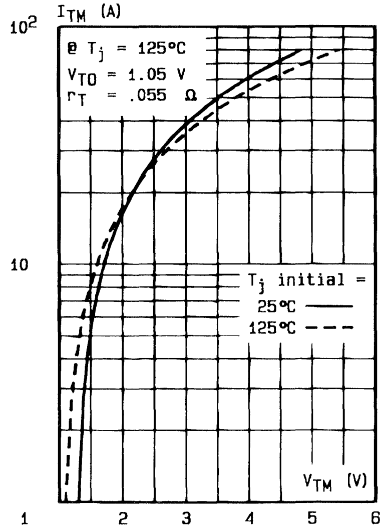
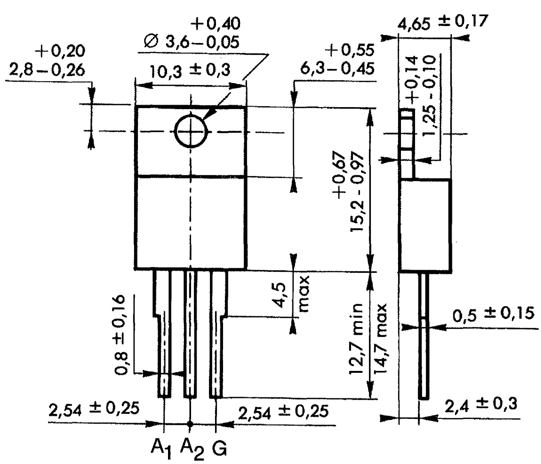


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



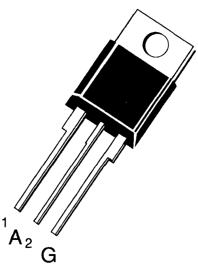
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

BTA 10 AW

SNUBBERLESS TRIACS

- I_{TRMS} = 10 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 100 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 12 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	10	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t value	t = 10 ms	50	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 10-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		75		mA
		II		150		
V_{TM} *	T_j = 25 °C I_{TM} = 14 A t_p = 10 ms				1.65	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		12	24		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 14 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

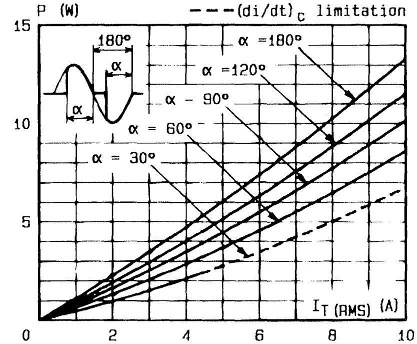


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

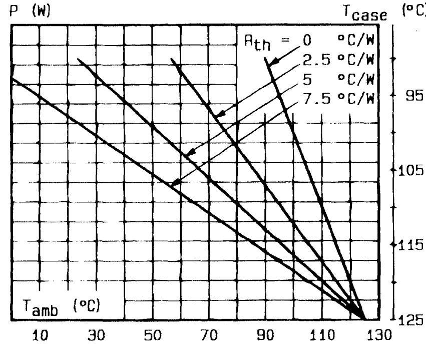


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

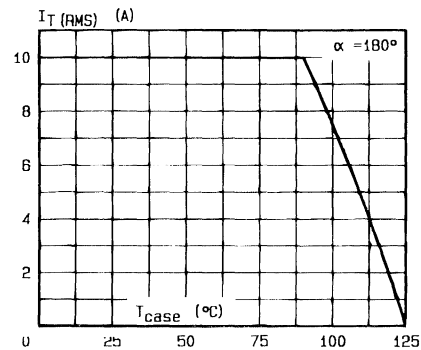


Fig.3 - RMS on-state current versus case temperature.

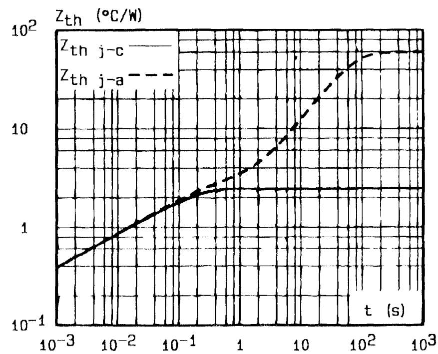


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

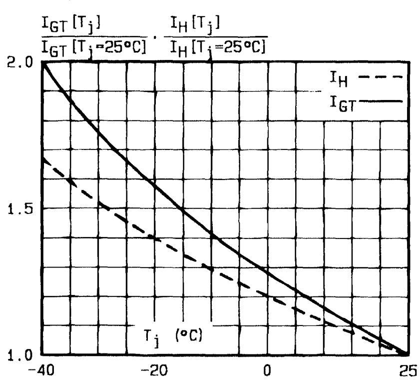


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

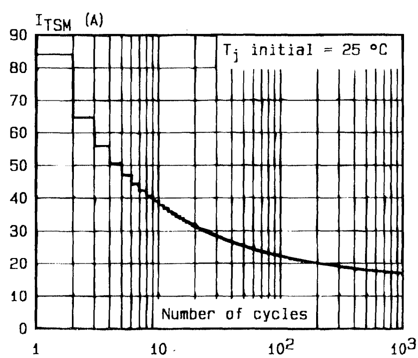


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

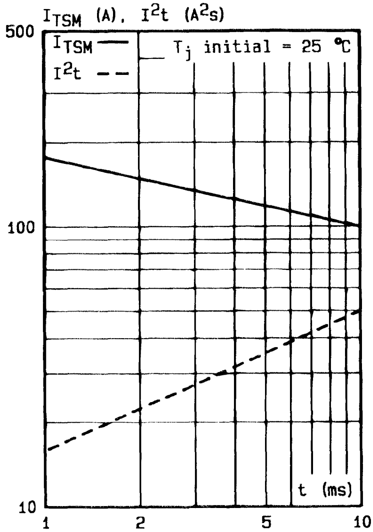


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

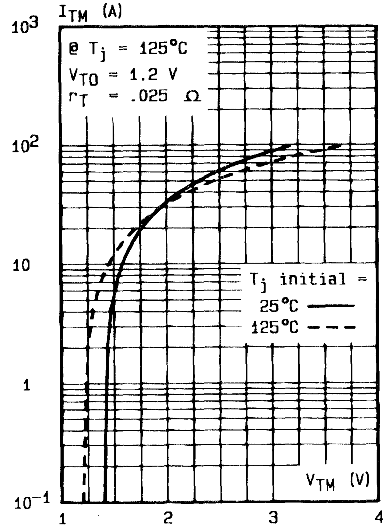
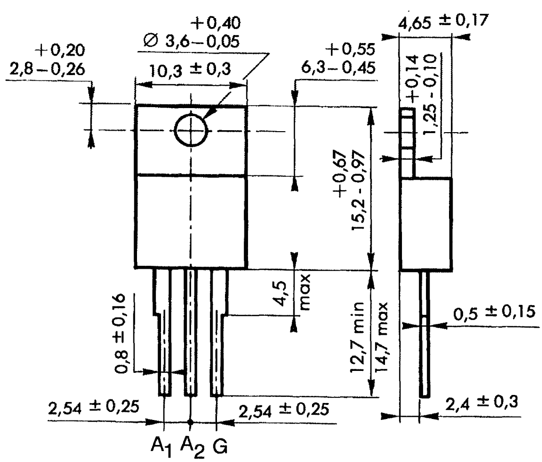


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

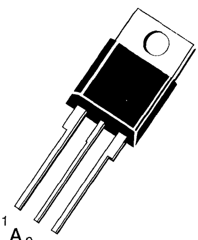
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 10 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 100 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 9 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	10	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t value	t = 10 ms	50	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 10-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.3	°C/W
$R_{th\ j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 14 A t_p = 10 ms				1.65	V
I_{DRM}*	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
$(di/dt)_c$*	T_j = 125 °C V_{DRM} rated Without snubber		9	18		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 14 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

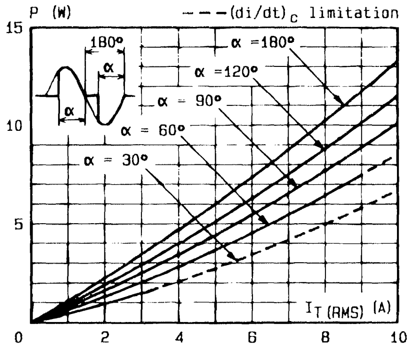


Fig.1 – Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

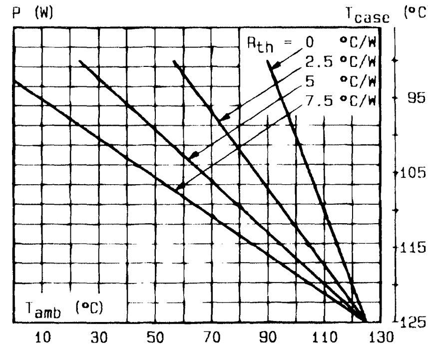


Fig.2 – Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

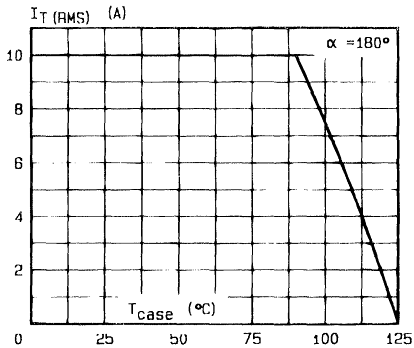


Fig.3 – RMS on-state current versus case temperature.

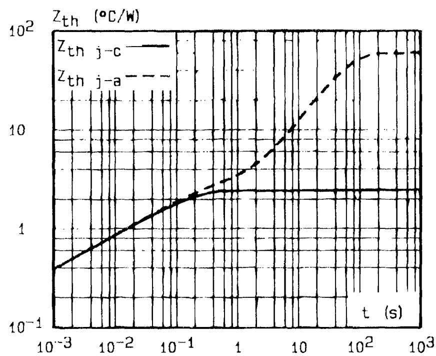


Fig.4 – Thermal transient impedance junction to case and junction to ambient versus pulse duration.

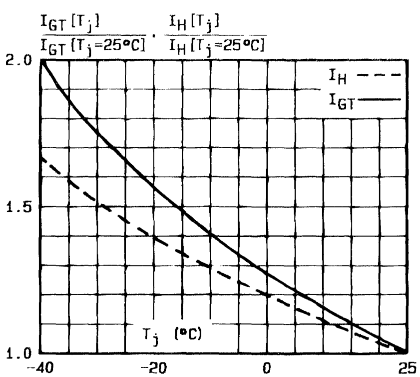


Fig.5 – Relative variation of gate trigger current and holding current versus junction temperature.

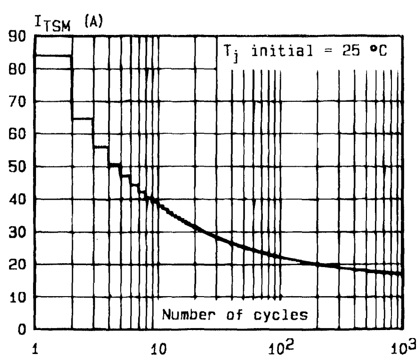


Fig.6 – Non repetitive surge peak on-state current versus number of cycles.

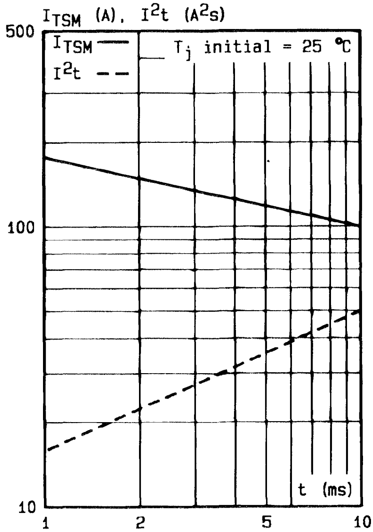


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

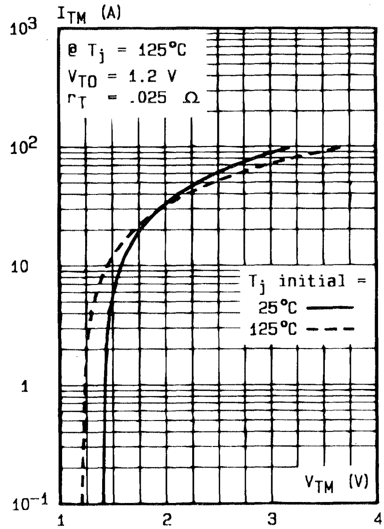
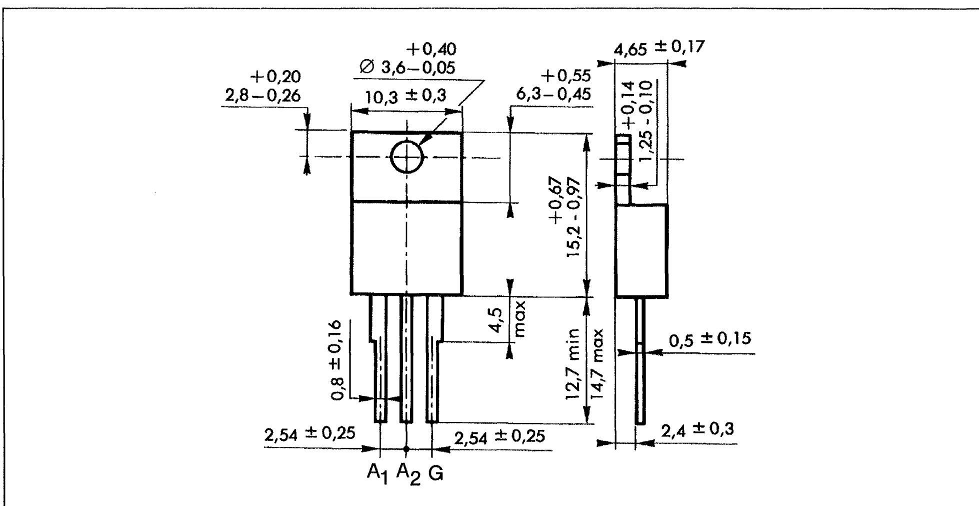


Fig.8 - On-state characteristics (maximum values) .

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



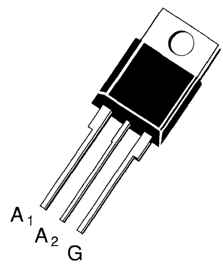
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

BTA 10 CW

SNUBBERLESS TRIACS

- I_{TRMS} = 10 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 100 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 5.5 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	10	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t value	t = 10 ms	50	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 10-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM} *	T_j = 25 °C I_{TM} = 14 A t_p = 10 ms				1.65	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		5.5	11		A/ms
t_{gt}	T_j = 25 °C dI_G/dt = 1 A/µs I_G = 350 mA I_T = 14 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

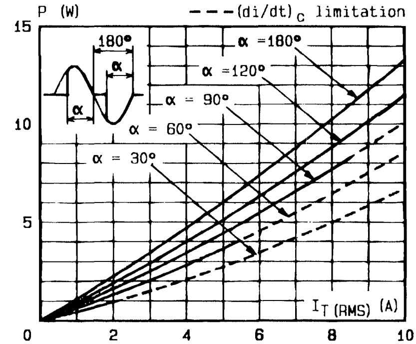


Fig.1 - **Maximum mean power dissipation** versus RMS on-state current (F = 60 Hz).

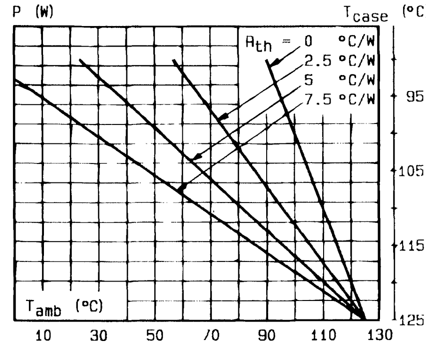


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

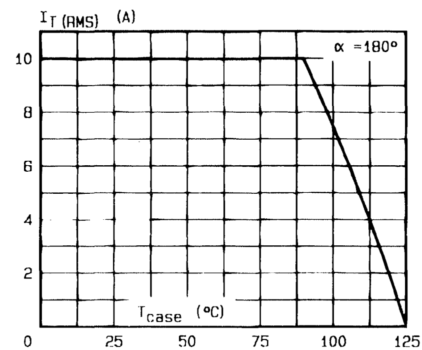


Fig.3 - RMS on-state current versus case temperature.

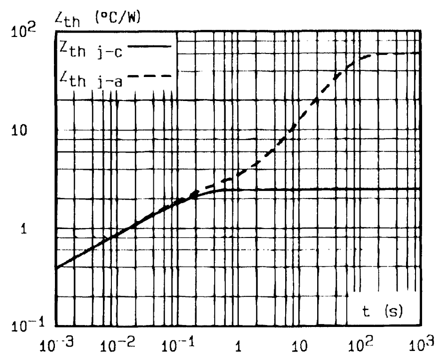


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

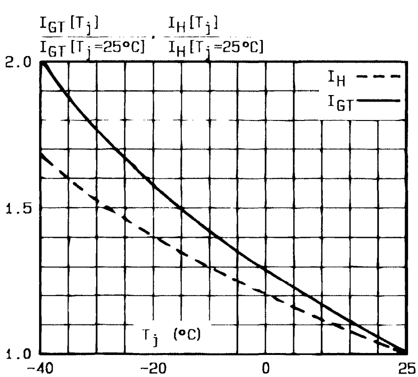


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

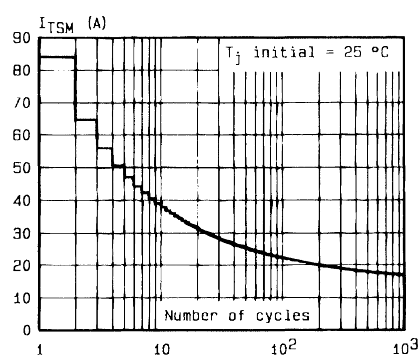


Fig.6 Non repetitive surge peak on state current versus number of cycles.

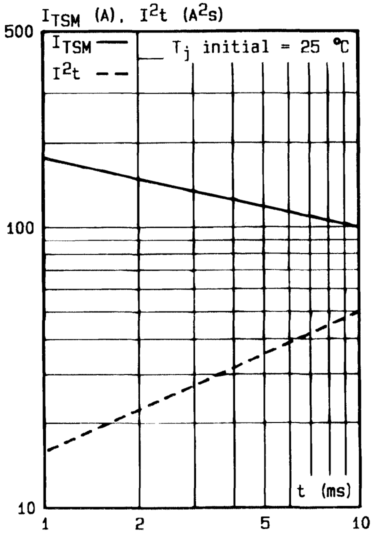


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leqslant 10$ ms, and corresponding value of I^2t.

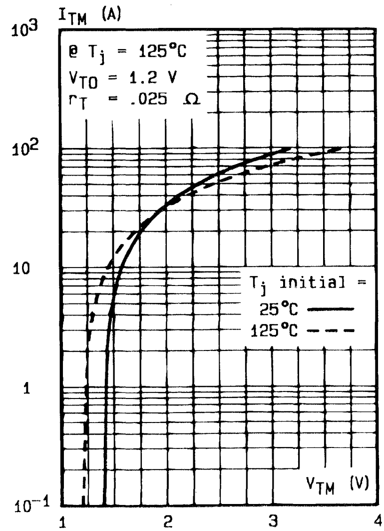
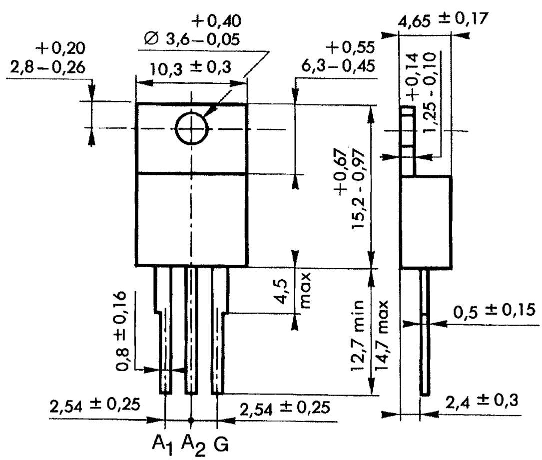


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

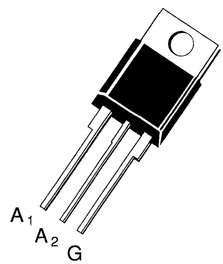


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTA 12 AW

SNUBBERLESS TRIACS

- I_{TRMS} = 12 A at T_c = 85 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 120 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 16 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 85 °C	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	126	A
		t = 10 ms	120	
I^2t	I^2t value	t = 10 ms	72	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 12-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – di_G / dt = 1 A / µs.
(2) T_j = 125°C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		75		mA
		II		150		
V_{TM} *	T_j = 25 °C I_{TM} = 17 A t_p = 10 ms				1.6	V
I_{DRM} *	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		16	32		A/ms
t_{gt}	T_j = 25 °C dI_G/dt = 3.5 A/µs I_G = 500 mA I_T = 17 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

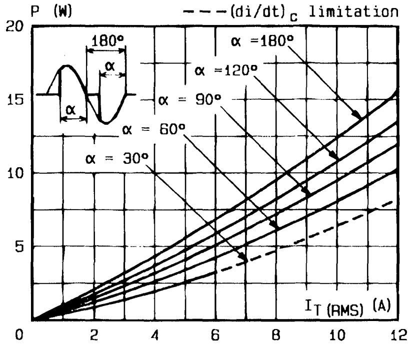


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

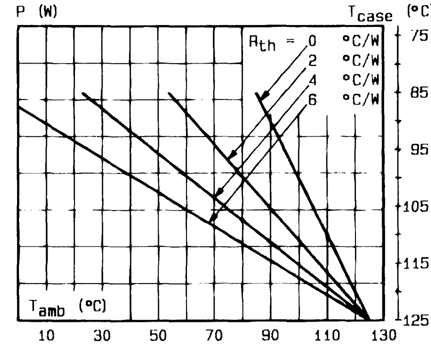


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

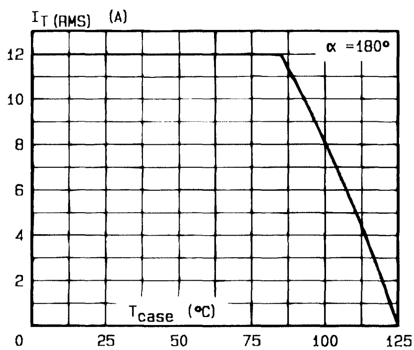


Fig.3 - RMS on-state current versus case temperature.

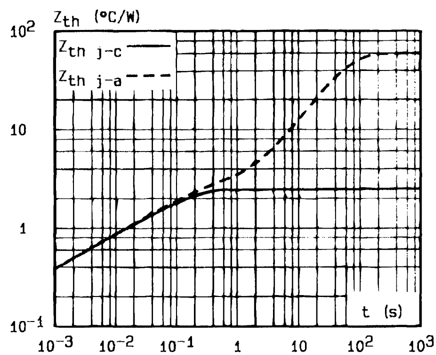


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

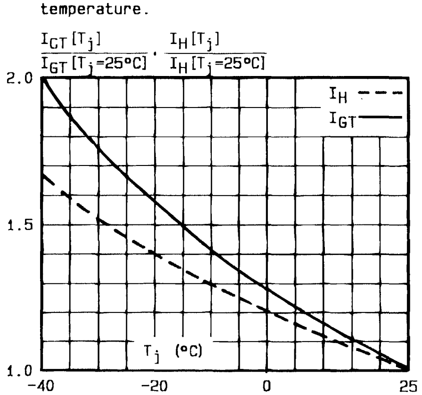


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

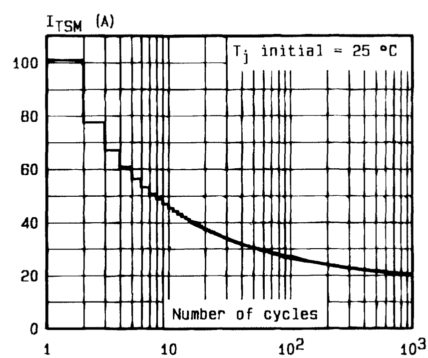


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

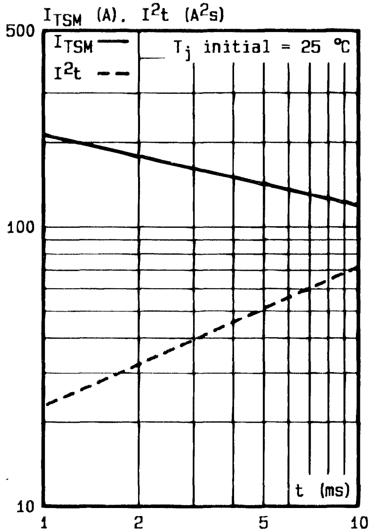


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

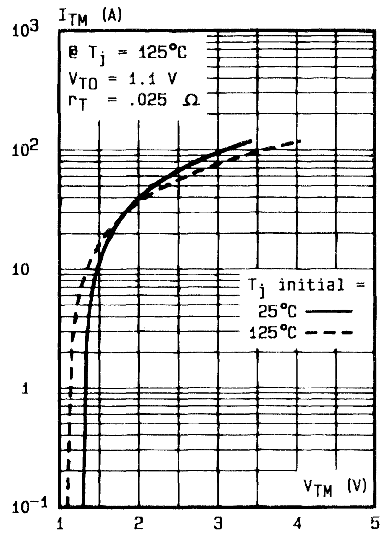
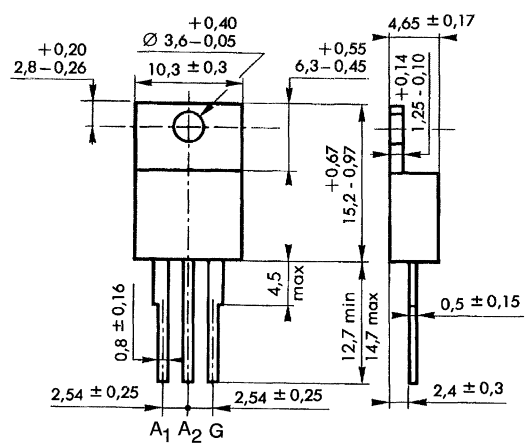


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



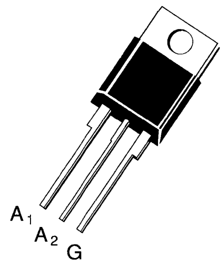
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

BTA 12 BW

SNUBBERLESS TRIACS

- I_{TRMS} = 12 A at T_c = 85 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 120 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 12 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 85 °C	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	126	A
		t = 10 ms	120	
I^2t	I^2t value	t = 10 ms	72	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 12-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			1.5	V
V_{GD}	T_j = 125 °C Pulse duration > 20 µs	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III	0.2			V
I_H *	T_j = 25 °C Gate open	I_T = 100 mA R_L =140 Ω					50	mA
I_L	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	I_G = 500 mA	I-III		50		mA
				II		100		
V_{TM} *	T_j = 25 °C	I_{TM} = 17 A	t_p = 10 ms				1.6	V
I_{DRM} *	T_j = 25 °C	V_{DRM} rated	Gate open				0.01	mA
	T_j = 125 °C						2	
dv/dt *	T_j = 125 °C Linear slope up to 0.67 V_{DRM}	Gate open			500	750		V/µs
$(di/dt)_c$ *	T_j = 125 °C Without snubber	V_{DRM} rated			12	24		A/ms
t_{gt}	T_j = 25 °C I_T = 17 A	di_G/dt = 3.5 A/µs V_D = V_{DRM}	I_G = 500 mA	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

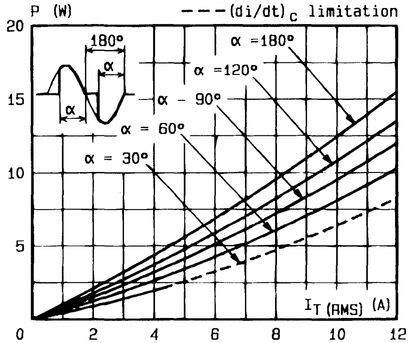


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

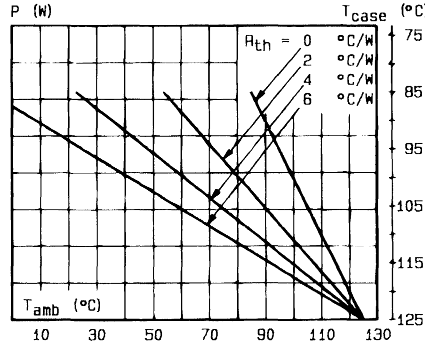


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

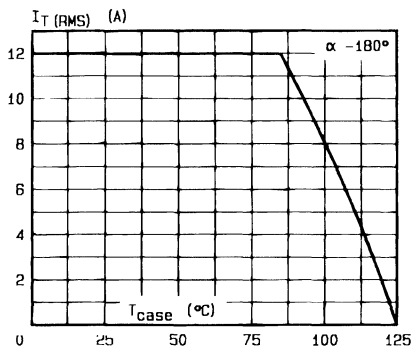


Fig.3 - RMS on-state current versus case temperature.

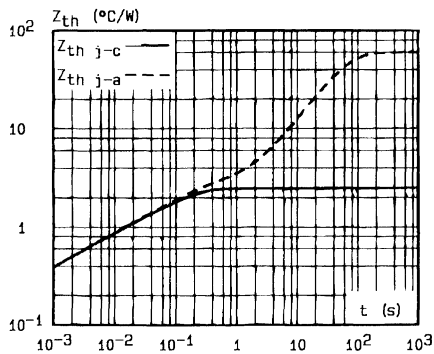


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

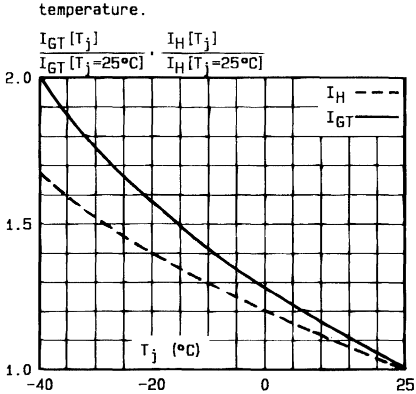


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

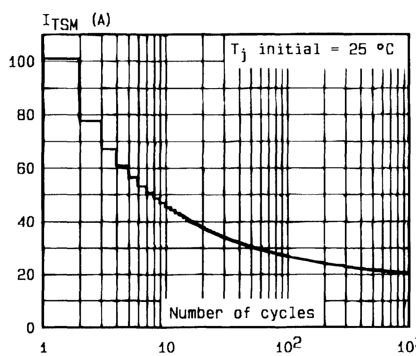


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

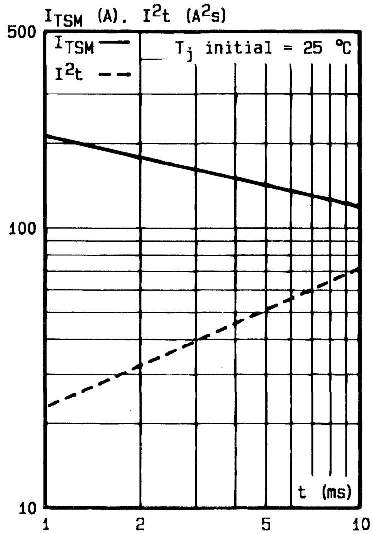


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

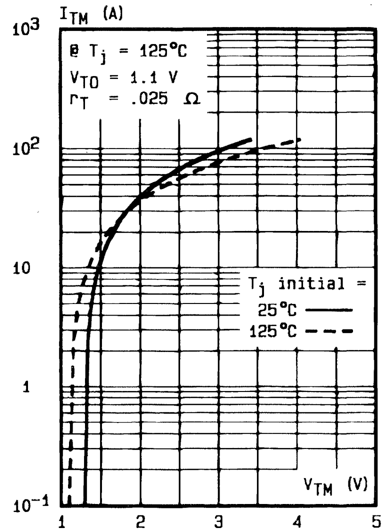
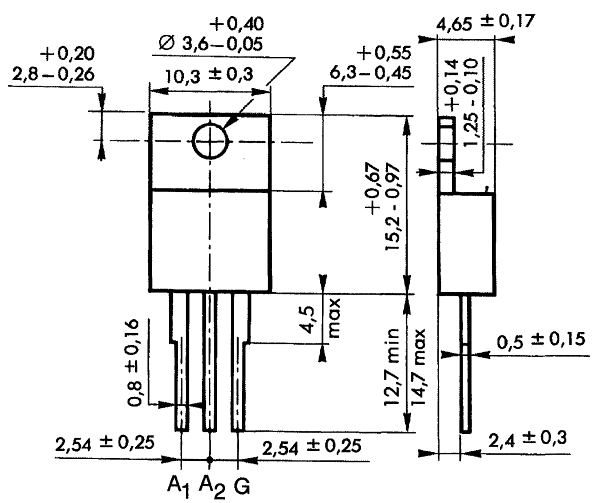


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

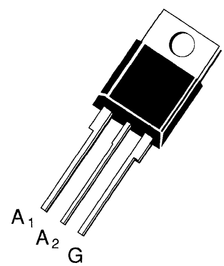


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTA 12 CW

SNUBBERLESS TRIACS

- I_{TRMS} = 12 A at T_c = 85 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 120 A.
- HIGH COMMUTATION CAPABILITY : (di/dt)$_c$ > 6.5 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 85 °C	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	126	A
		t = 10 ms	120	
I^2t	I^2t value	t = 10 ms	72	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 12-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – di_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.3	°C/W
$R_{h\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM} *	T_j = 25 °C I_{TM} = 17 A t_p = 10 ms				1.6	V
V_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		6.5	13		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 350 mA I_T = 17 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

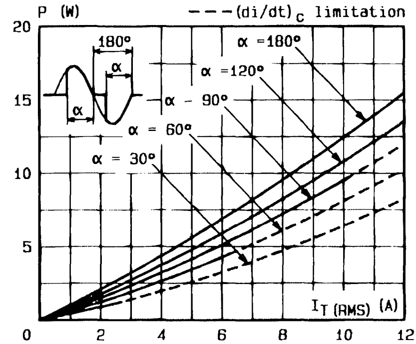


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

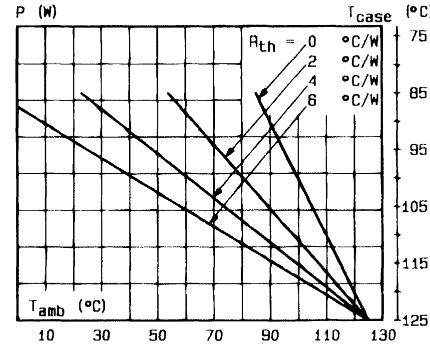


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

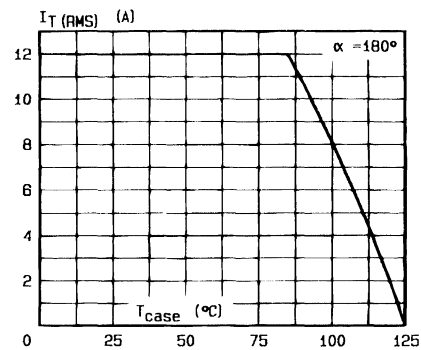


Fig.3 - RMS on-state current versus case temperature.

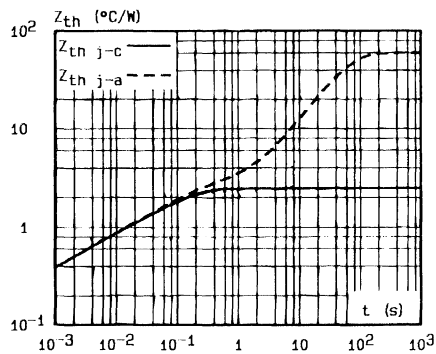


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

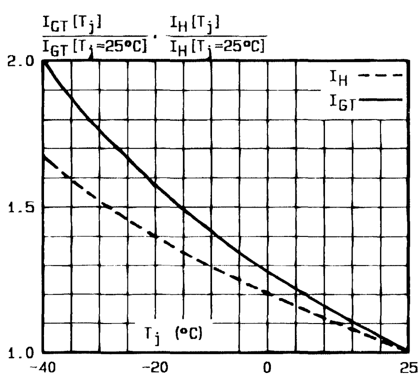


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

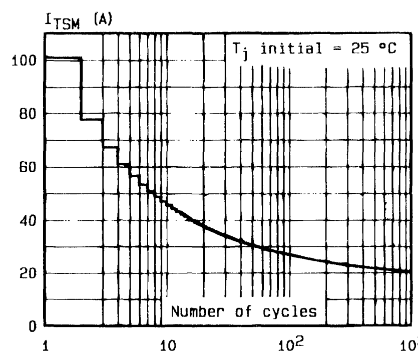


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

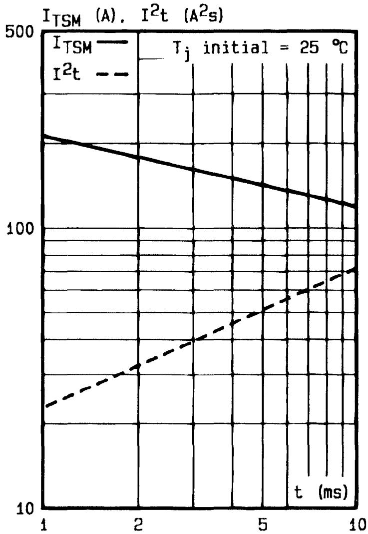


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

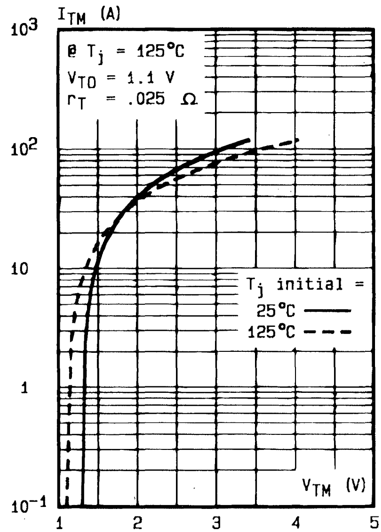
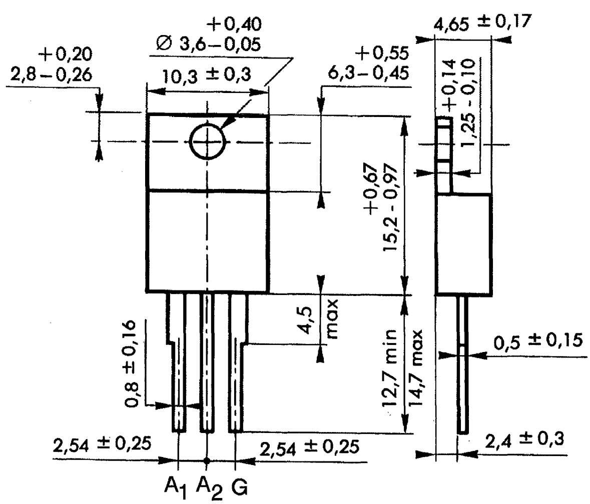


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

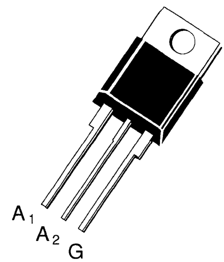
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

TRIACS

- GLASS PASSIVATED CHIP
- INSULATING VOLTAGE : 2500 VRMS
- HIGH CAPACITOR DISCHARGE CURRENT
- UL RECOGNIZED (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

Design primarly for applications such as phase control, static switching, power supply.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 90 °C	12	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t Value for Fusing	t = 10 ms	112.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTA 13–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 750 mA dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	3.3	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 μs) I_{GM} = 4 A (t_p = 10 μs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 μs)

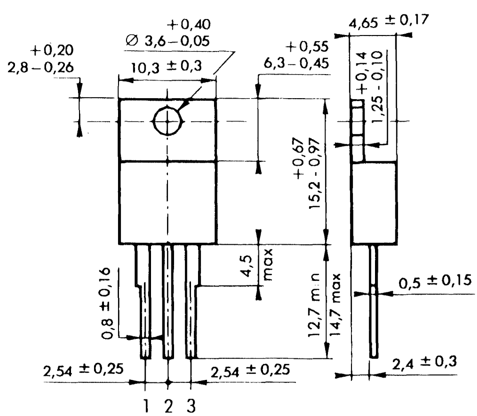
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III			50	mA
		IV			75	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 150 mA Pulse Duration > 20 μs	I-III-IV		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 17 A t_p = 10 ms				1.4	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		500			V/μs
(dv/dt)$_c$*	T_C = 90 °C V_D = V_{DRM} I_T = 17 A (di/dt)$_c$ = 5.3 A/ms		10			V/μs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 17 A I_G = 500 mA di_G/dt = 3.5 A/μs	I-II-III-IV		2		μs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A_1 A_2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

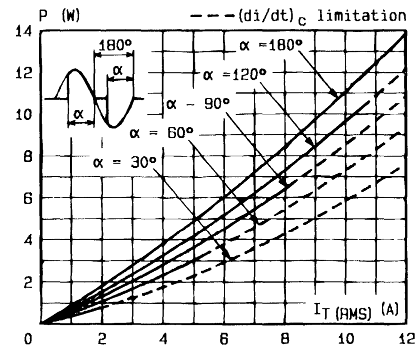


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

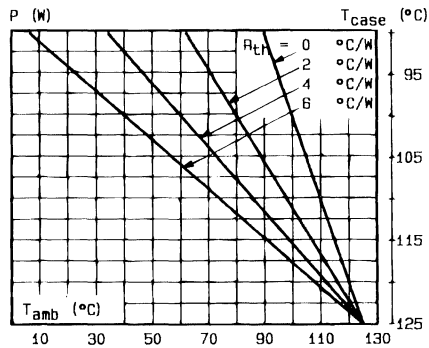


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

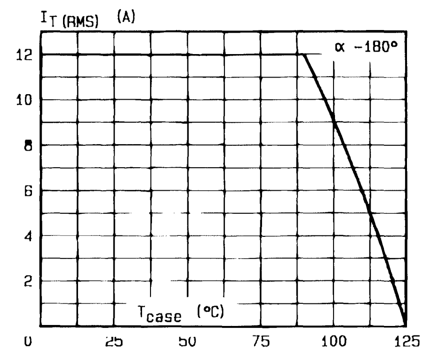


Fig.3 - RMS on-state current versus case temperature.

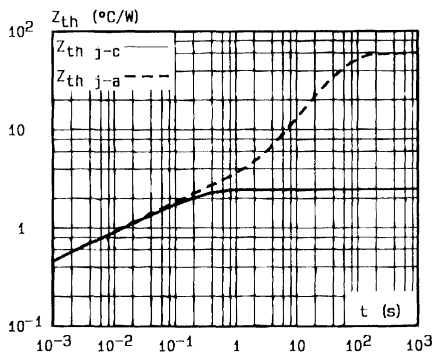


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

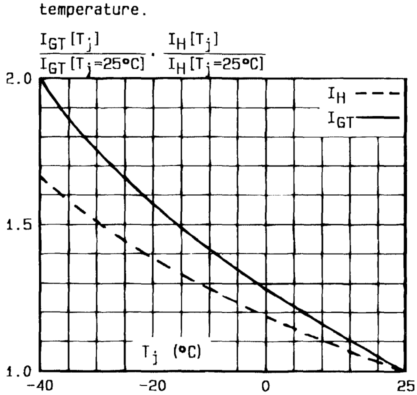


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

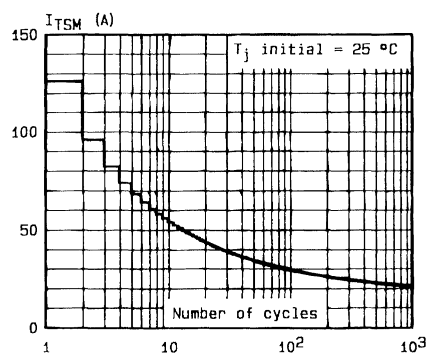


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

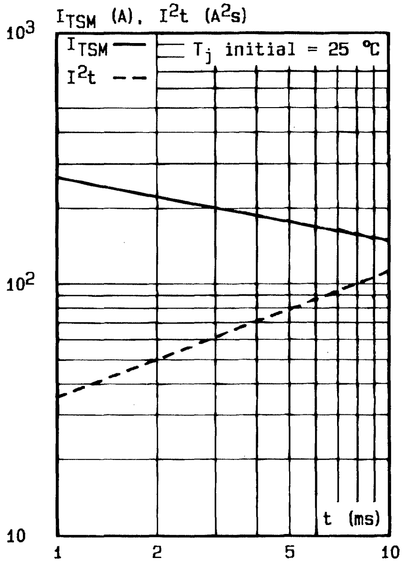


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

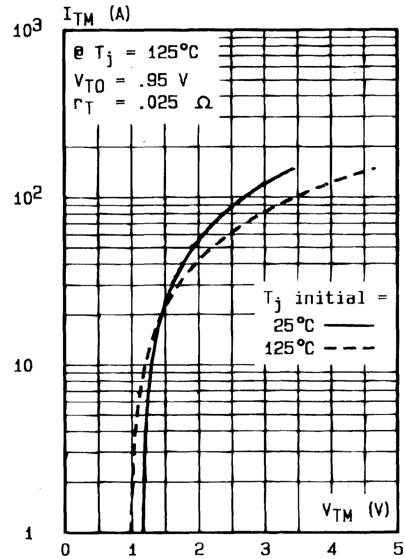


Fig.8 - On-state characteristics (maximum values).

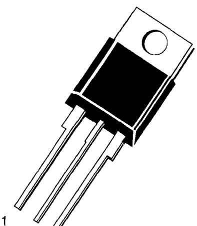
SGS-THOMSON MICROELECTRONICS

SGS-THOMSON
MICROELECTRONICS

BTA 16 AW

SNUBBERLESS TRIACS

- I_{TRMS} = 16 A at T_c = 80 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 150 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 21 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734) .



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 80 °C	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t value	t = 10 ms	112	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 16-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.1	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.3	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		75		mA
		II		150		
V_{TM} *	T_j = 25 °C I_{TM} = 22.5 A t_p = 10 ms				1.5	V
I_{DRM} *	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		21	42		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 22.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

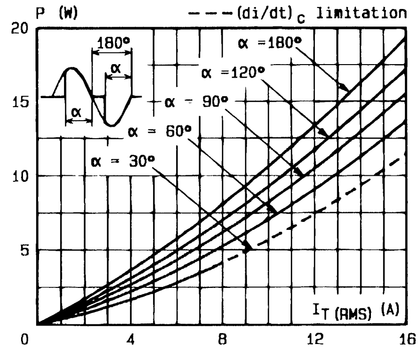


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

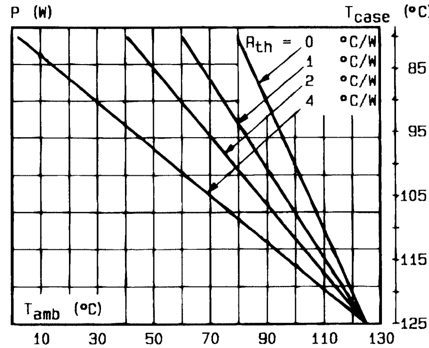


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

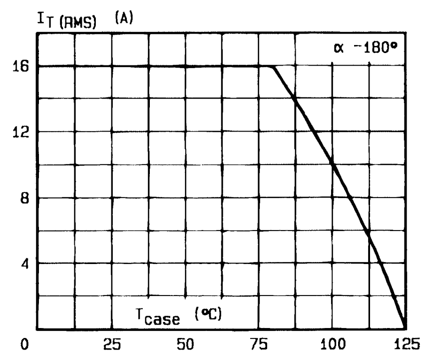


Fig.3 - RMS on-state current versus case temperature.

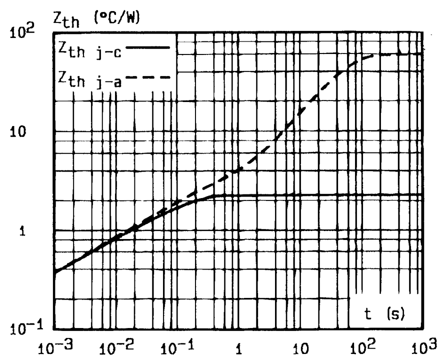


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

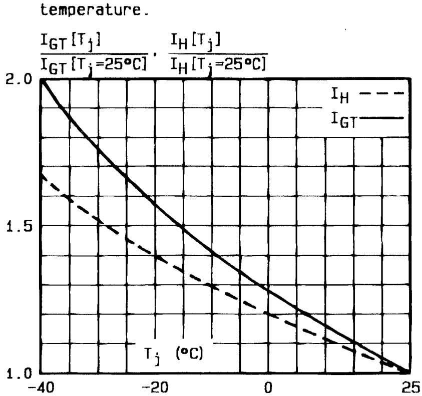


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

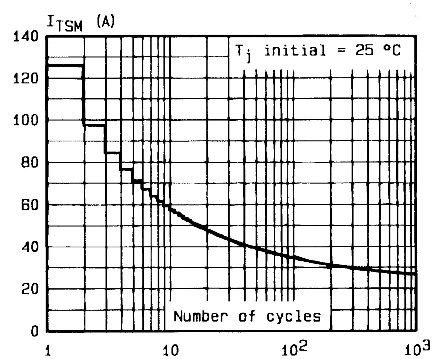


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

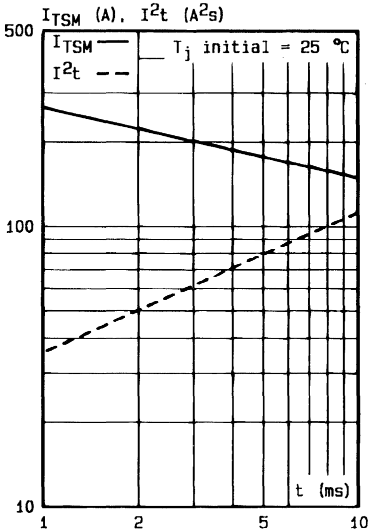


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

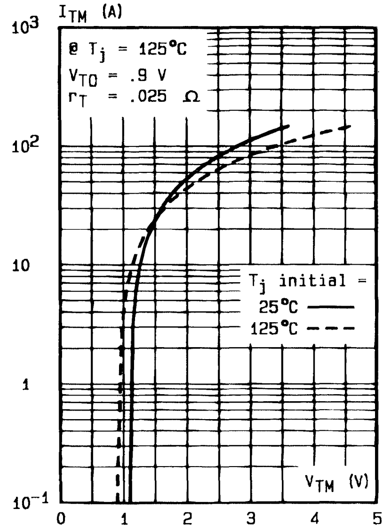
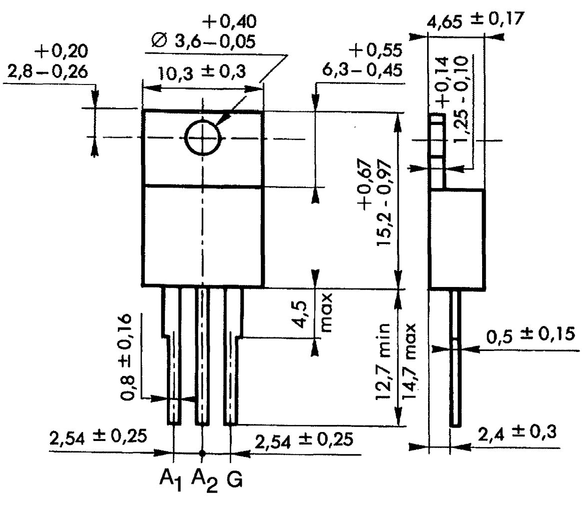


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



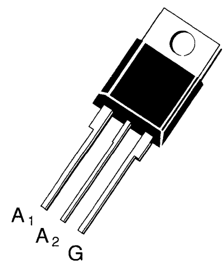
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON MICROELECTRONICS

BTA 16 B

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_C$ > 10 V/µs
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 80 °C	16	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	170	A
		t = 10 ms	160	
I^2t	I^2t Value for Fusing	t = 10 ms	128	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTA 16–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	3.33	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

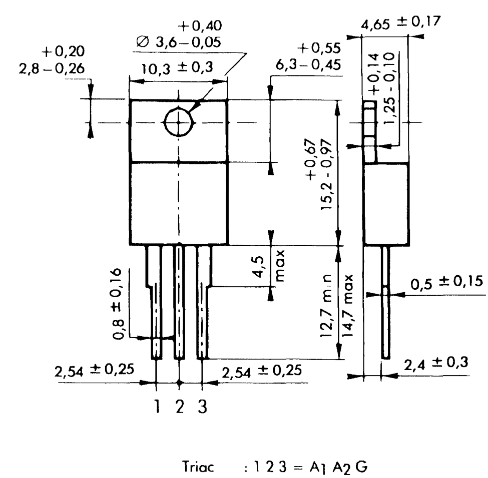
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω	I-II-III			50	mA
	Pulse Duration > 20 µs			IV			100	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				50	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 200 mA	I-III-IV		50		mA
	Pulse Duration > 20 µs			II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 22.5 A	t_p = 10 ms				1.6	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 125 °C				0.5	
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			250	500		V/µs
$(dv/dt)_c$*	T_C = 80 °C $(di/dt)_c$ = 7 A/ms	V_D = V_{DRM}	I_T = 22.5 A		10			V/µs
t_{gt}	T_j = 25 °C I_G = 500 mA	V_D = V_{DRM} di_G/dt = 3.5 A/µs	I_T = 22.5 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

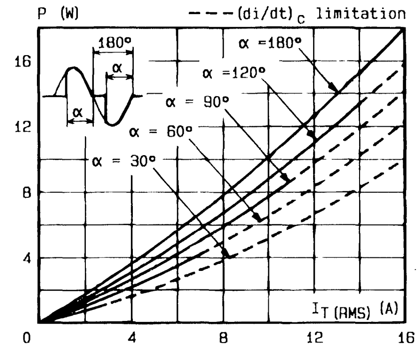


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

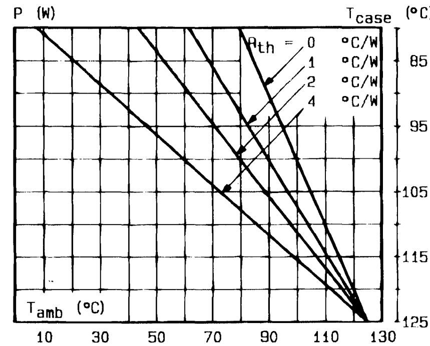


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

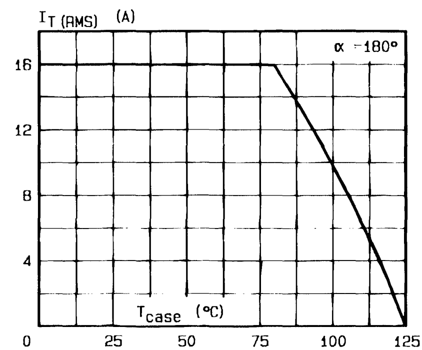


Fig.3 - RMS on-state current versus case temperature.

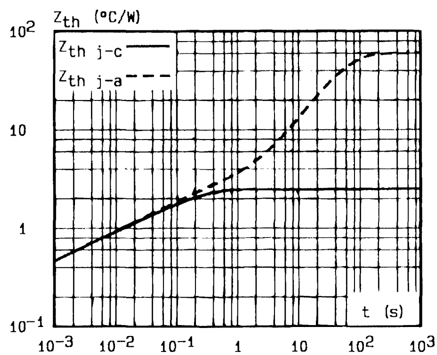


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

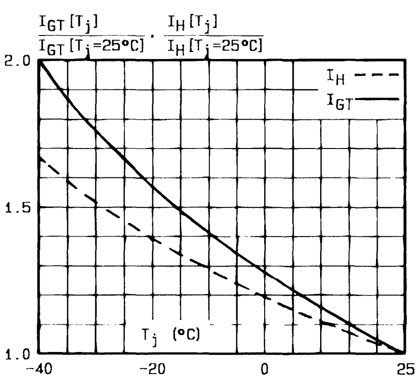


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

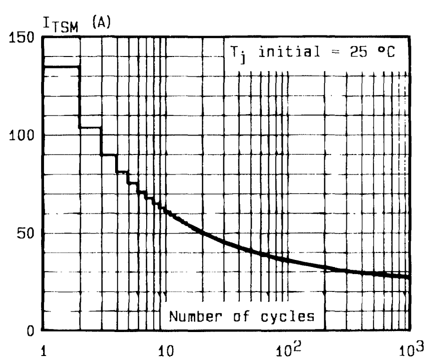


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

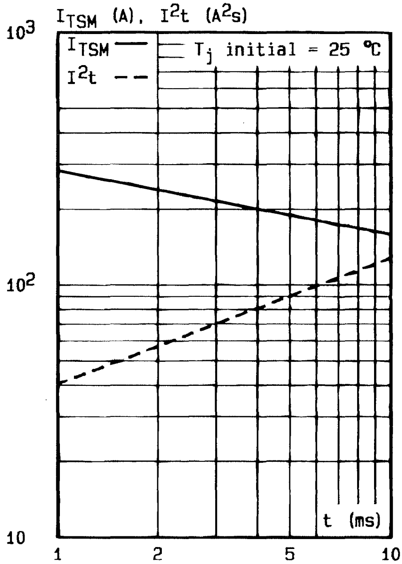


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

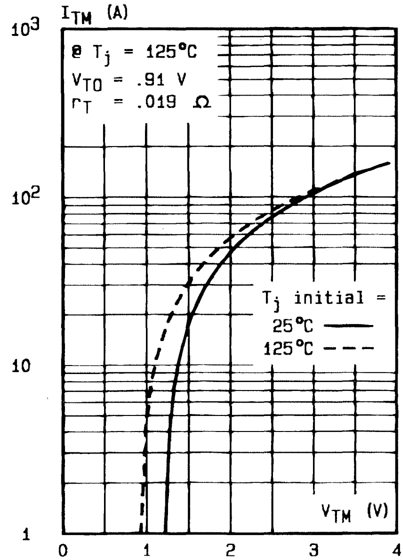


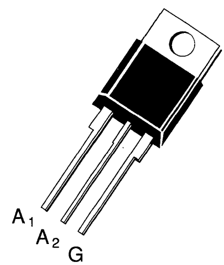
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA 16 BW

SNUBBERLESS TRIACS

- I_{TRMS} = 16 A at T_c = 80 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 150 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 14 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 80 °C	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t value	t = 10 ms	112	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 16-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.1	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.3	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM} *	T_j = 25 °C I_{TM} = 22.5 A t_p = 10 ms				1.5	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		14	28		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 22.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

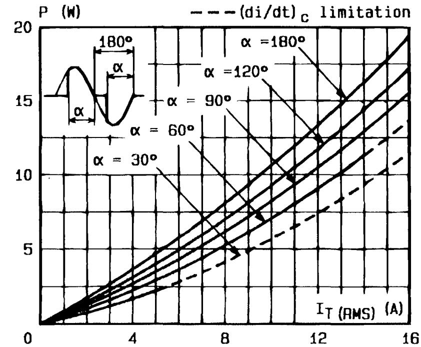


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

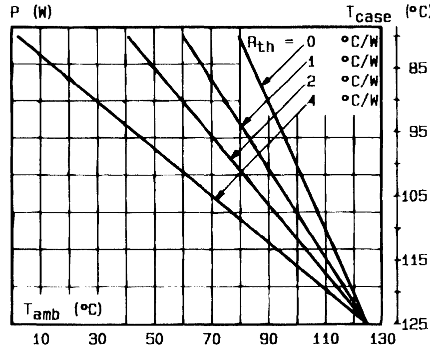


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

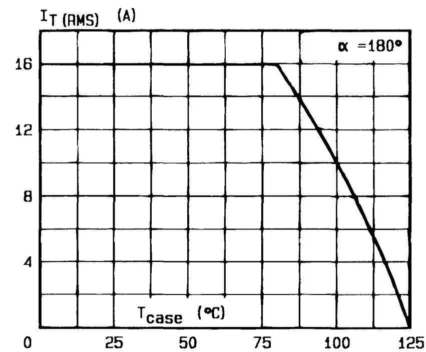


Fig.3 - RMS on-state current versus case temperature.

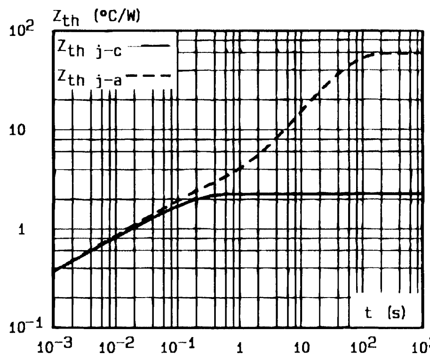


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

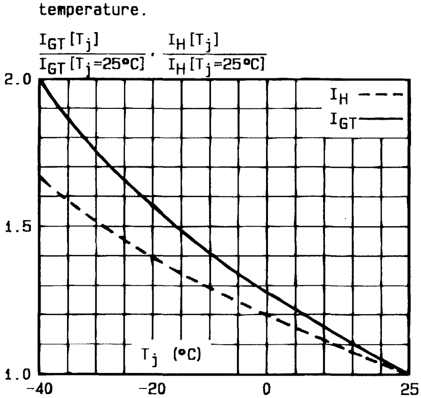


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

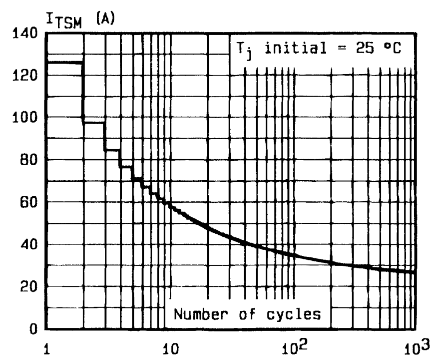


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

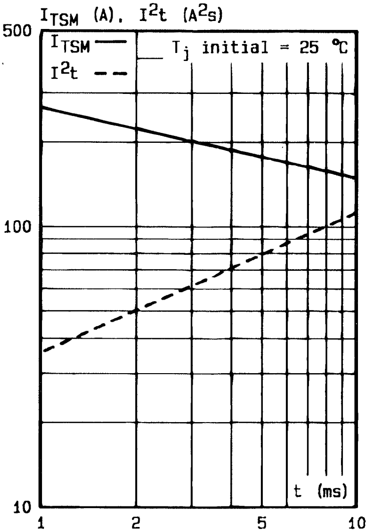


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

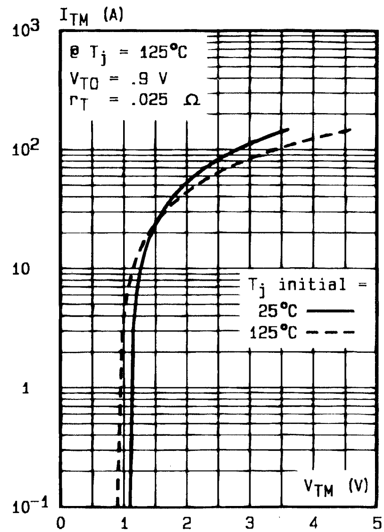
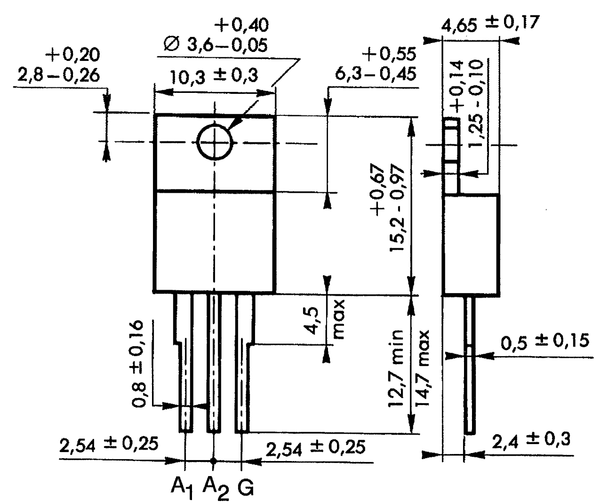


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



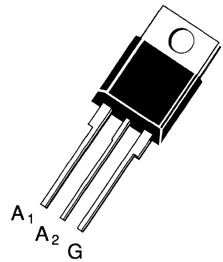
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

BTA 16 CW

SNUBBERLESS TRIACS

- I_{TRMS} = 16 A at T_c = 80 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 150 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 8.5 A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.
- UL RECOGNIZED (E81734).



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 80 °C	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t value	t = 10 ms	112	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 16-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$ $R_{th\ (j-c)}$ DC $R_{th\ (j-c)}$ AC	Junction to ambient Junction to case for DC Junction to case for 360 ° conduction angle (F = 50 Hz)	60 3.1 2.3	°C/W °C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM} *	T_j = 25 °C I_{TM} = 22.5 A t_p = 10 ms				1.5	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
(di/dt) $_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		8.5	17		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 350 mA I_T = 22.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

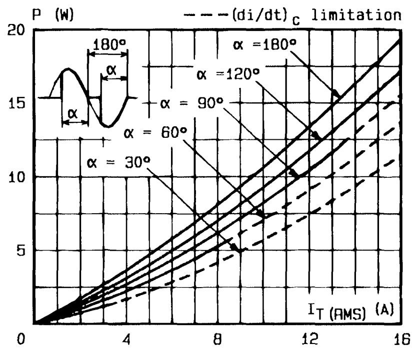


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

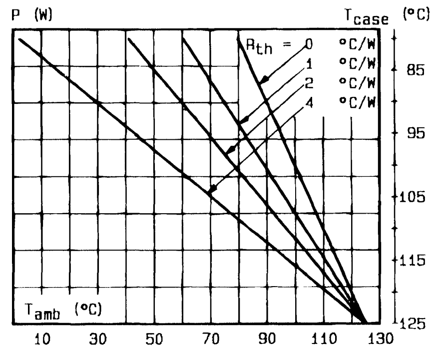


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

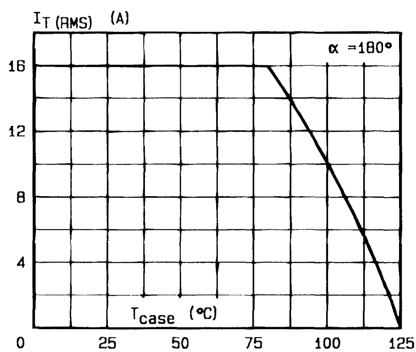


Fig.3 - RMS on-state current versus case temperature.

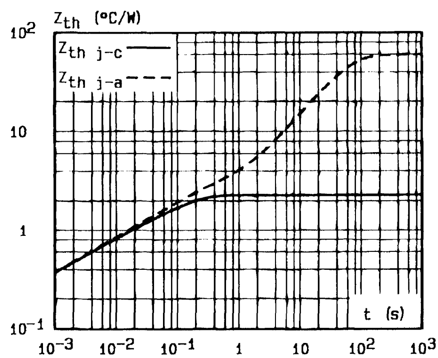


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

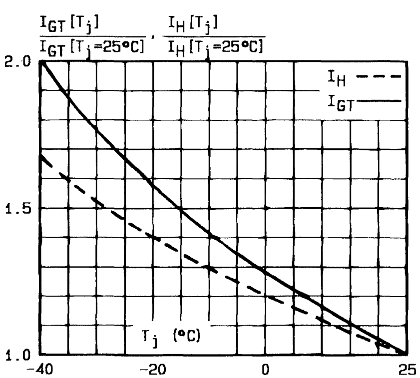


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

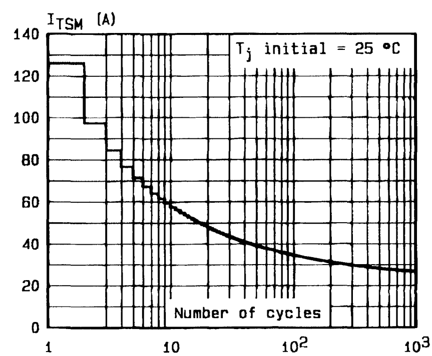


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

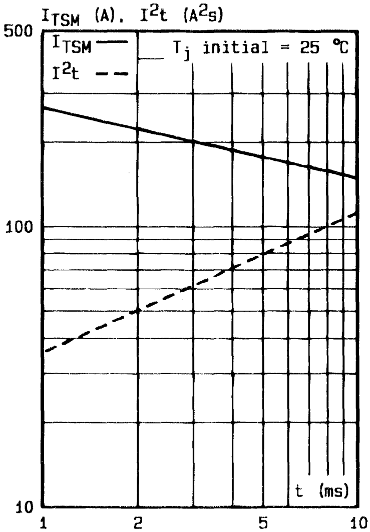


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

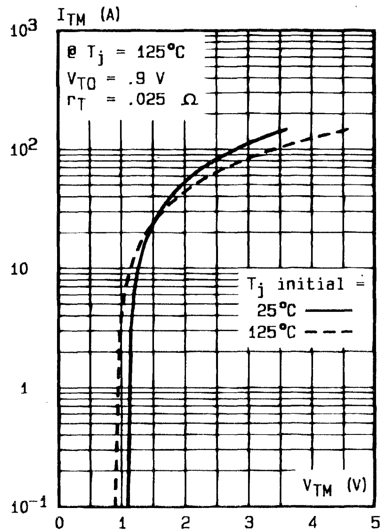
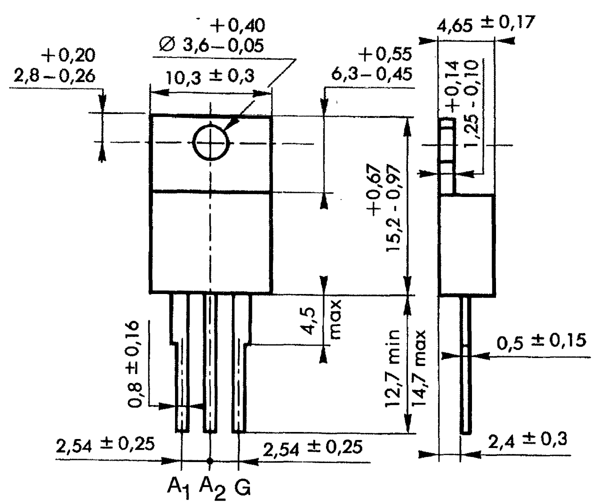


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



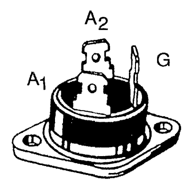
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

BTA 25 A

TRIACS

- GLASS PASSIVATED CHIP
- FAST-ON CONNEXIONS
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



RD 91
(Plastic)

DESCRIPTION

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 80 °C	30	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	260	A
		t = 10 ms	250	
I^2t	I^2t Value for Fusing	t = 10 ms	312.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 25–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.15	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.47	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

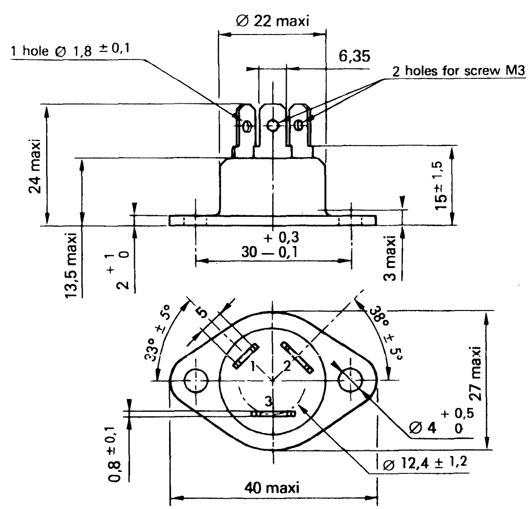
P_{GM} = 40 W (t_p = 10 μs) $P_{G\,(AV)}$ = 1 W I_{GM} = 6 A (t_p = 10 μs) V_{GM} = 16 V (t_p = 10 μs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III	1		100	mA
		IV	1		150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 μs	I-II-III-IV			150	mA
V_{TM}*	T_j = 25 °C I_{TM} = 42 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/μs
$(dv/dt)_c$*	T_C = 80 °C V_D = V_{DRM} I_T = 42 A $(di/dt)_c$ = 13.3 A/ms		10			V/μs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 42 A I_G = 1 A di_G/dt = 10 A/μs	I-II-III-IV		2.5		μs

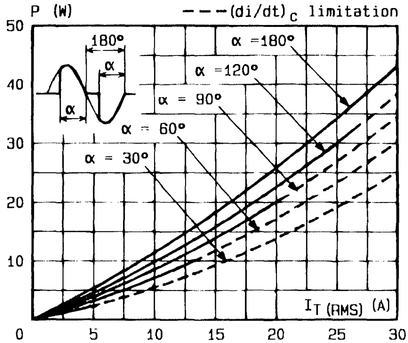
* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Triac 1 2 3 = G A_1 A_2

Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g



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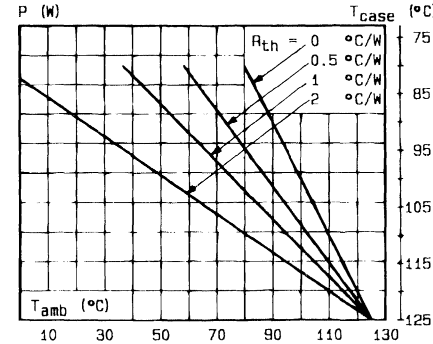


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

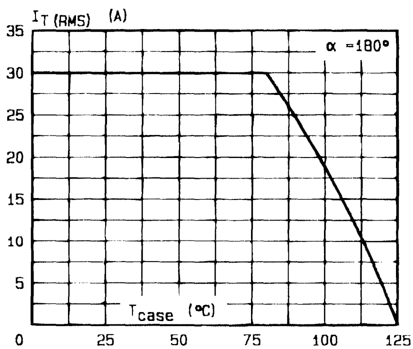


Fig.3 - RMS on-state current versus case temperature.

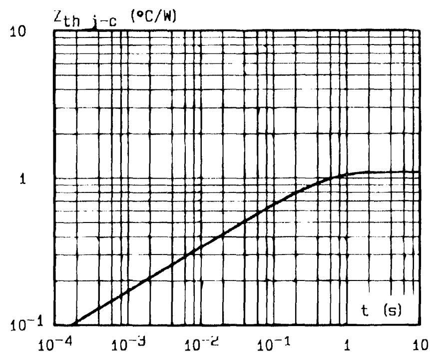


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

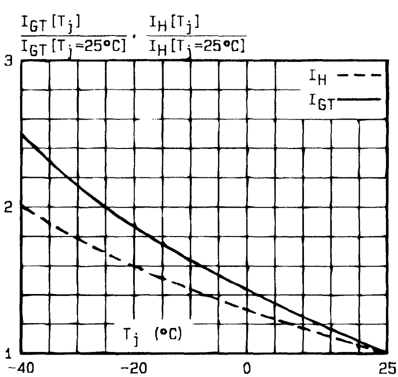


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

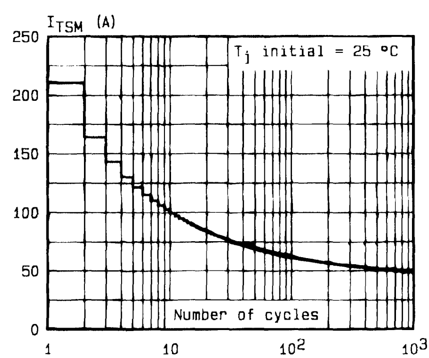


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

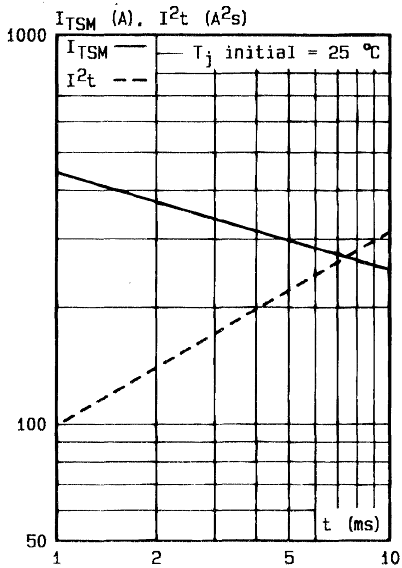


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

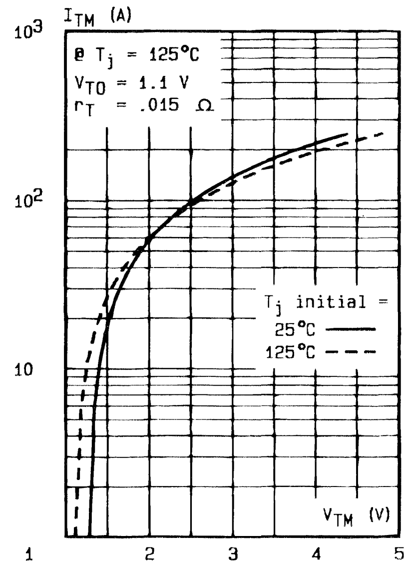


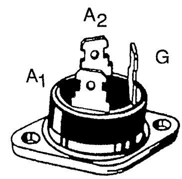
Fig.8 - On-state characteristics (maximum values) .

SGS-THOMSON MICROELECTRONICS

BTA 25 B

TRIACS

- GLASS PASSIVATED CHIP
- FAST-ON CONNEXIONS
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



RD 91
(Plastic)

DESCRIPTION

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 80 °C	30	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	260	A
		t = 10 ms	250	
I^2t	I^2t Value for Fusing	t = 10 ms	312.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 25–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.15	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.47	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

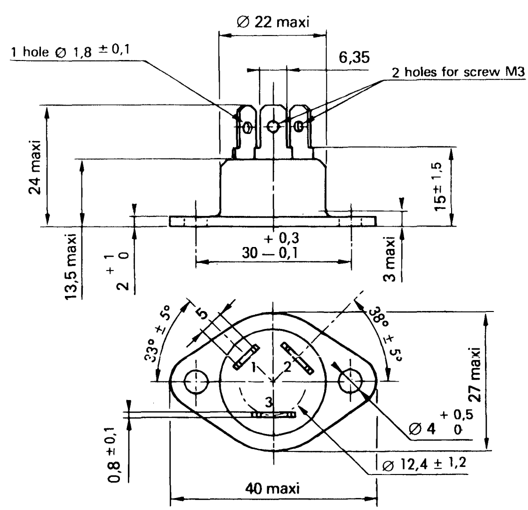
P_{GM} = 40 W (t_p = 10 µs) $P_{G\,(AV)}$ = 1 W I_{GM} = 6 A (t_p = 10 µs) V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		50	mA
		IV	1		100	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	80	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-II-III-IV			100	mA
V_{TM}*	T_j = 25 °C I_{TM} = 42 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 80 °C V_D = V_{DRM} I_T = 42 A $(di/dt)_c$ = 13.3 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 42 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Triac 1 2 3 = G A_1 A_2

Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g

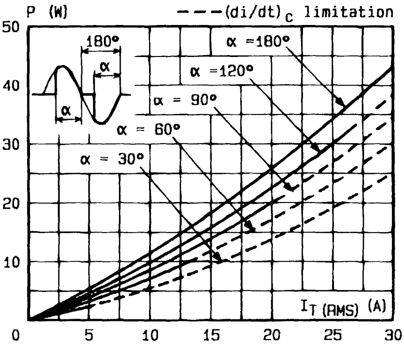


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

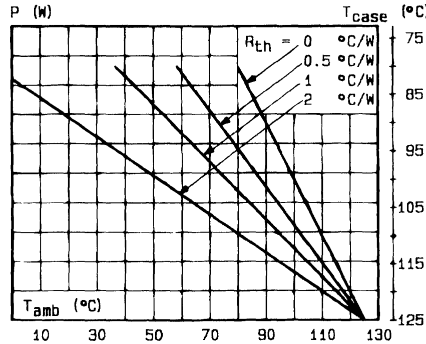


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

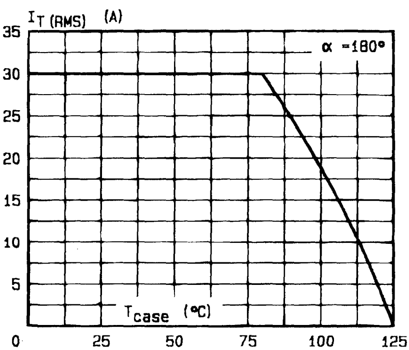


Fig.3 - RMS on-state current versus case temperature.

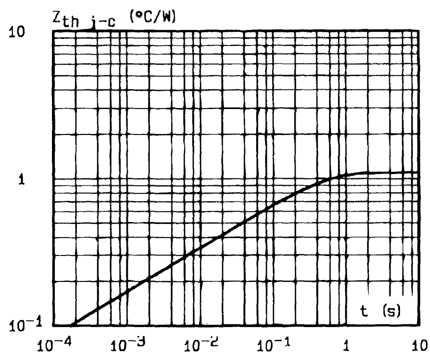


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

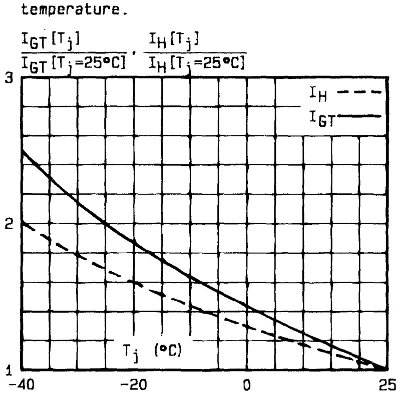


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

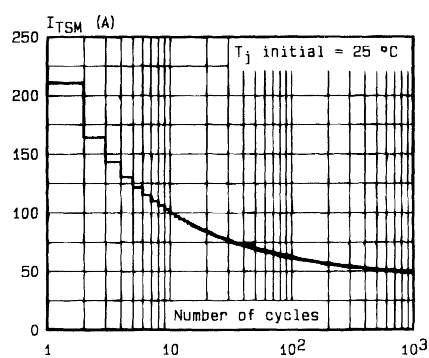


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

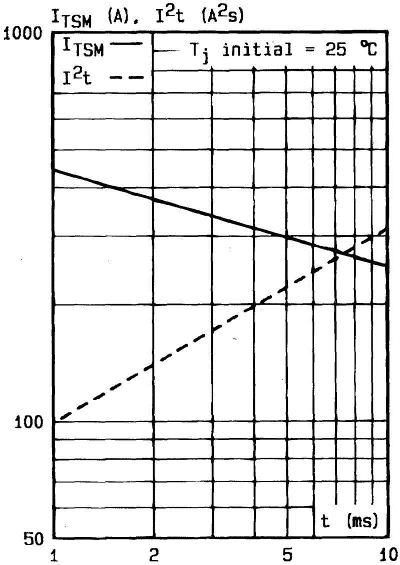


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

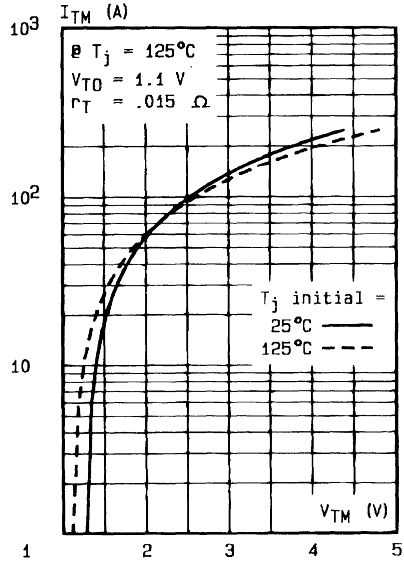


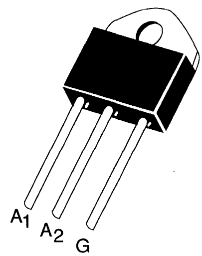
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA 26 A

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



TOP 3
(Plastic)

DESCRIPTION

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 90 °C	25	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	260	A
		t = 10 ms	250	
I^2t	I^2t Value for Fusing	t = 10 ms	312.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 26–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.45	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 6 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

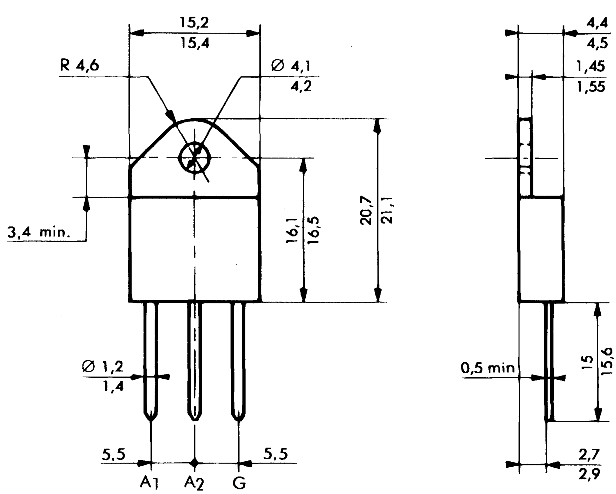
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		100	mA
		IV	1		150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 µs	I-II-III-IV			150	mA
V_{TM}*	T_j = 25 °C I_{TM} = 35 A t_p = 10 ms				1.7	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 90 °C V_D = V_{DRM} I_T = 35 A $(di/dt)_c$ = 11.1 A/ms		10			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 35 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

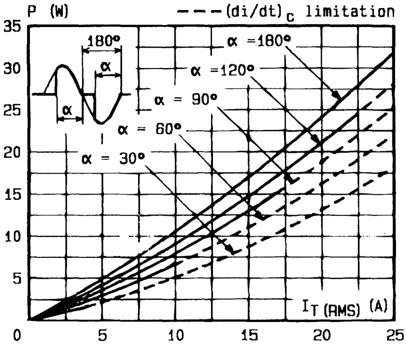


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

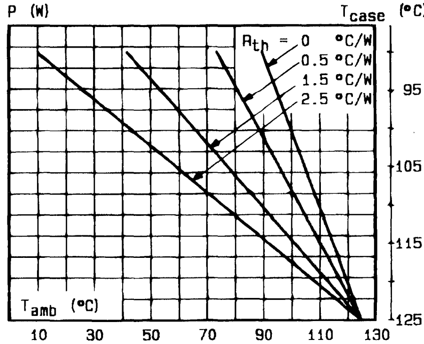


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

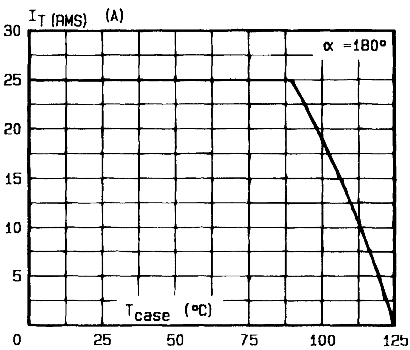


Fig.3 - RMS on-state current versus case temperature.

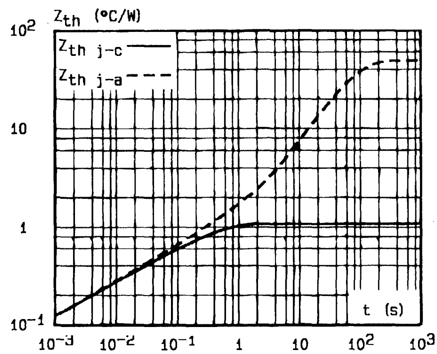


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

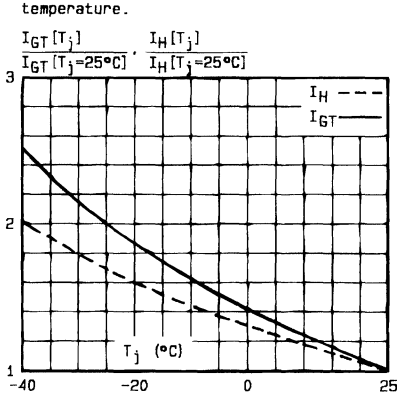


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

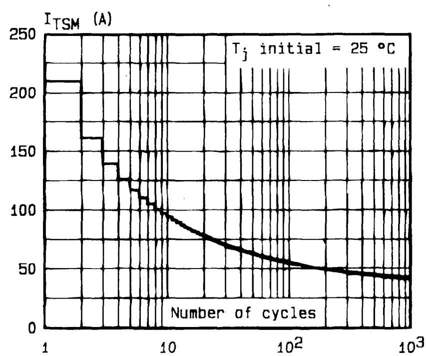


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

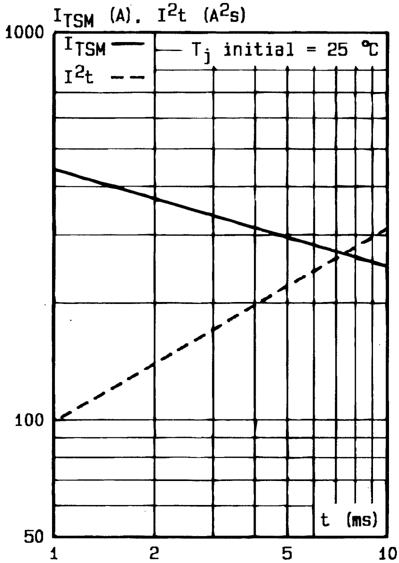


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

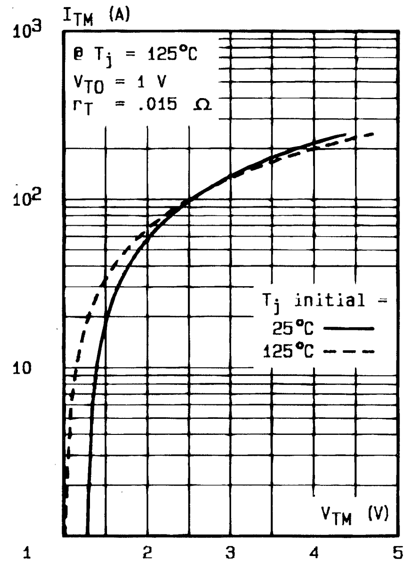
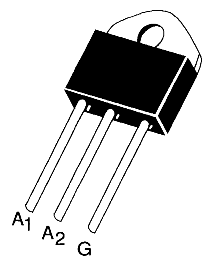


Fig.8 - On-state characteristics (maximum values).

BTA 26 B

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



TOP 3
(Plastic)

DESCRIPTION

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 90 °C	25	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	260	A
		t = 10 ms	250	
I^2t	I^2t Value for Fusing	t = 10 ms	312.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 26–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.45	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 6 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

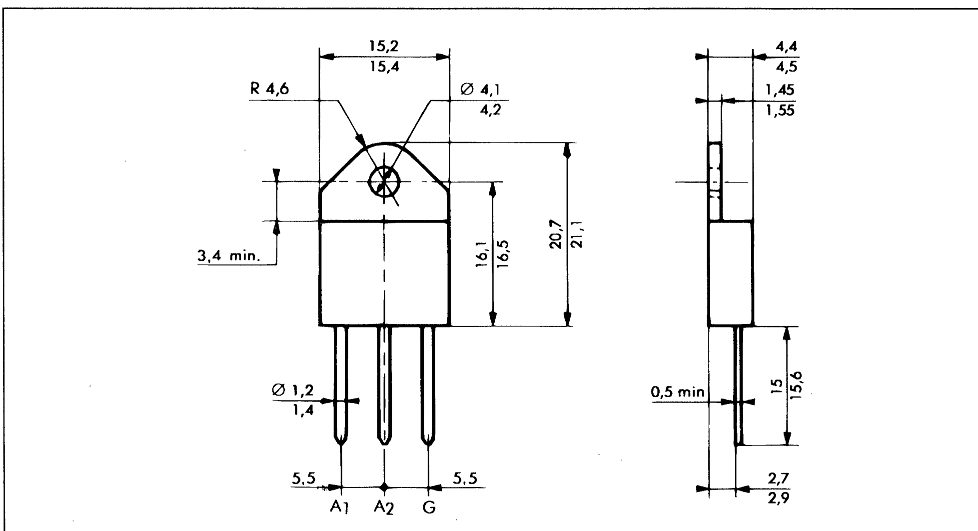
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		50	mA
		IV	1		100	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	80	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-II-III-IV			100	mA
V_{TM}*	T_j = 25 °C I_{TM} = 35 A t_p = 10 ms				1.7	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 90 °C V_D = V_{DRM} I_T = 35 A $(di/dt)_c$ = 11.1 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 35 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

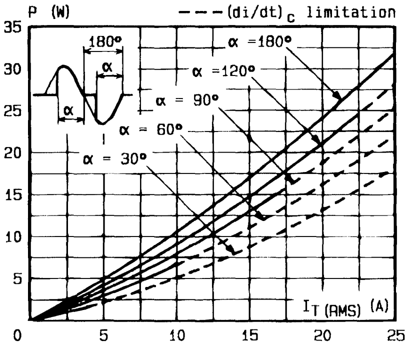
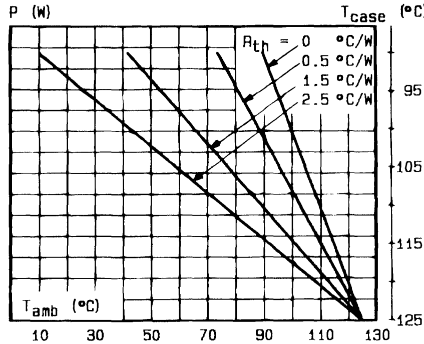


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).



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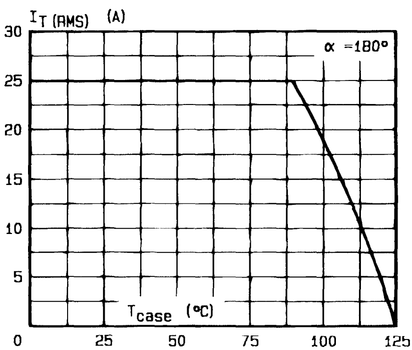


Fig.3 - RMS on-state current versus case temperature.

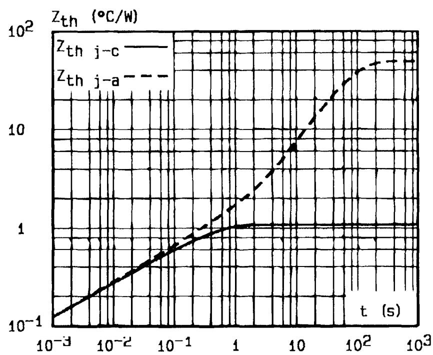


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

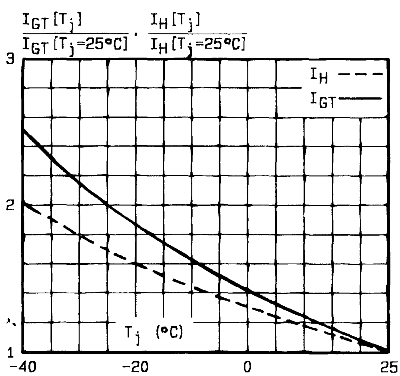


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

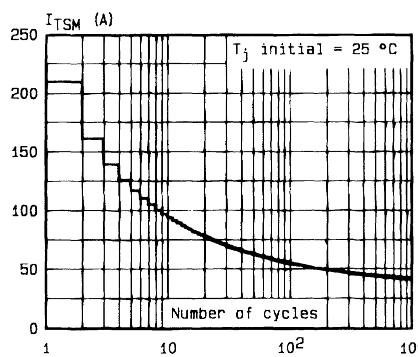


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

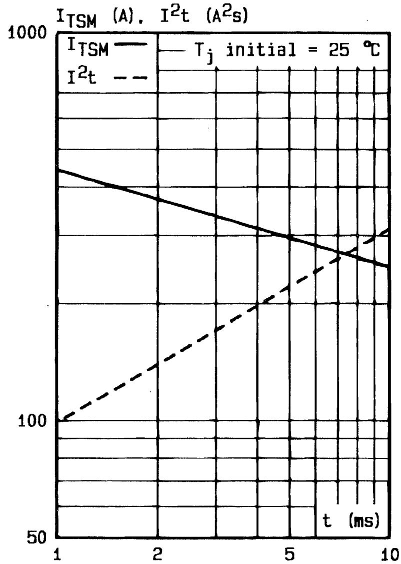


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

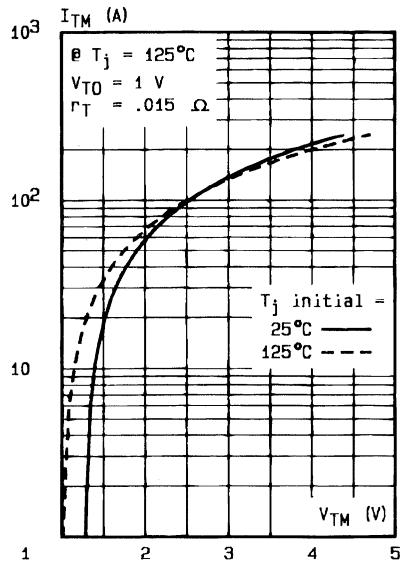


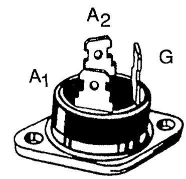
Fig.8 - On-state characteristics (maximum values) .

SGS-THOMSON MICROELECTRONICS

BTA 40 A

TRIACS

- GLASS PASSIVATED CHIP
- FAST-ON CONNEXIONS
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



RD 91
(Plastic)

DESCRIPTION

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	315	A
		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 40–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.15	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

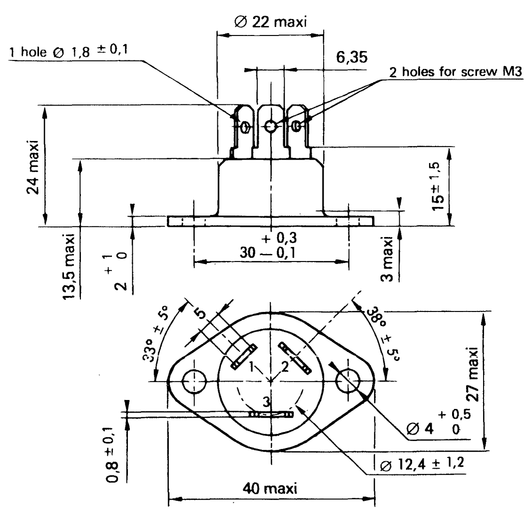
P_{GM} = 40 W (t_p = 10 µs) $P_{G(AV)}$ = 1 W I_{GM} = 10 A (t_p = 10 µs) V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		100	mA
		IV	1		150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 µs	I-II-III-IV			150	mA
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A $(di/dt)_c$ = 18 A/ms		10			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Triac 1 2 3 = G A_1 A_2

Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g

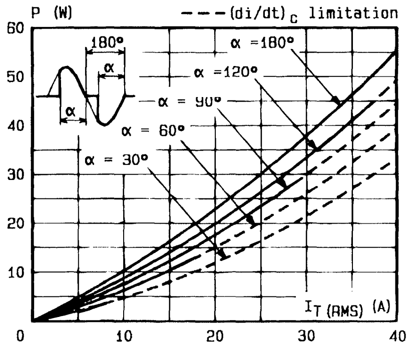


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

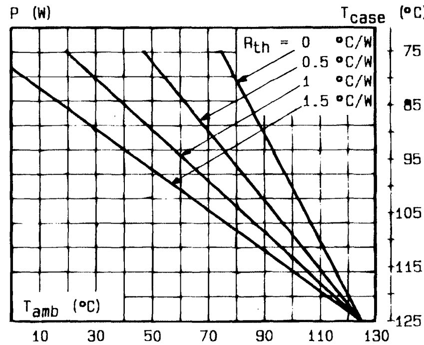


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

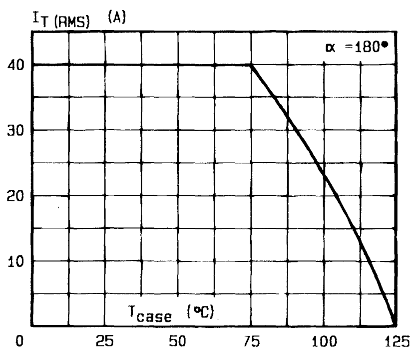


Fig.3 - RMS on-state current versus case temperature.

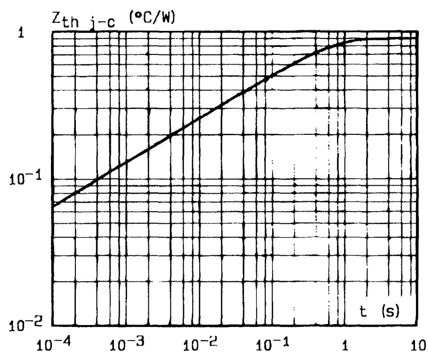


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

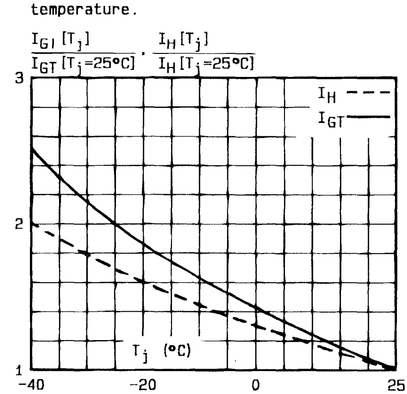


Fig.5 Relative variation of gate trigger current and holding current versus junction temperature.

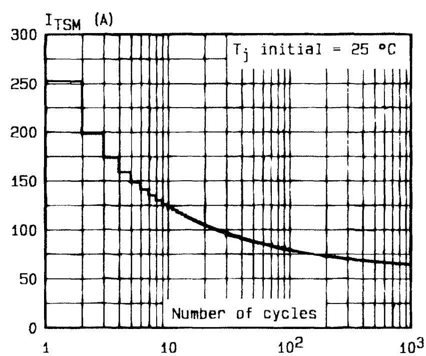


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

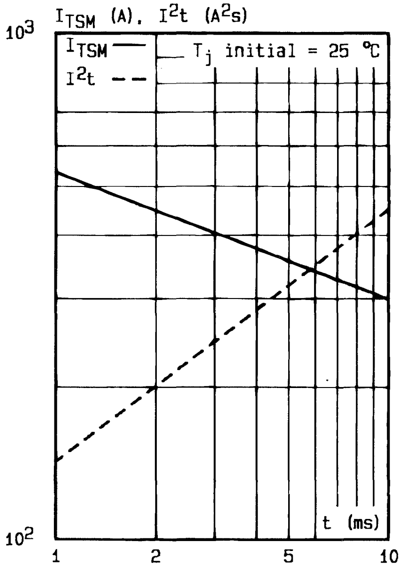


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

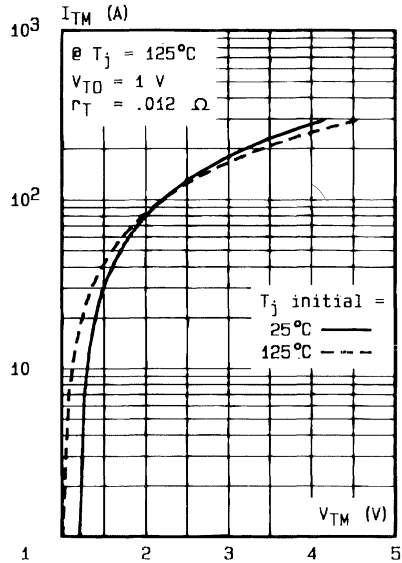


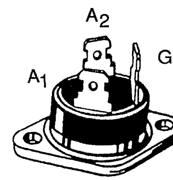
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA 40 B

TRIACS

- GLASS PASSIVATED CHIP
- FAST-ON CONNEXIONS
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



RD 91
(Plastic)

DESCRIPTION

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	315	A
		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 40–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c\text{-}h)}$	Contact (case-heatsink) with Grease	0.15	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

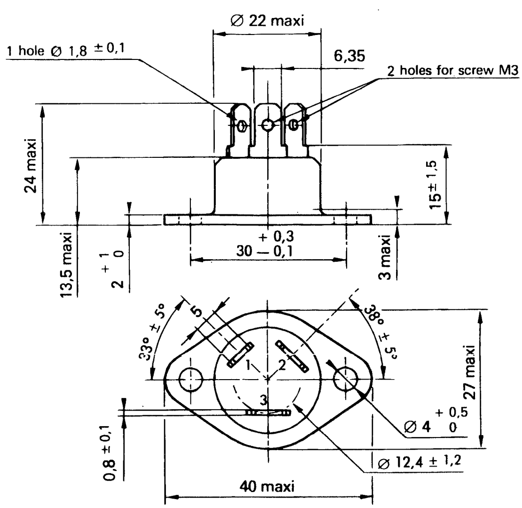
P_{GM} = 40 W (t_p = 10 µs) $P_{G(AV)}$ = 1 W I_{GM} = 10 A (t_p = 10 µs) V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		50	mA
		IV	1		100	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	80	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-II-III-IV			100	mA
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A $(di/dt)_c$ = 18 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 1 A dI_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Triac 1 2 3 = G A_1 A_2

Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g

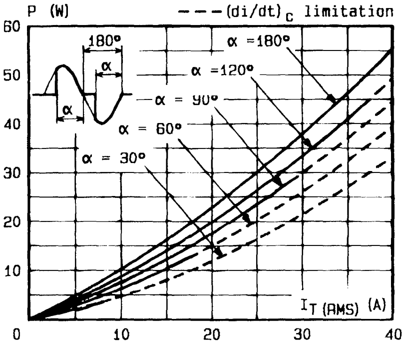


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

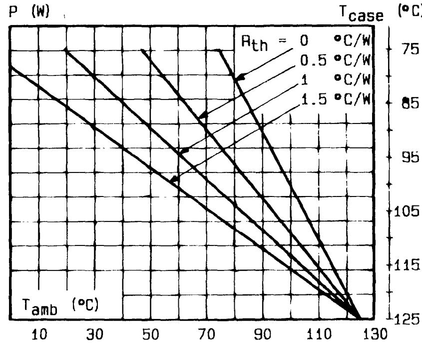


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

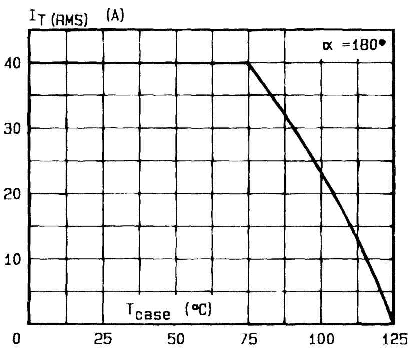


Fig.3 - RMS on-state current versus case temperature.

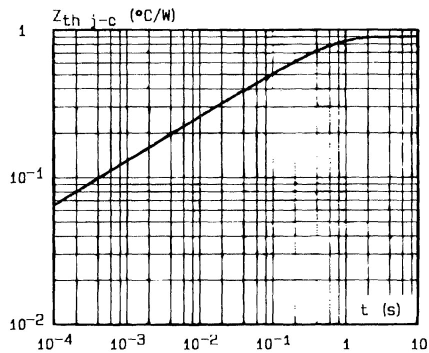


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

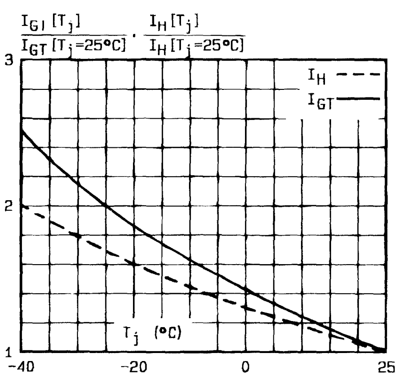


Fig.5 Relative variation of gate trigger current and holding current versus junction temperature.

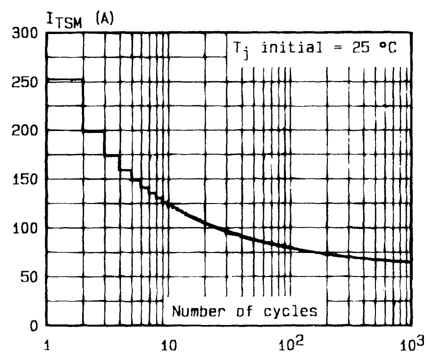


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

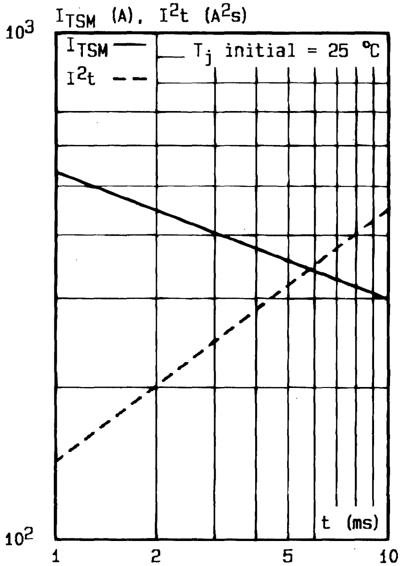


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

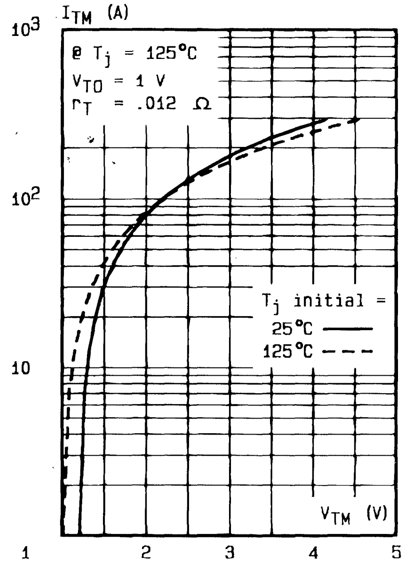


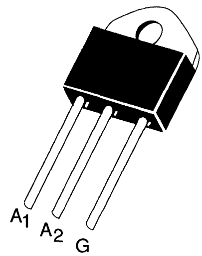
Fig.8 - On-state characteristics (maximum values) .

SGS-THOMSON
MICROELECTRONICS

BTA 41 A

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



TOP 3
(Plastic)

DESCRIPTION

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	315	A
		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 41–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2)T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 10 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

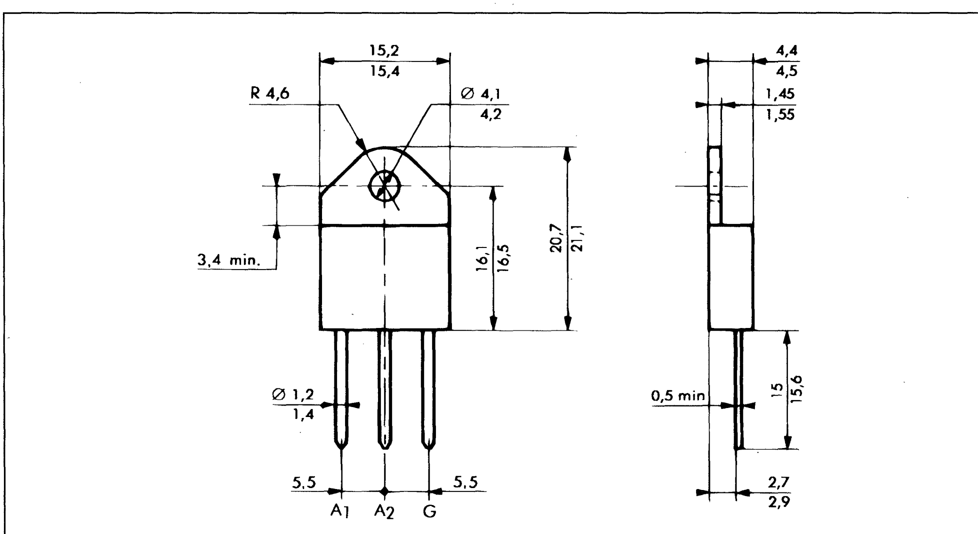
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		100	mA
		IV	1		150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 µs	I-II-III-IV			150	mA
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
(dv/dt)$_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A (di/dt)$_c$ = 18 A/ms		10			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

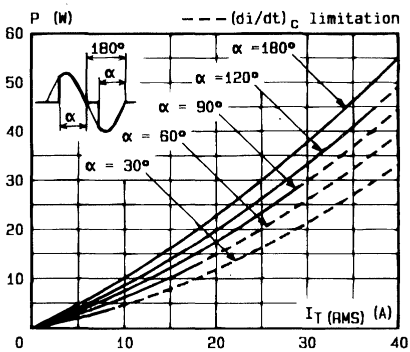


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

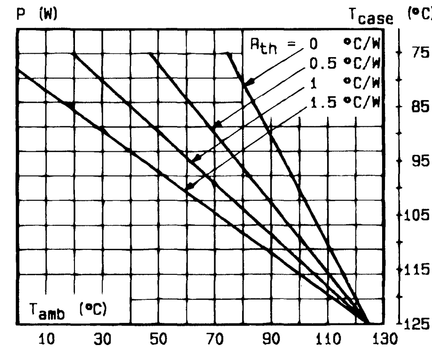


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

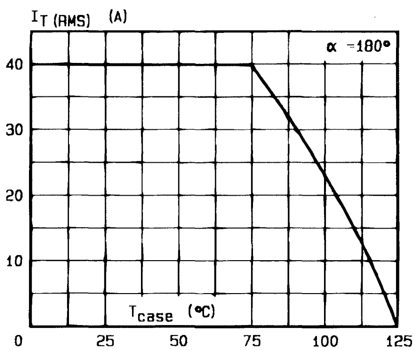


Fig.3 - RMS on-state current versus case temperature.

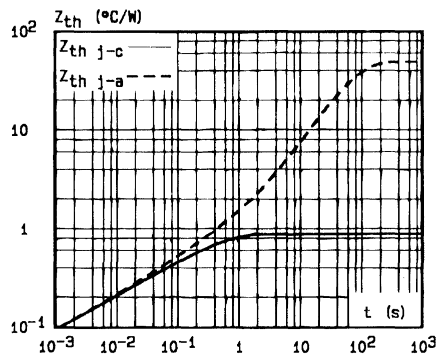


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

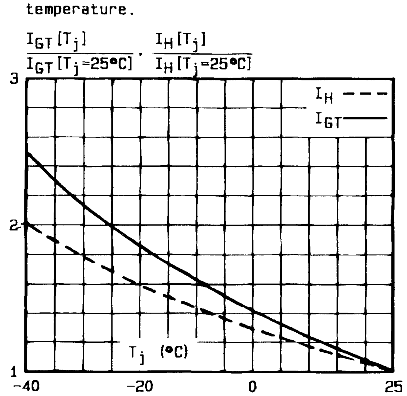


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

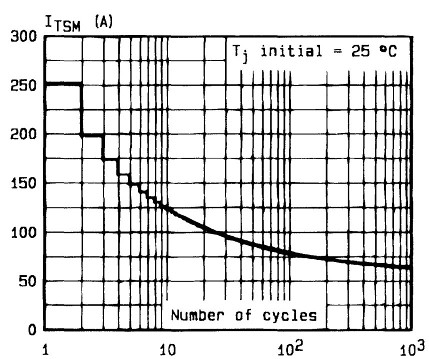


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

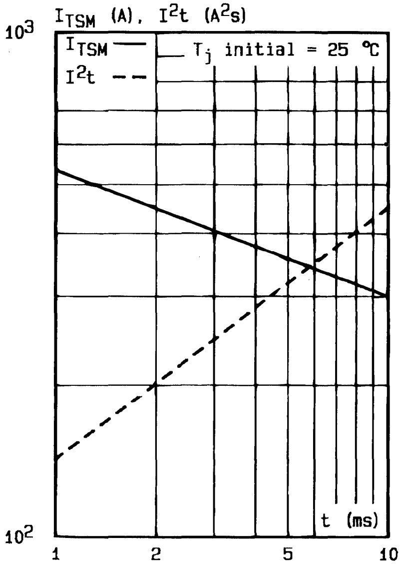


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

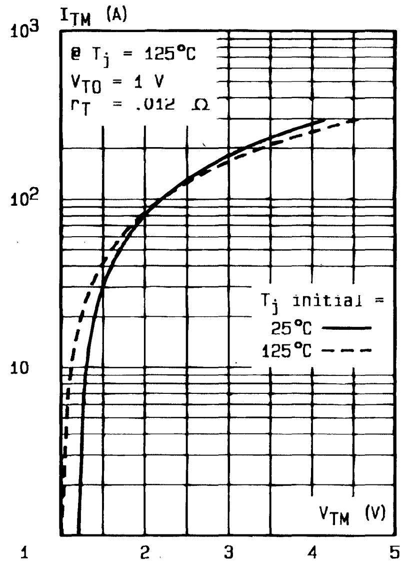
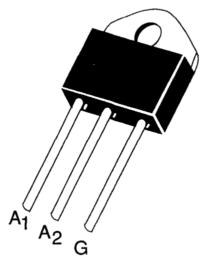


Fig.8 - On-state characteristics (maximum values) .

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE 2500 V_{RMS}
- UL RECOGNIZED (E81734)



TOP 3
(Plastic)

DESCRIPTION

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ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
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		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTA 41–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2)T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 10 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
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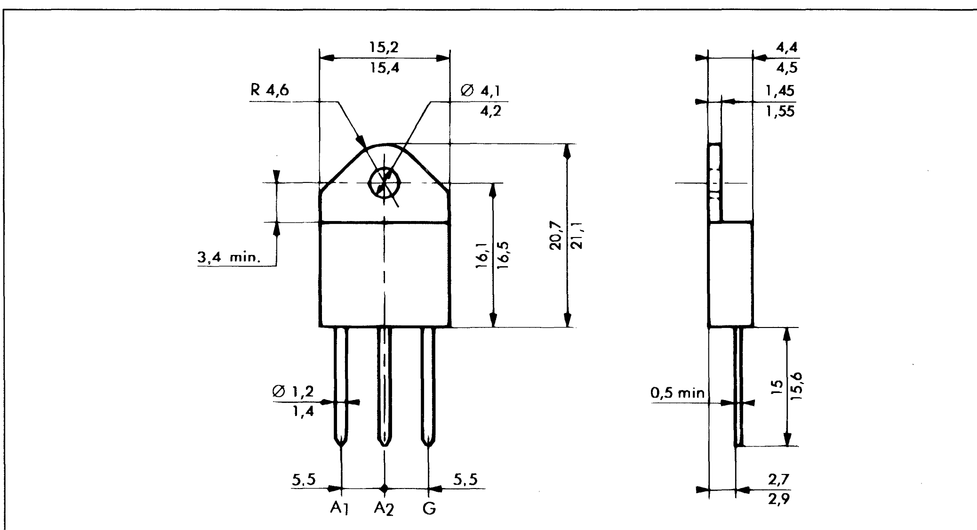
		IV	1		100	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	80	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-II-III-IV			100	mA
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
(dv/dt)$_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A (di/dt)$_c$ = 18 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

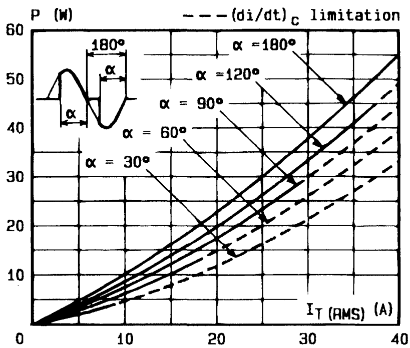


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

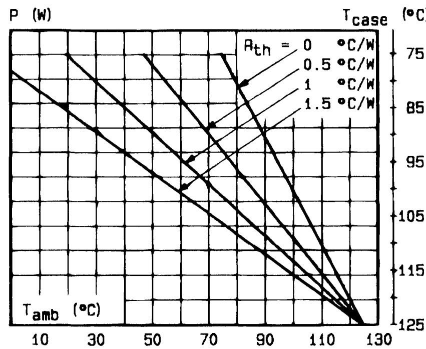


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

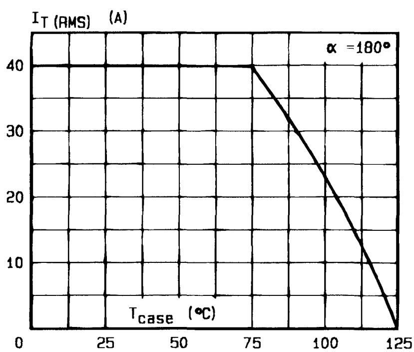


Fig.3 - RMS on-state current versus case temperature.

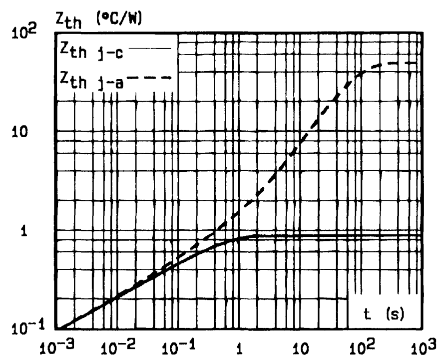


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

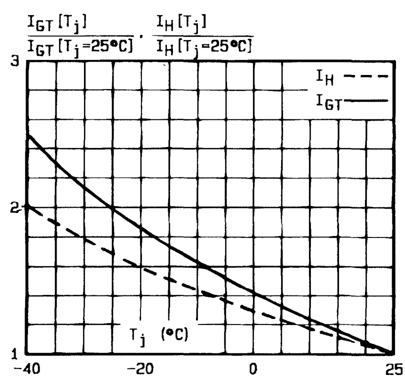


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

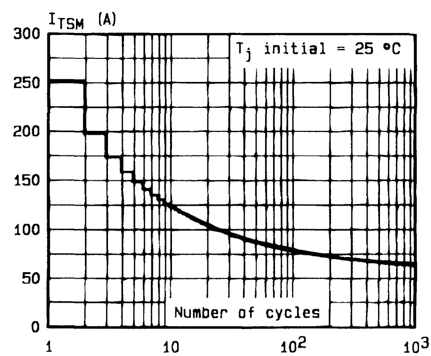


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

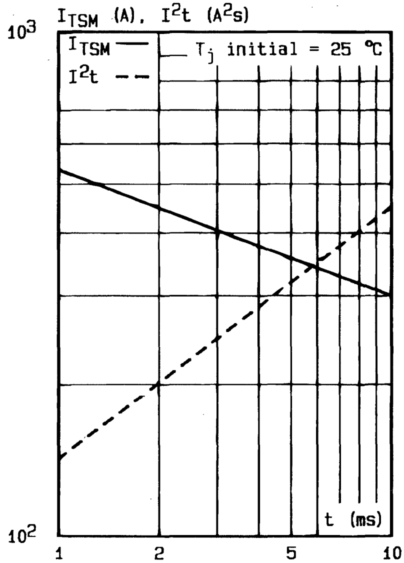


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

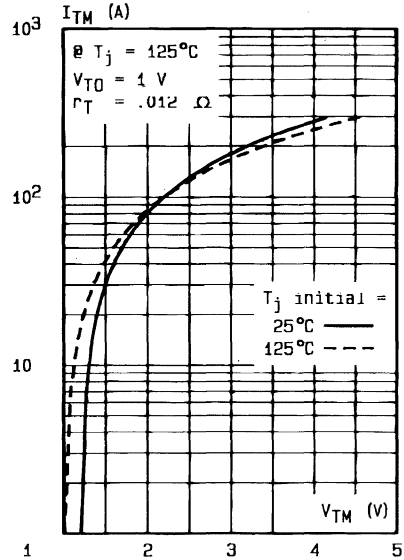
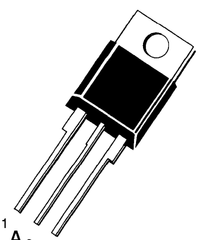


Fig.8 - On-state characteristics (maximum values) .

BTA/BTB 04 A

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	4	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 04–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 250 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	8.7	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	6.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

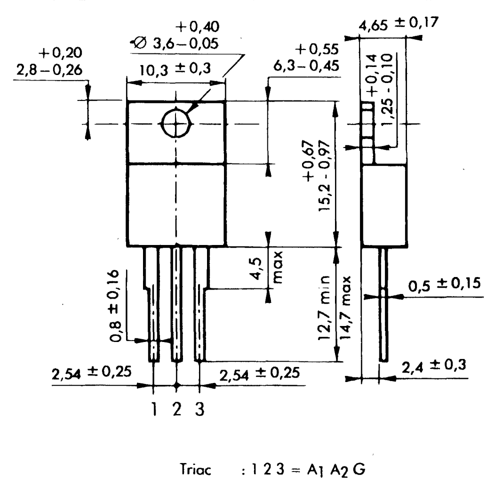
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III			10	mA
			IV			25	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ		I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open					25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 50 mA Pulse Duration > 20 µs		I-III-IV		25		mA
			II		50		
V_{TM}*	T_j = 25 °C I_{TM} = 5.5 A t_p = 10 ms					1.65	V
I_{DRM}*	V_{DRM} Specified	T_j = 25 °C				0.01	mA
		T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}			10			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 5.5 A $(di/dt)_c$ = 1.8 A/ms				5		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 5.5 A I_G = 40 mA di_G/dt = 0.45 A/µs		I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

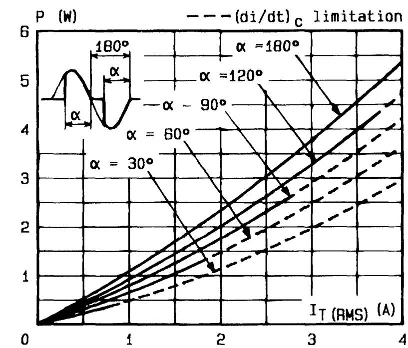


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

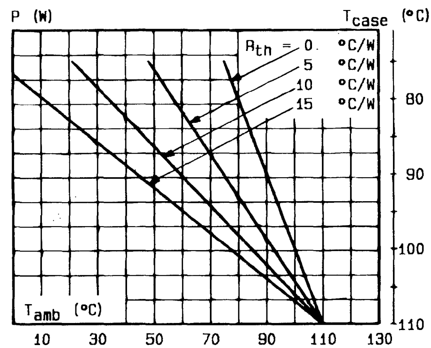


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

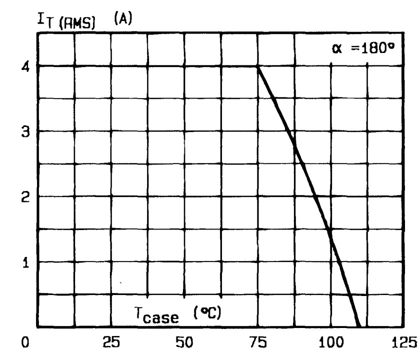


Fig.3 - RMS on-state current versus case temperature.

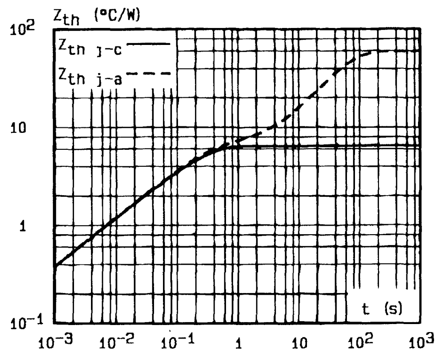


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

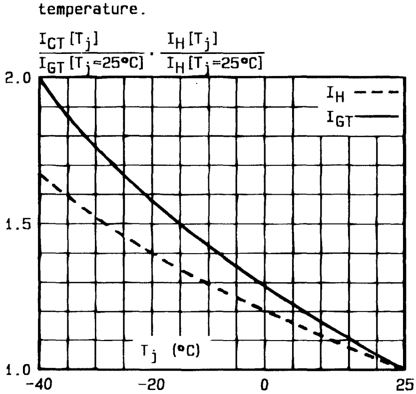


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

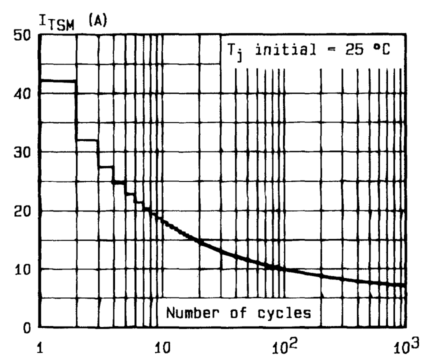


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

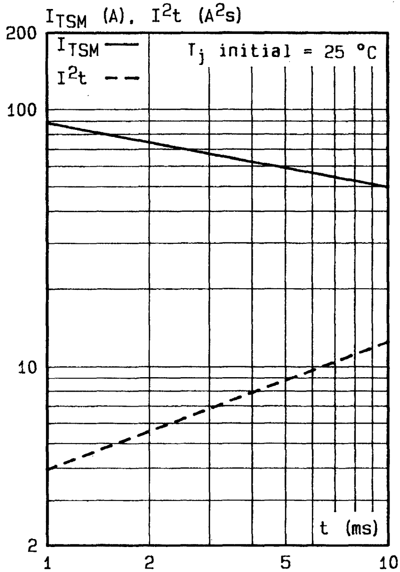


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

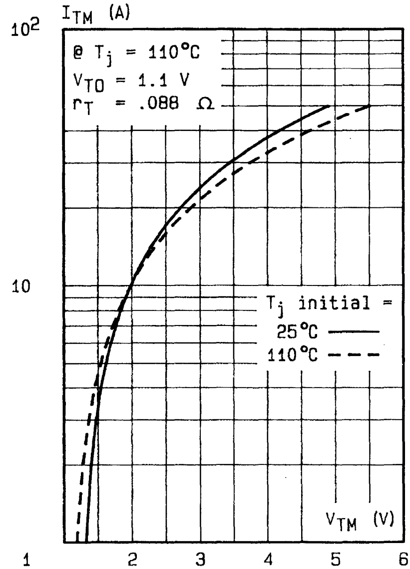


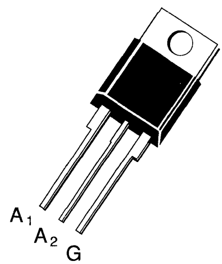
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA/BTB 04 D

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	4	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 04–					Unit
		200D	400D	600D	700D	800D	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	8.7	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	6.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

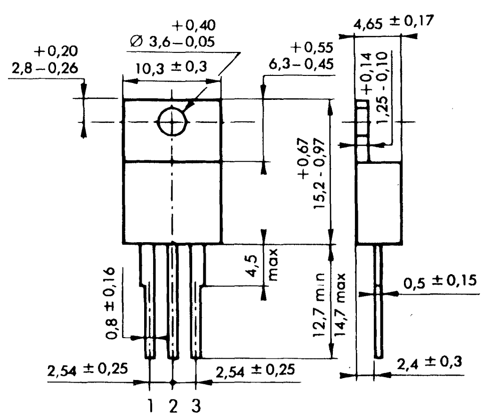
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			5	mA
		IV			10	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				15	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 20 mA Pulse Duration > 20 µs	I-III-IV		15		mA
		II		30		
V_{TM}*	T_j = 25 °C I_{TM} = 5.5 A t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}			10		V/µs
(dv/dt)$_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 5.5 A (di/dt)$_c$ = 1.8 A/ms			1		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 5.5 A I_G = 20 mA di_G/dt = 0.25 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A1 A2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

SGS-THOMSON MICROELECTRONICS

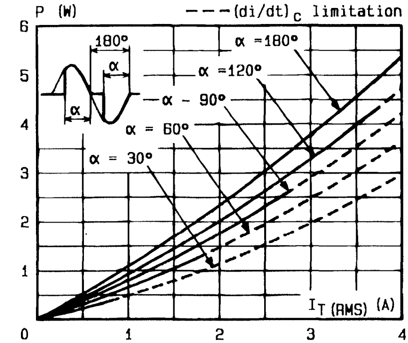


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

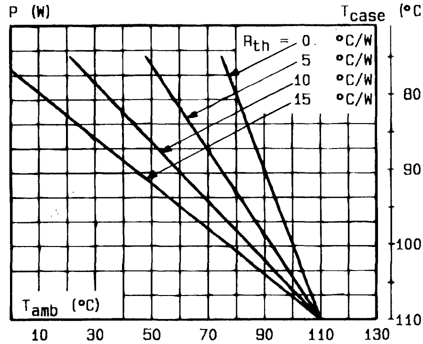


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

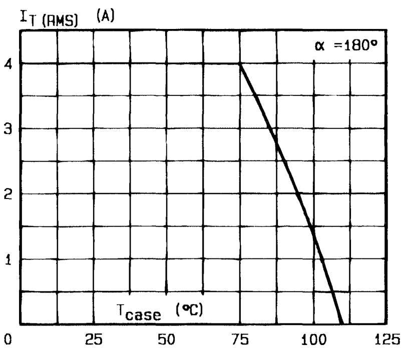


Fig.3 - RMS on-state current versus case temperature.

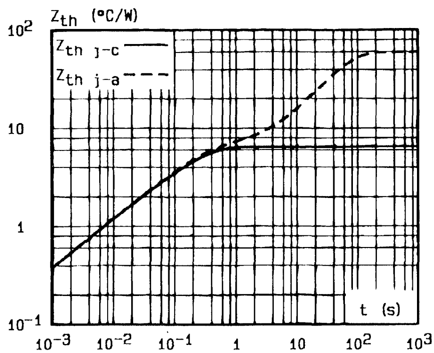


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

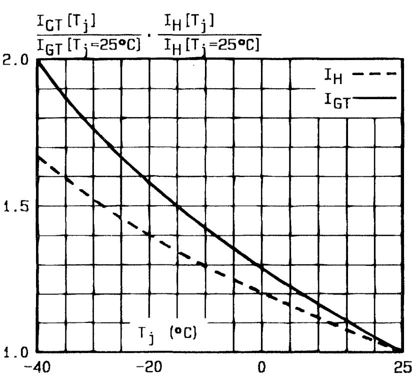


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

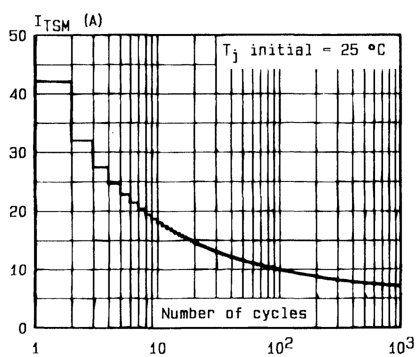


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

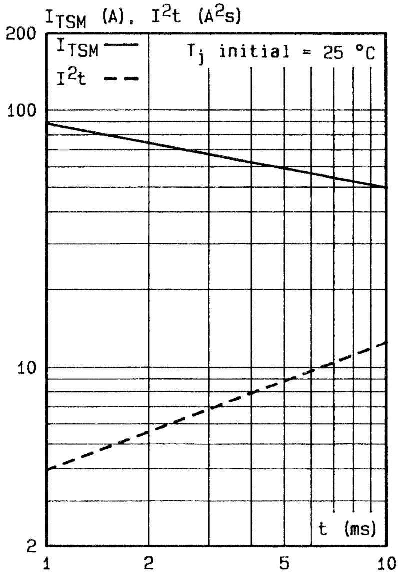


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

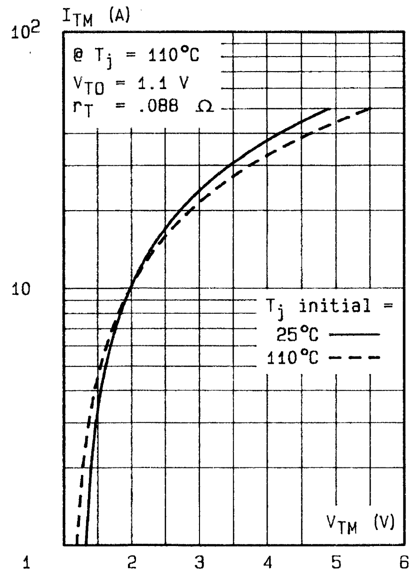


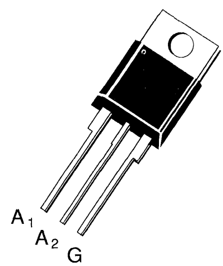
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA/BTB 04 S

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	4	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 04–					Unit
		200S	400S	600S	700S	800S	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	8.7	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	6.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

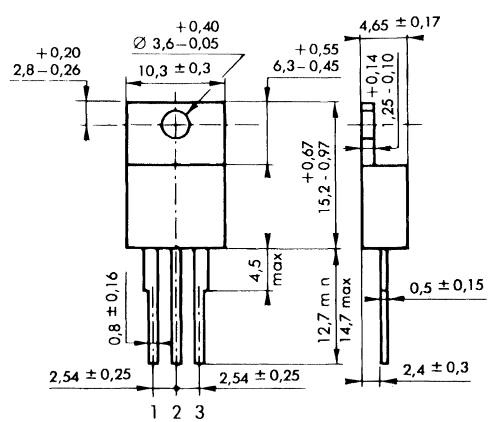
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			10	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 20 mA Pulse Duration > 20 µs	I-III-IV		25		mA
		II		50		
V_{TM}*	T_j = 25 °C I_{TM} = 5.5 A t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		10			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 5.5 A $(di/dt)_c$ = 1.8 A/ms			5		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 5.5 A I_G = 40 mA di_G/dt = 0.45 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A_1 A_2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

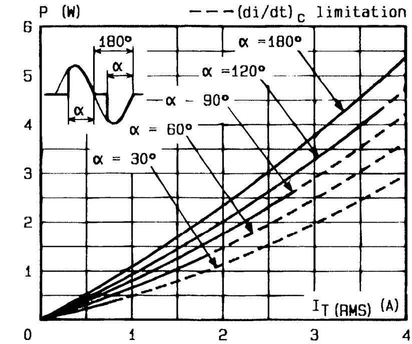
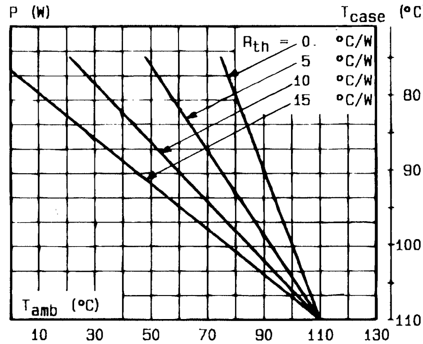


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).



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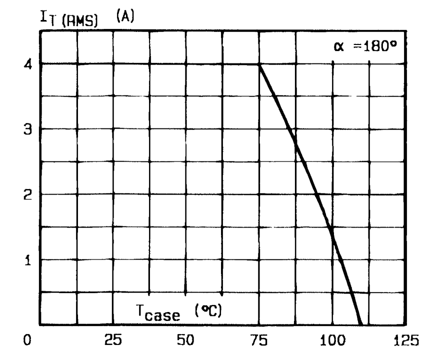


Fig.3 - RMS on-state current versus case temperature.

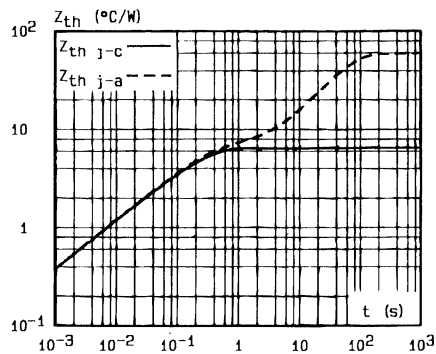


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

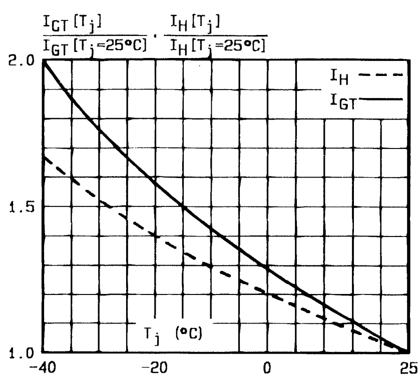


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

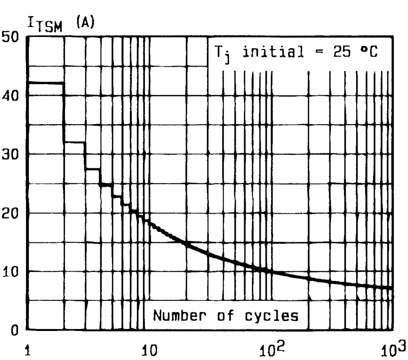


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

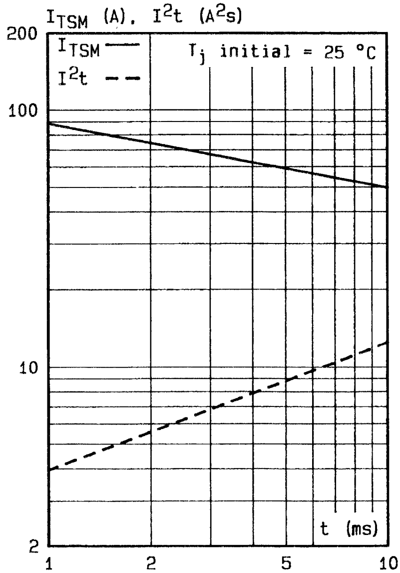


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

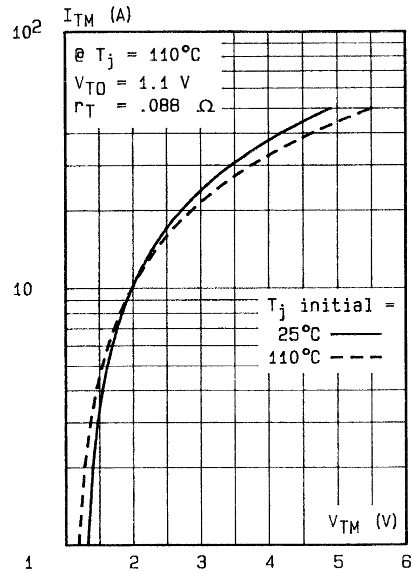
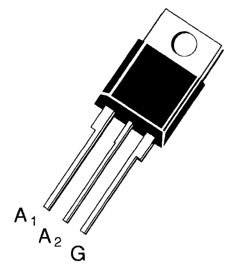


Fig.8 - On-state characteristics (maximum values).

BTA/BTB 04 T

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	4	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 04–					Unit
		200T	400T	600T	700T	800T	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 50 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	8.7	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	6.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

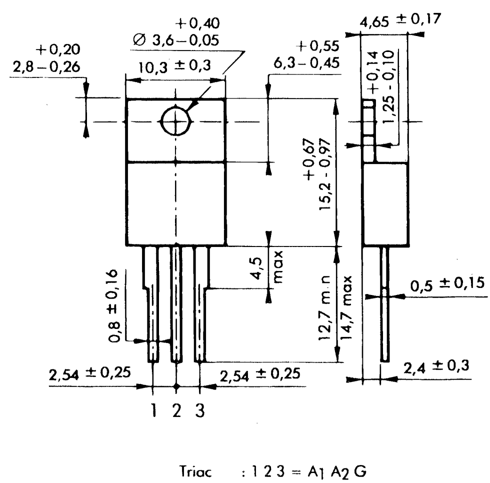
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			5	mA
V_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				15	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 10 mA Pulse Duration > 20 µs	I-III-IV		15		mA
				II		30		
V_{TM}*	T_j = 25 °C	I_{TM} = 5.5 A	t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C	Gate Open	Linear Slope up to V_D = 67 % V_{DRM}			10		V/µs
(dv/dt)$_c$*	T_C = 75 °C	V_D = V_{DRM}	I_T = 5.5 A (di/dt)$_c$ = 1.8 A/ms			1		V/µs
t_{gt}	T_j = 25 °C I_G = 20 mA	V_D = V_{DRM} di_G/dt = 0.25 A/µs	I_T = 5.5 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

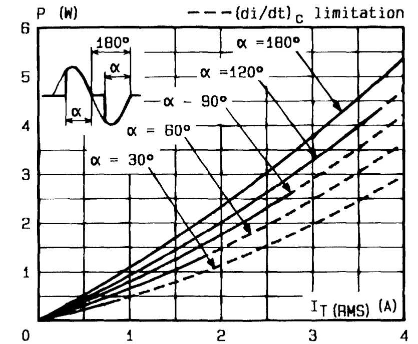


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

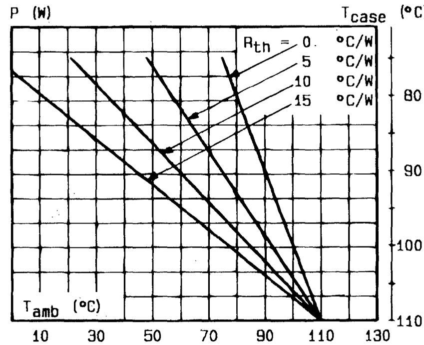


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

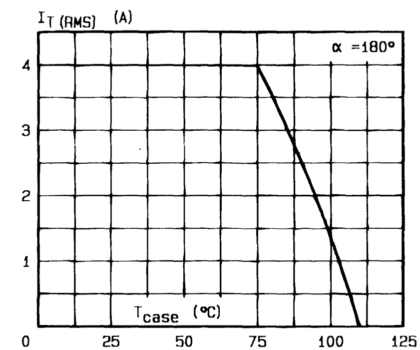


Fig.3 - RMS on-state current versus case temperature.

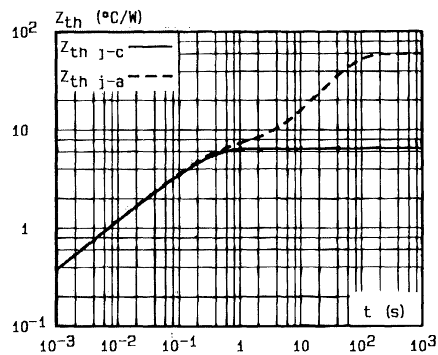


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

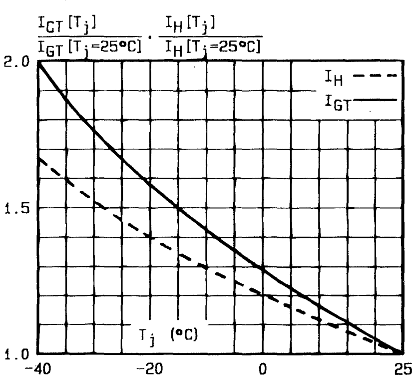


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

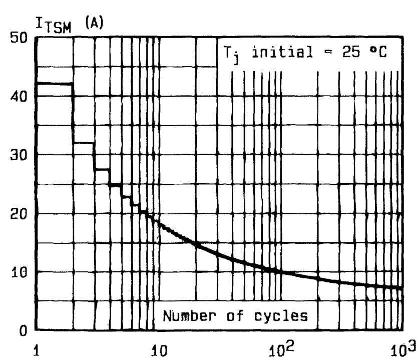


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

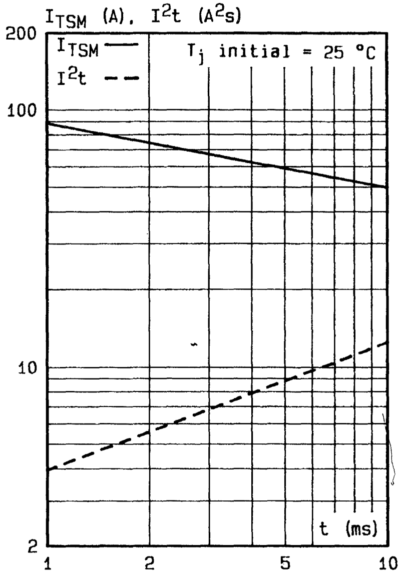


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

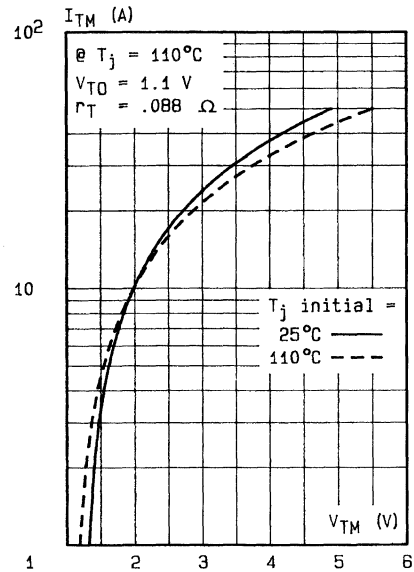
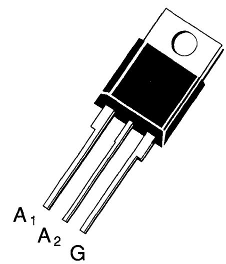


Fig.8 - On-state characteristics (maximum values).

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	6	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t Value for Fusing	t = 10 ms	18	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 06–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 250 mA di_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	5.8	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	4.3	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

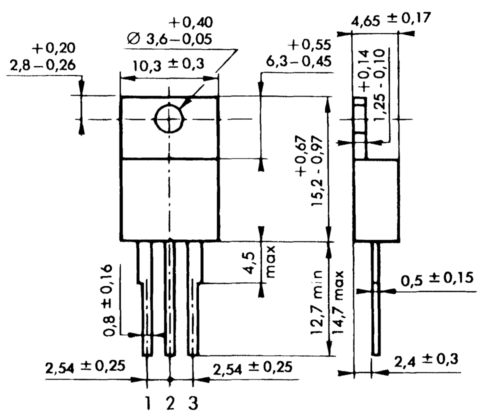
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions				Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω		I-II-III			10	mA
	Pulse Duration > 20 µs				IV			25	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω		I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ		I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open					25	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 50 mA		I-III-IV		25		mA
	Pulse Duration > 20 µs				II		50		
V_{TM}*	T_j = 25 °C	I_{TM} = 8.5 A	t_p = 10 ms					1.65	V
I_{DRM}*	V_{DRM} Specified			T_j = 25 °C				0.01	mA
				T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open				10			V/µs
$(dv/dt)_c$*	T_C = 75 °C $(di/dt)_c$ = 2.7 A/ms	V_D = V_{DRM}	I_T = 8.5 A				5		V/µs
t_{gt}	T_j = 25 °C I_G = 40 mA	V_D = V_{DRM} di_G/dt = 0.45 A/µs	I_T = 8.5 A		I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A_1 A_2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

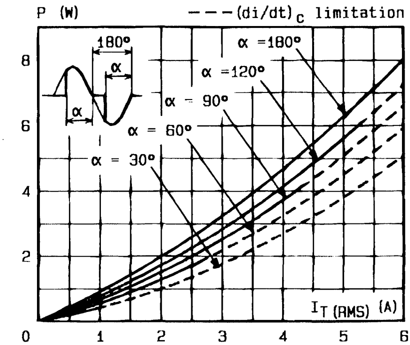


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

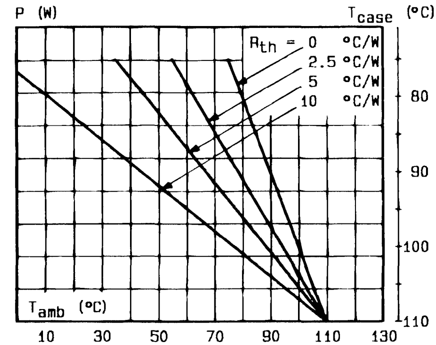


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

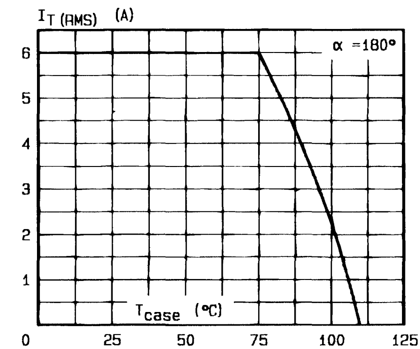


Fig.3 - RMS on-state current versus case temperature.

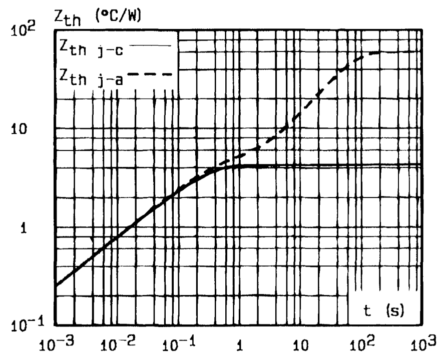


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

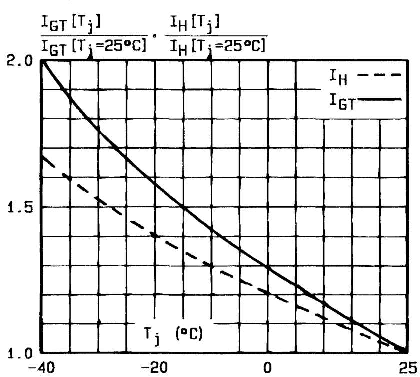


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

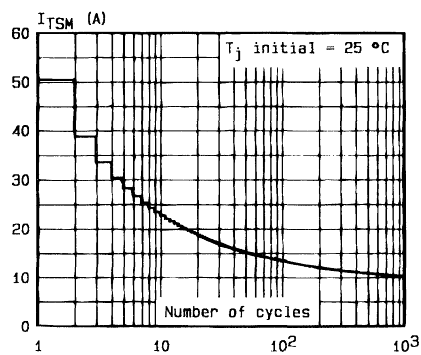


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

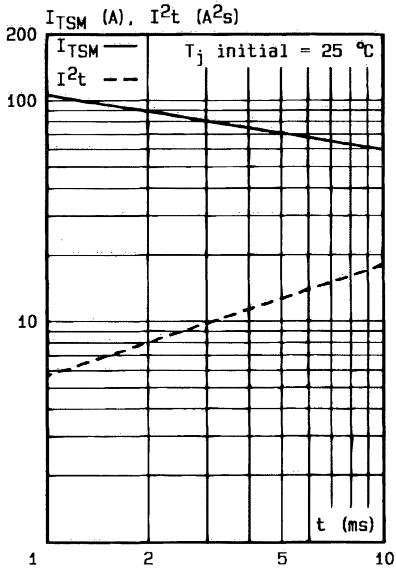


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

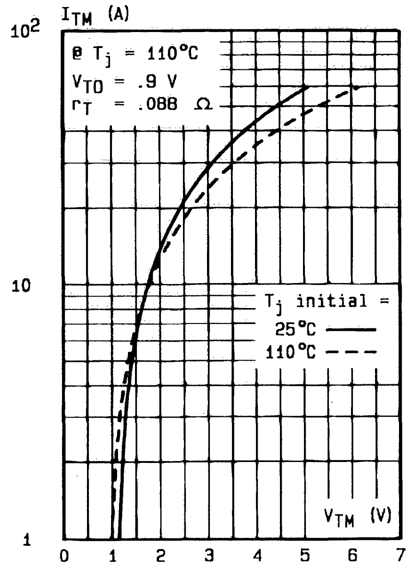


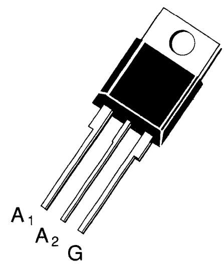
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

BTA/BTB 06 B

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_C > 10$ V/µs
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	6	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t Value for Fusing	t = 10 ms	18	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 06–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	6.1	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	4.6	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)
$P_{G (AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

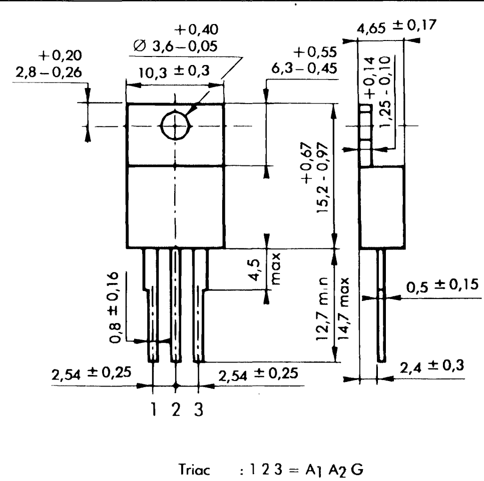
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			50	mA
				IV			100	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 200 mA	I-III-IV		50		mA
				II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 8.5 A	t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			250	500		V/µs
$(dv/dt)_c$*	T_C = 75 °C $(di/dt)_c$ = 2.7 A/ms	V_D = V_{DRM}	I_T = 8.5 A		10			V/µs
t_{gt}	T_j = 25 °C I_G = 80 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 8.5 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

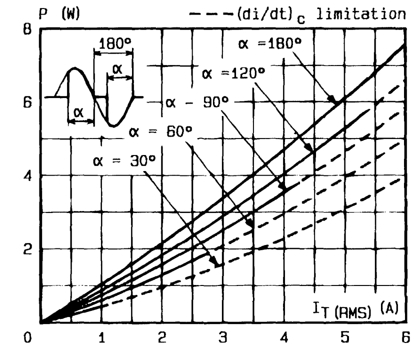


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

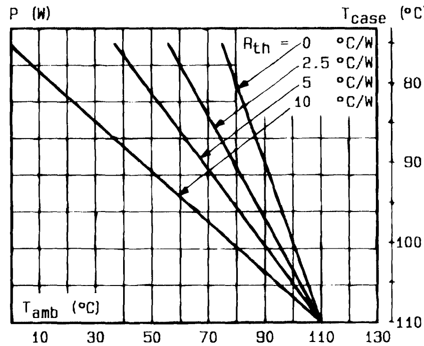


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

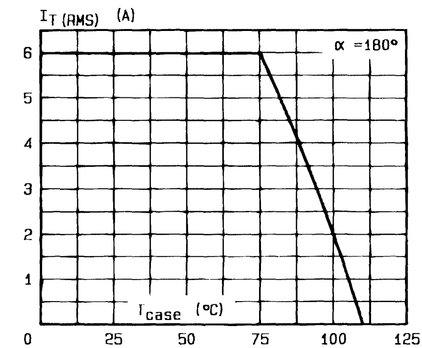


Fig.3 - RMS on-state current versus case temperature.

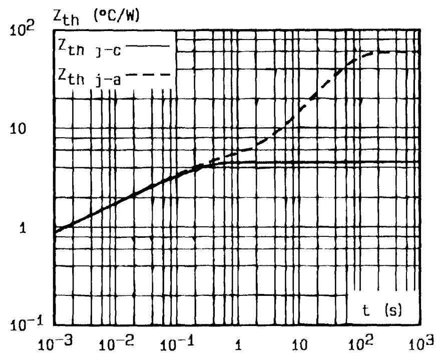


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

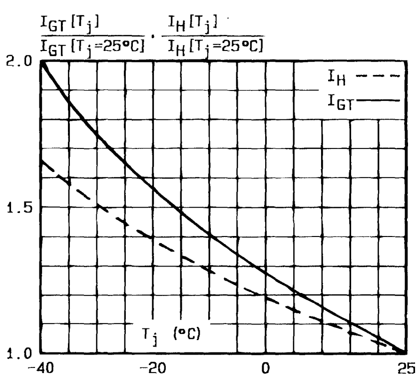


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

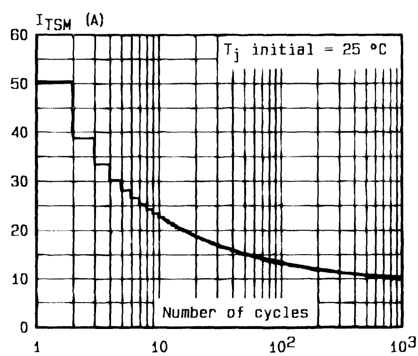


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

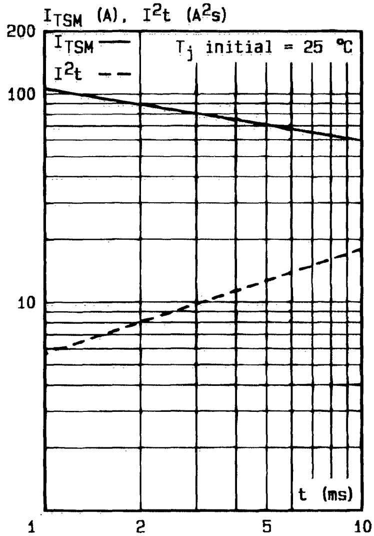


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

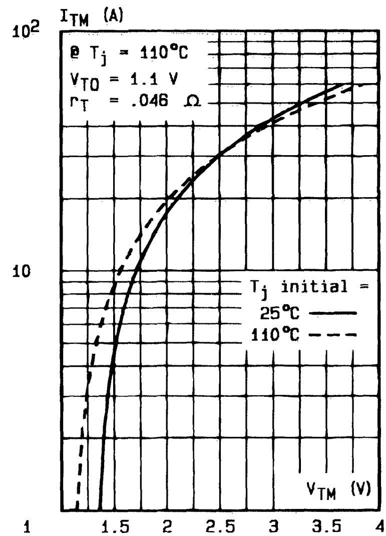


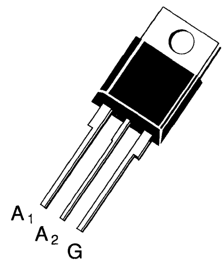
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA/BTB 06 C

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_C > 5\ V/\mu s$
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	6	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t Value for Fusing	t = 10 ms	18	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 06–					Unit
		200C	400C	600C	700C	800C	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 500 mA di_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	6.1	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	4.6	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

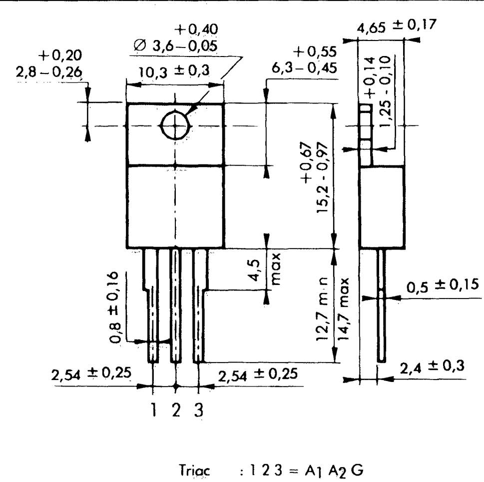
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			25	mA
				IV			50	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				25	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 100 mA	I-III-IV		50		mA
				II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 8.5 A	t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			100	200		V/µs
(dv/dt)$_c$*	T_C = 75 °C (di/dt)$_c$ = 2.7 A/ms	V_D = V_{DRM}	I_T = 8.5 A		5			V/µs
t_{gt}	T_j = 25 °C I_G = 80 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 8.5 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

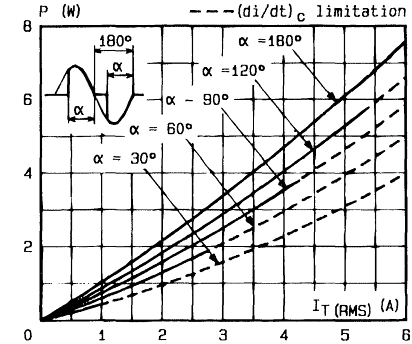


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

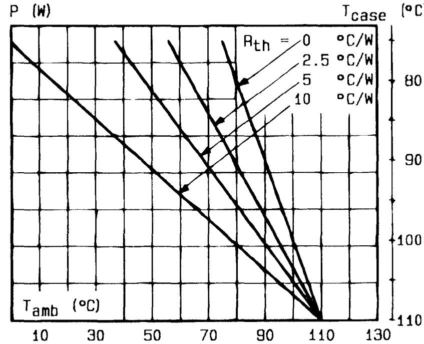


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

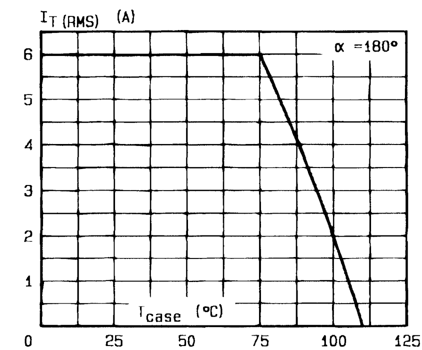


Fig.3 - RMS on-state current versus case temperature.

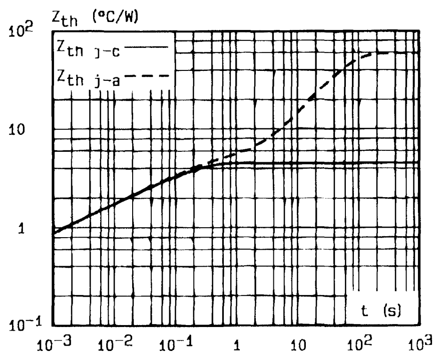


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

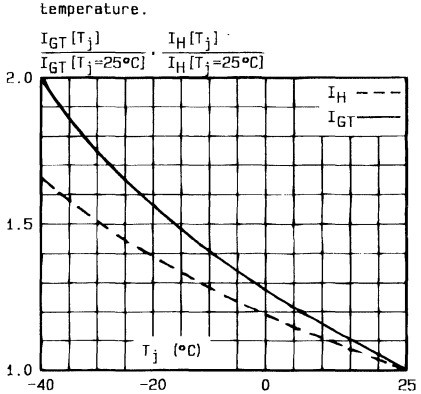


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

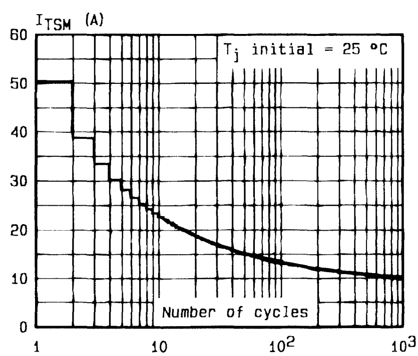


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

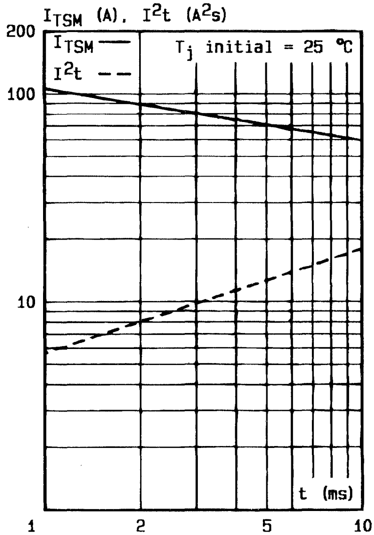


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

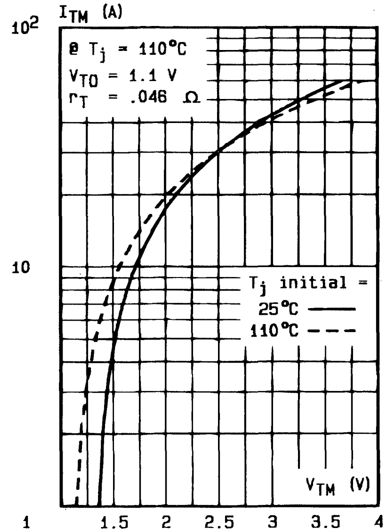
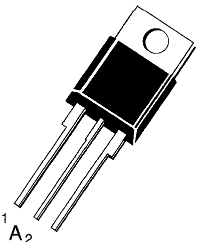


Fig.8 - On-state characteristics (maximum values).

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	6	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t Value for Fusing	t = 10 ms	18	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 06–					Unit
		200D	400D	600D	700D	800D	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	5.8	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	4.3	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

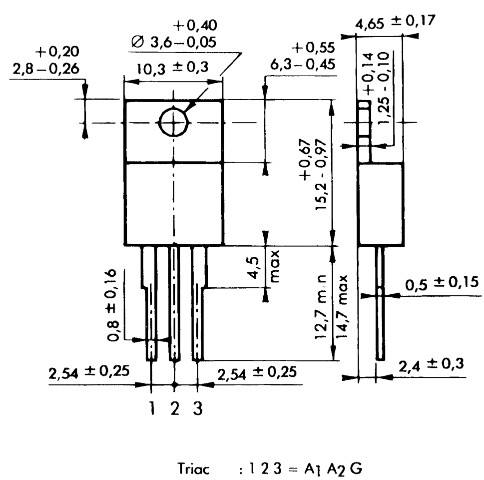
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			5	mA
		IV			10	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				15	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 20 mA Pulse Duration > 20 µs	I-III-IV		15		mA
		II		30		
V_{TM}*	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}			10		V/µs
(dv/dt)$_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 8.5 A (di/dt)$_c$ = 2.7 A/ms			1		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 8.5 A I_G = 20 mA di_G/dt = 0.25 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

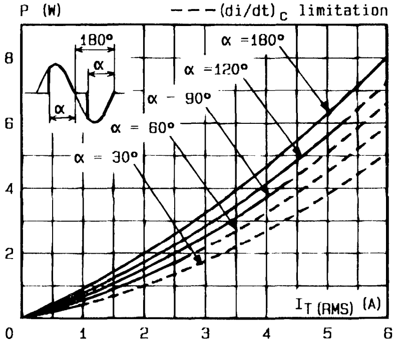


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

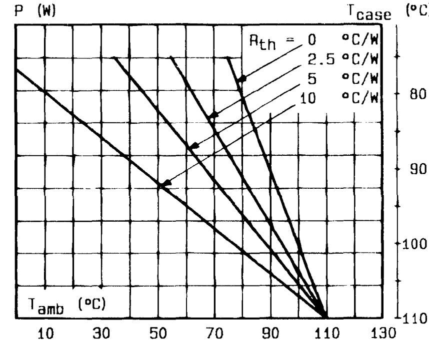


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

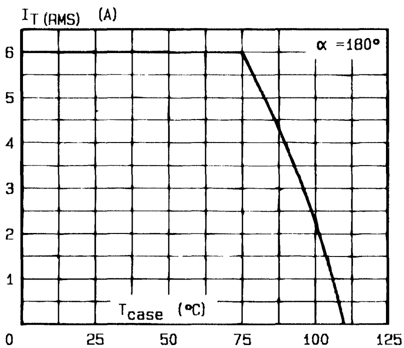


Fig.3 - RMS on-state current versus case temperature.

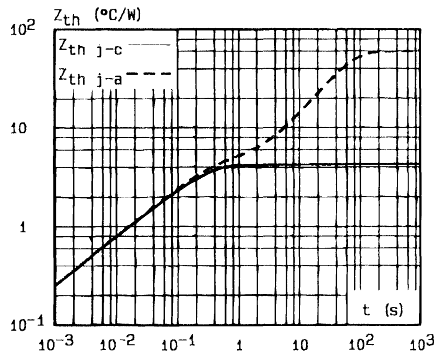


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

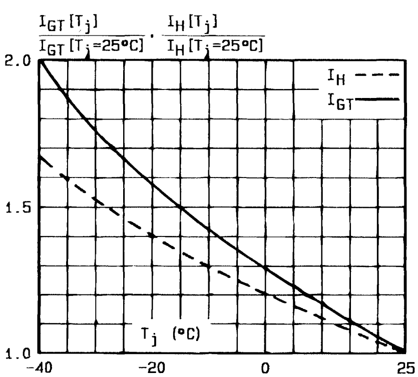


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

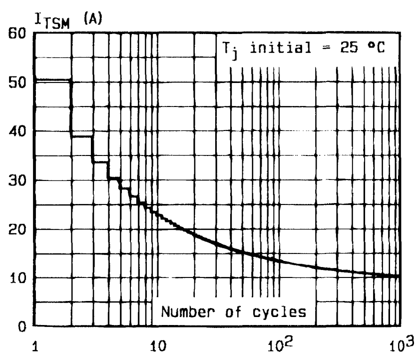


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

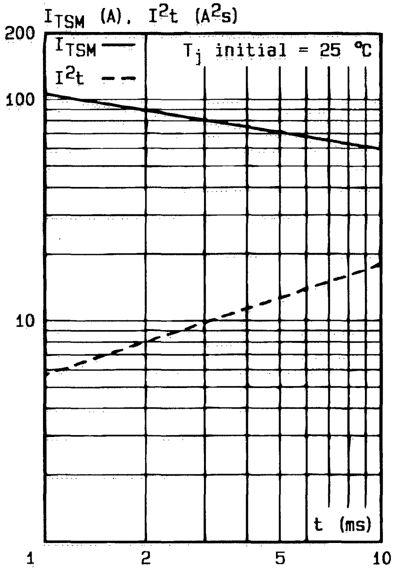


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

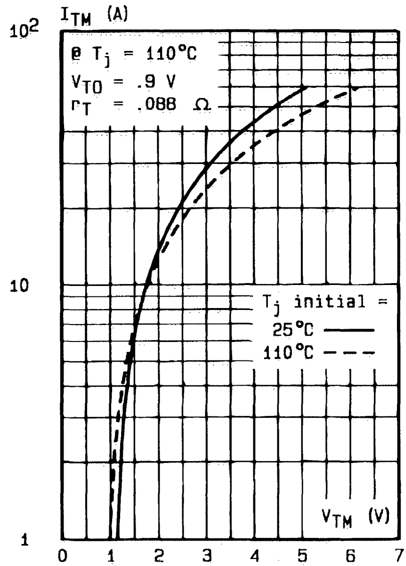
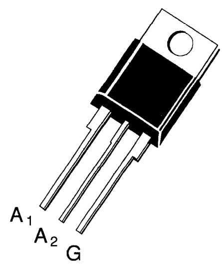


Fig.8 - On-state characteristics (maximum values).

BTA/BTB 06 S

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	6	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t Value for Fusing	t = 10 ms	18	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 06–					Unit
		200S	400S	600S	700S	800S	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	5.8	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	4.3	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

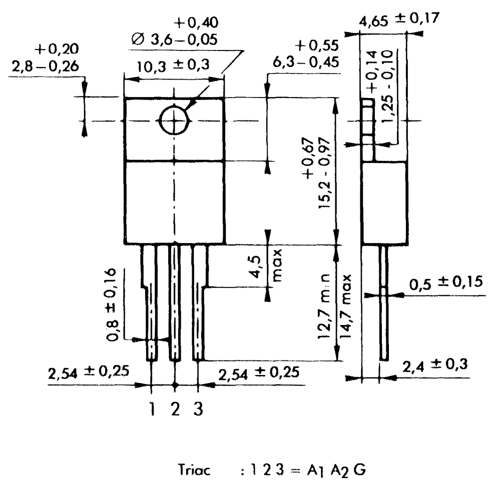
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			10	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 20 mA Pulse Duration > 20 µs	I-III-IV		25		mA
		II		50		
V_{TM}*	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		10			V/µs
(dv/dt)$_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 8.5 A (di/dt)$_c$ = 2.7 A/ms			5		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 8.5 A I_G = 40 mA di_G/dt = 0.45 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

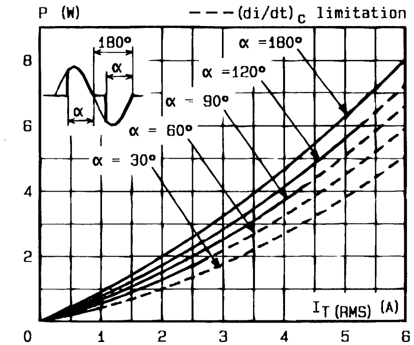


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

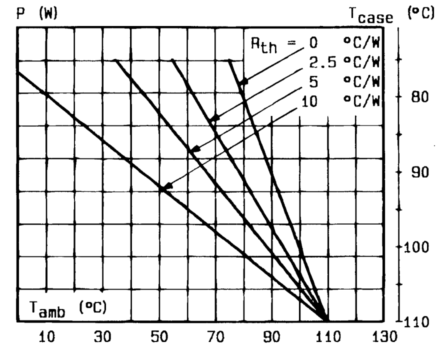


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

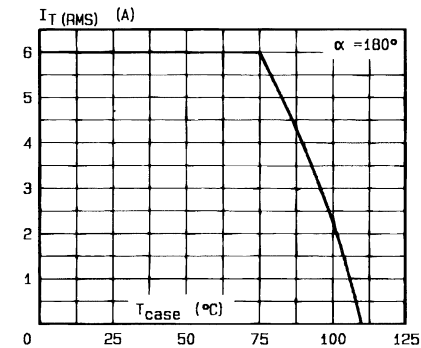


Fig.3 - RMS on-state current versus case temperature.

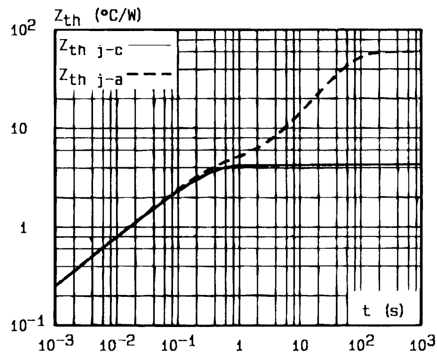


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

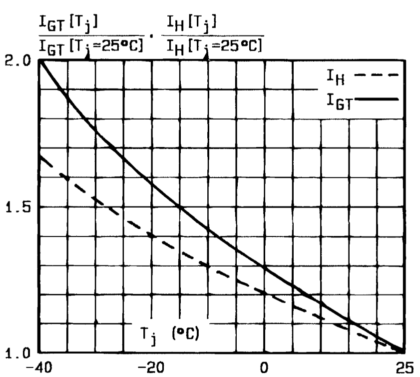


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

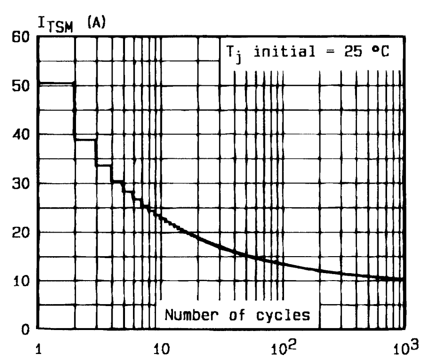


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

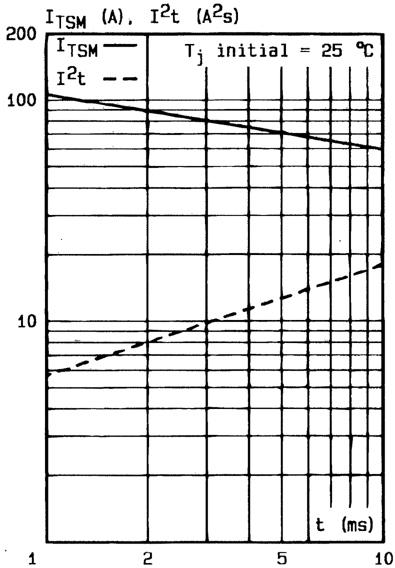


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

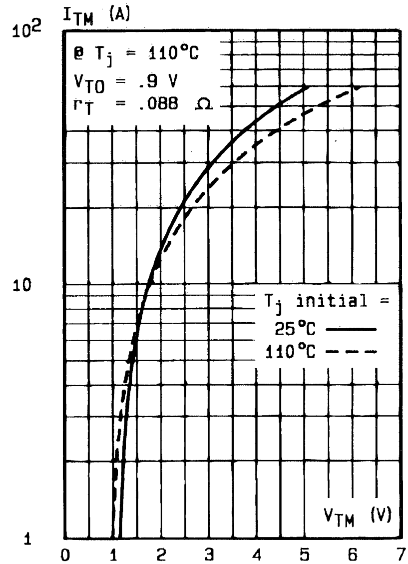


Fig.8 - On-state characteristics (maximum values).

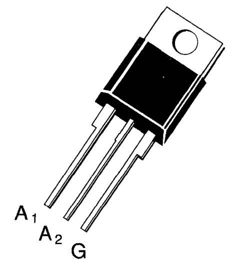
BTA/BTB 06 SW

LOGIC LEVEL TRIACS

- I_{TRMS} = 6 A at T_c = 80 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 10 mA (QI-II-III).
- $(di / dt)_c$ = 3.5 A / ms @ $(dv / dt)_c$ = 50 V / µs.
- SUITED FOR LOW POWER TRIGGER CIRCUITS (INTEGRATED CIRCUITS AND MICROPROCESSORS).
- GLASS PASSIVATED CHIP.
- HIGH EFFICIENCY SWITCHING.
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE : 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES.
- UL RECOGNIZED FOR BTA SERIES (E81734).

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.



TO 220 AB
(CB-415 Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 80 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	95	A
		t = 10 ms	85	
I^2t	I^2t value	t = 10 ms	36	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 110	°C °C

Symbol	Parameter	BTA/BTB 06-					Unit
		200 SW	400 SW	600 SW	700 SW	800 SW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 100 mA – dI_G / dt = 1 A / µs.
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	4.8	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	3.6	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			10	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				25	mA
I_L	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs I_G = 50 mA	I-III		25		mA
		II		50		
V_{TM}*	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.75	V
I_{DRM}*	T_j = 25 °C — V_{DRM} rated Gate open				10	µA
	T_j = 110 °C — V_{DRM} rated Gate open				500	
dv/dt*	T_j = 110 °C Gate open Linear slope up to 0.67 V_{DRM}		50			V/µs
$(di/dt)_c$*	T_j = 110 °C $(dv/dt)_c$ = 0.1 V/µs		3.5	5		A/ms
	T_j = 110 °C $(dv/dt)_c$ = 50 V/µs		2.7	3.5		
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 50 mA I_T = 8.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

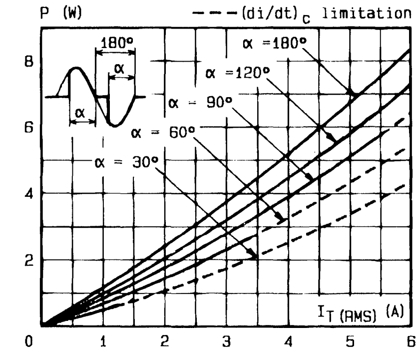


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

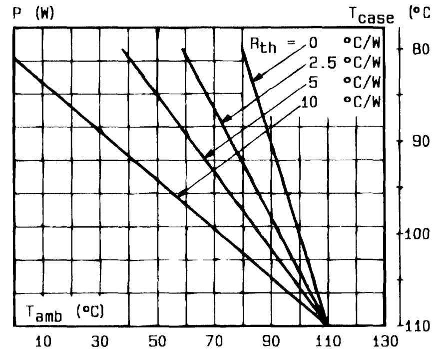


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

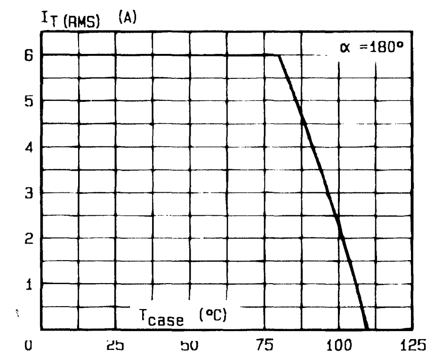


Fig.3 - RMS on-state current versus case temperature.

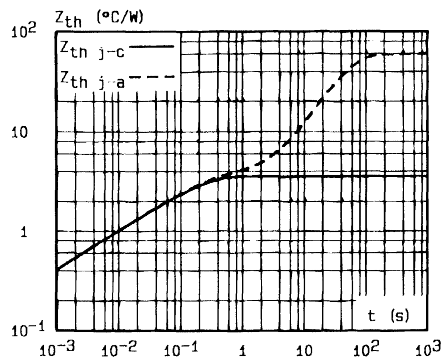


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

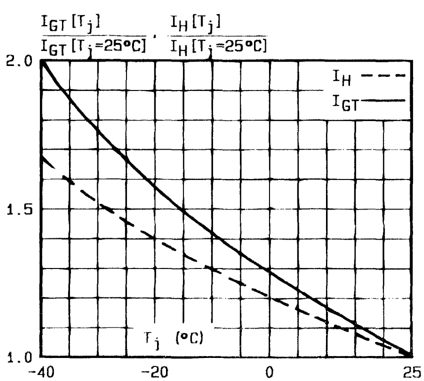


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

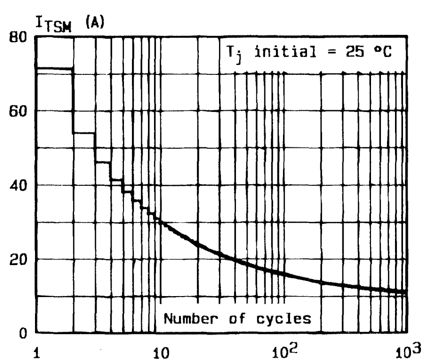


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

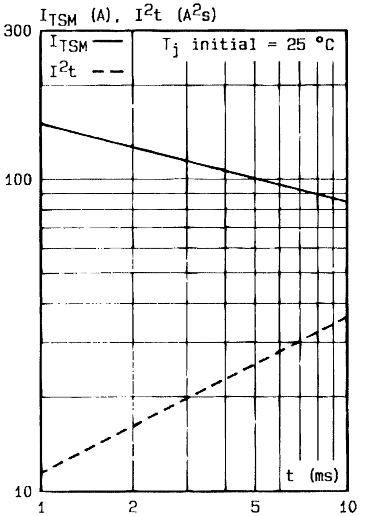


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

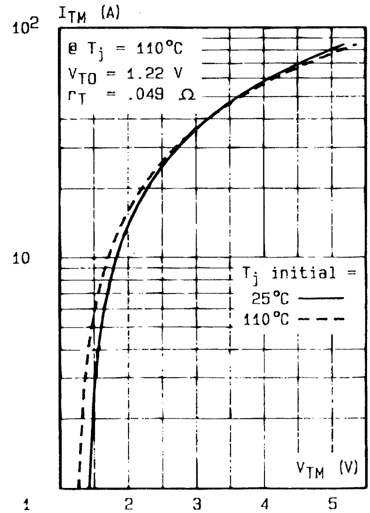


Fig.8 - On-state characteristics (maximum values).

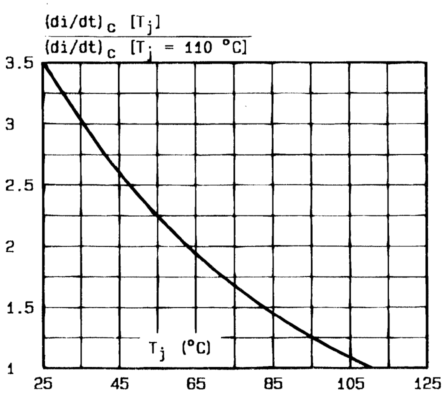


Fig.9 - Relative variation of $(di/dt)_c$ versus junction temperature.

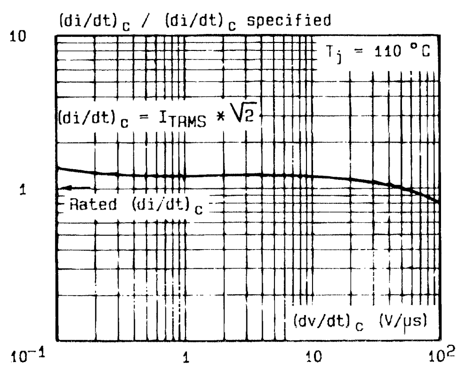
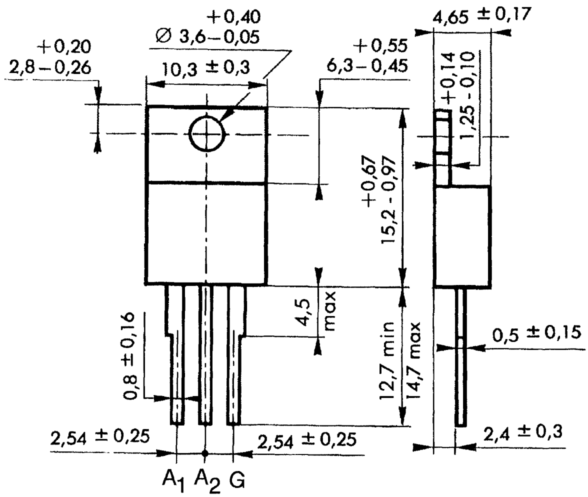


Fig.10 - Relative variation of $(di/dt)_c$ versus $(dv/dt)_c$ (inductive load) (typical values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



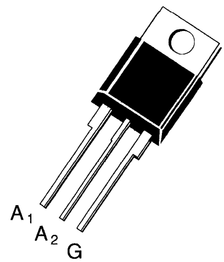
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON MICROELECTRONICS

BTA/BTB 06 T

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	6	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t Value for Fusing	t = 10 ms	18	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 06–					Unit
		200T	400T	600T	700T	800T	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 50 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	5.8	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	4.3	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

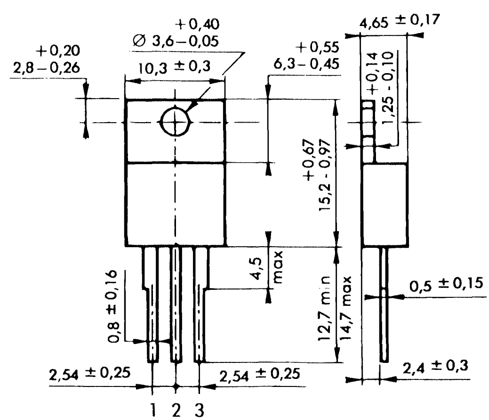
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			5	mA
	Pulse Duration > 20 µs							
V_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
	Pulse Duration > 20 µs							
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				15	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 10 mA	I-III-IV		15		mA
	Pulse Duration > 20 µs			II		30		
V_{TM}*	T_j = 25 °C	I_{TM} = 8.5 A	t_p = 10 ms				1.65	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C	Gate Open				10		V/µs
	Linear Slope up to V_D = 67 % V_{DRM}							
$(dv/dt)_c$*	T_C = 75 °C	V_D = V_{DRM}	I_T = 8.5 A			1		V/µs
	$(di/dt)_c$ = 2.7 A/ms							
t_{gt}	T_j = 25 °C	V_D = V_{DRM}	I_T = 8.5 A	I-II-III-IV		2		µs
	I_G = 20 mA	dI_G/dt = 0.25 A/µs						

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A1 A2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

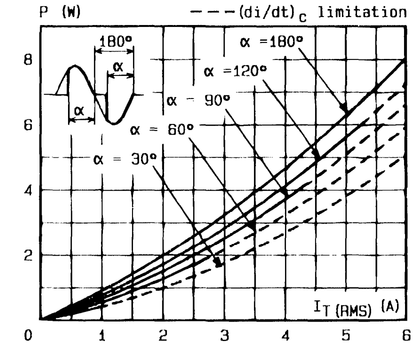


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

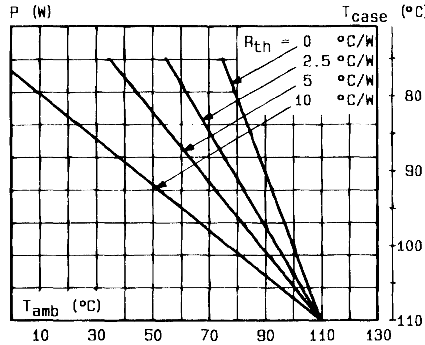


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

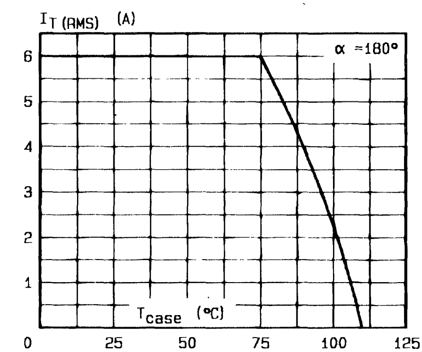


Fig.3 - RMS on-state current versus case temperature.

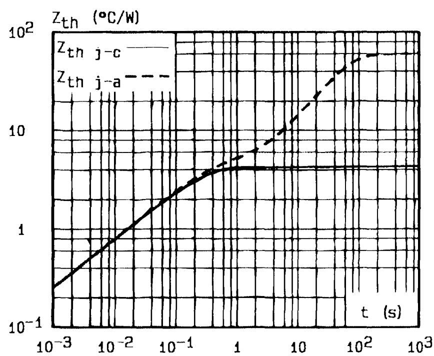


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

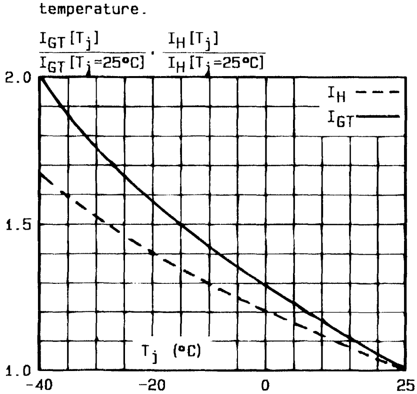


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

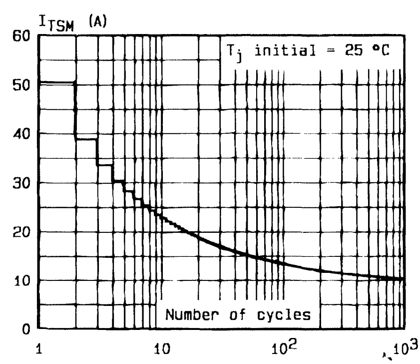


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

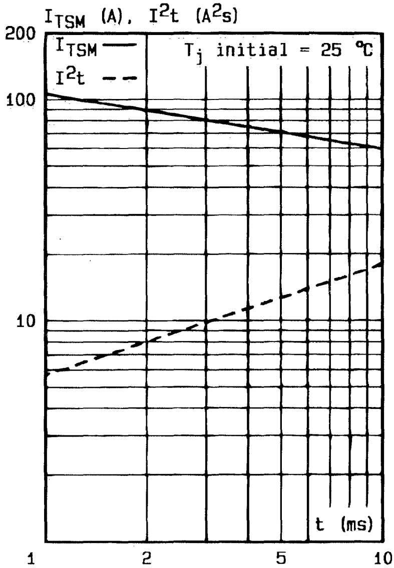


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leqslant 10$ ms, and corresponding value of I^2t.

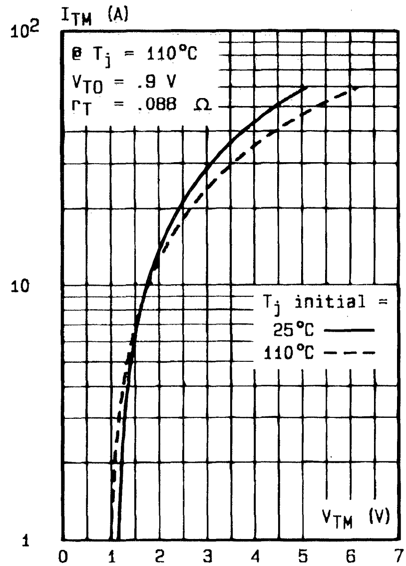


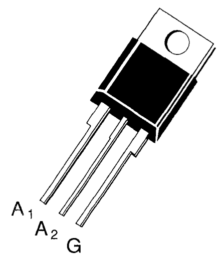
Fig.8 - On-state characteristics (maximum values) .

LOGIC LEVEL TRIACS

- I_{TRMS} = 6 A at T_c = 80 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 5 mA (QI-II-III).
- (di / dt) $_c$ = 2.7 A / ms @ (dv / dt) $_c$ = 20 V / µs.
- SUITED FOR LOW POWER TRIGGER CIRCUITS (INTEGRATED CIRCUITS AND MICROPROCESSORS).
- GLASS PASSIVATED CHIP.
- HIGH EFFICIENCY SWITCHING.
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE : 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES.
- UL RECOGNIZED FOR BTA SERIES (E81734).

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.



TO 220 AB
(CB-415 Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 80 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 C)	t = 8.3 ms	95	A
		t = 10 ms	85	
I^2t	I^2t value	t = 10 ms	36	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 110	°C °C

Symbol	Parameter	BTA/BTB 06-					Unit
		200 TW	400 TW	600 TW	700 TW	800 TW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 50 mA – dI_G / dt = 1 A / µs.
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	4.8	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	3.6	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			5	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				15	mA
I_L	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs I_G = 25 mA	I-III		15		mA
		II		30		
V_{TM}*	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.75	V
I_{DRM}*	T_j = 25 °C V_{DRM} rated Gate open				10	µA
	T_j = 110 °C				500	
dv/dt*	T_j = 110 °C Gate open Linear slope up to 0.67 V_{DRM}		20			V/µs
$(di/dt)_c$*	T_j = 110 °C $(dv/dt)_c$ = 0.1 V/µs		2.7	4		A/ms
	T_j = 110 °C $(dv/dt)_c$ = 20 V/µs		1.3	2.7		
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 25 mA I_T = 8.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

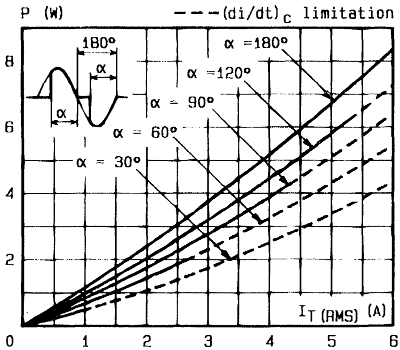


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

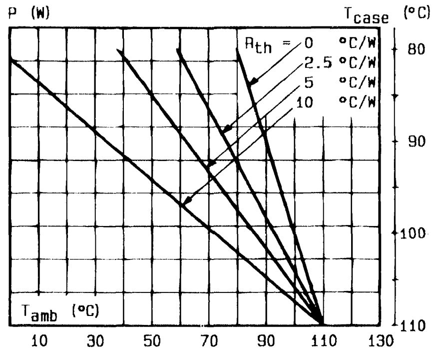


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

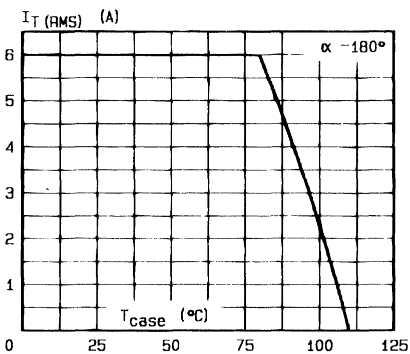


Fig.3 - RMS on-state current versus case temperature.

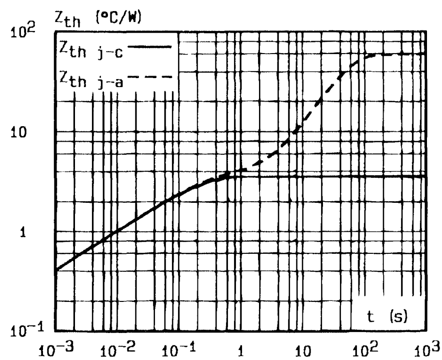


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

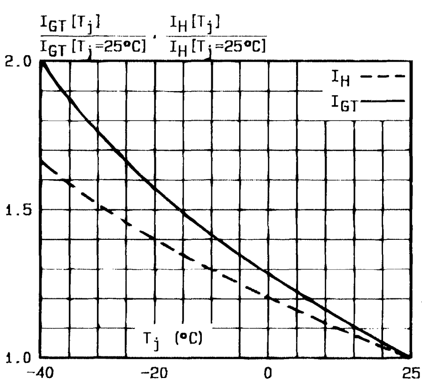


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

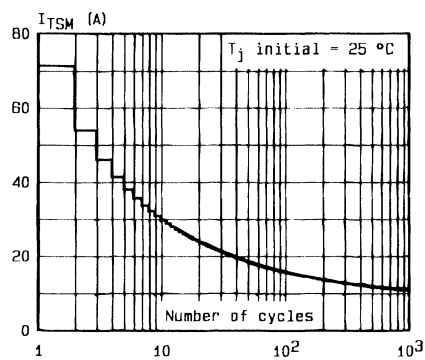


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

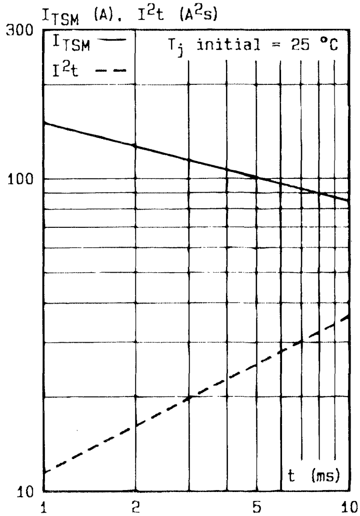


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

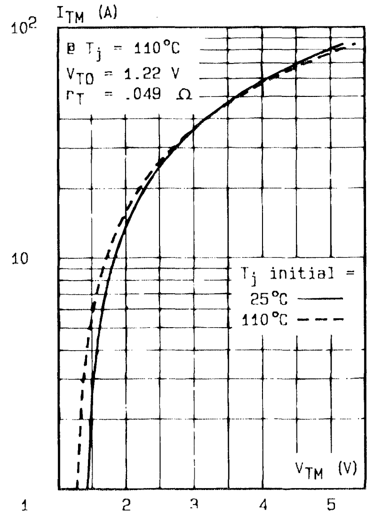


Fig.8 - On-state characteristics (maximum values).

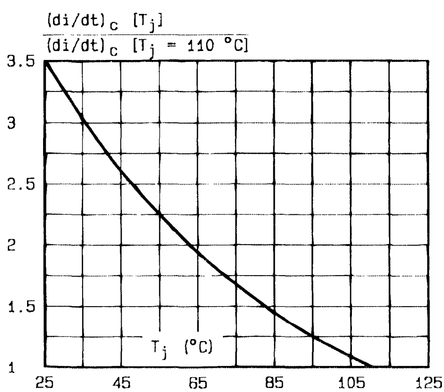


Fig.9 - Relative variation of $(di/dt)_c$ versus junction temperature.

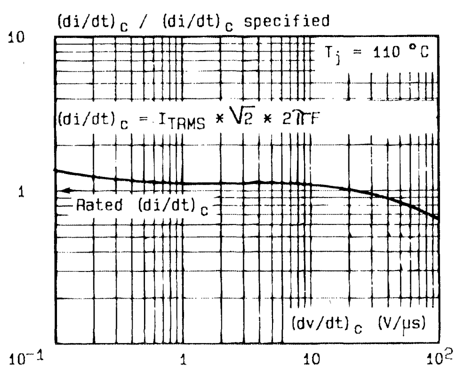
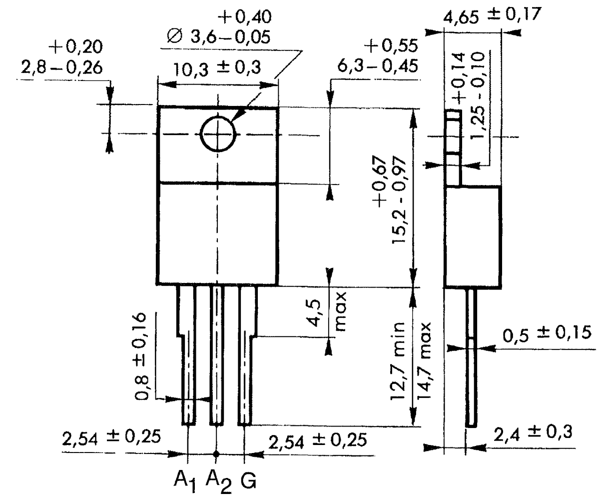


Fig.10 - Relative variation of $(di/dt)_c$ versus $(dv/dt)_c$ (inductive load) (typical values).

PACKAGE MECHANICAL DATA

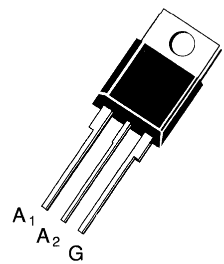
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 08–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 250 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	5.1	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	3.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

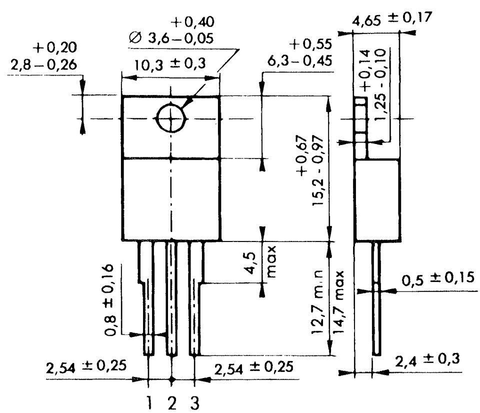
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			10	mA
		IV			25	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 50 mA Pulse Duration > 20 µs	I-III-IV		25		mA
		II		50		
V_{TM}*	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		10			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 11 A $(di/dt)_c$ = 3.5 A/ms			5		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 11 A I_G = 40 mA di_G/dt = 0.45 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A1 A2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

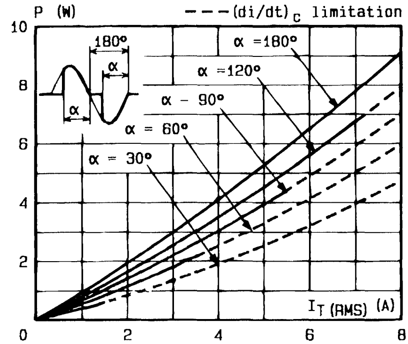


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

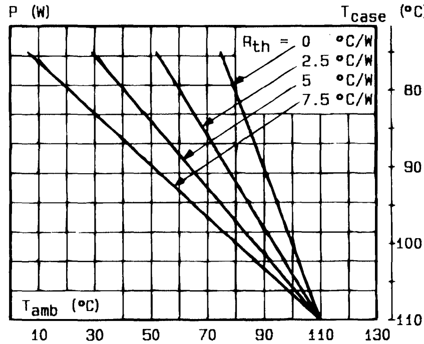


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

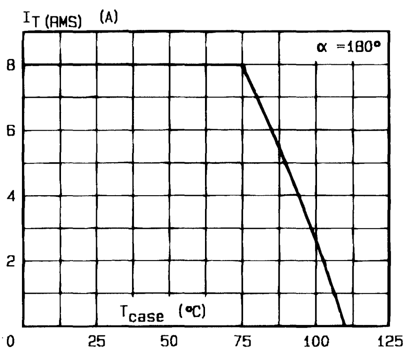


Fig.3 - RMS on-state current versus case temperature.

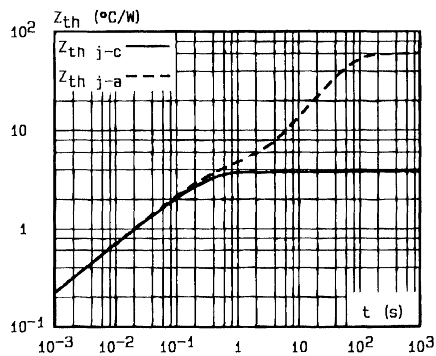


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

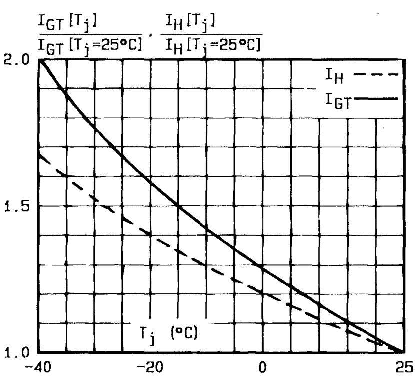


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

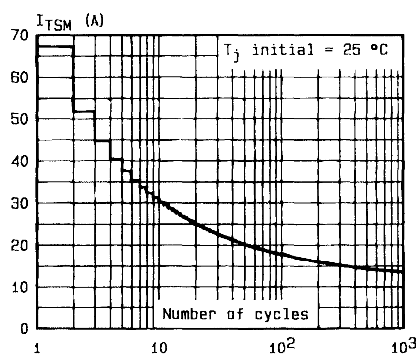


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

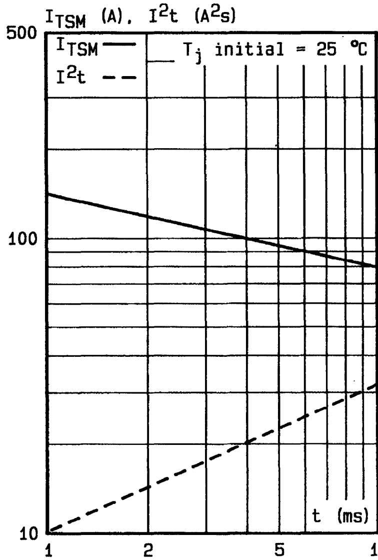


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

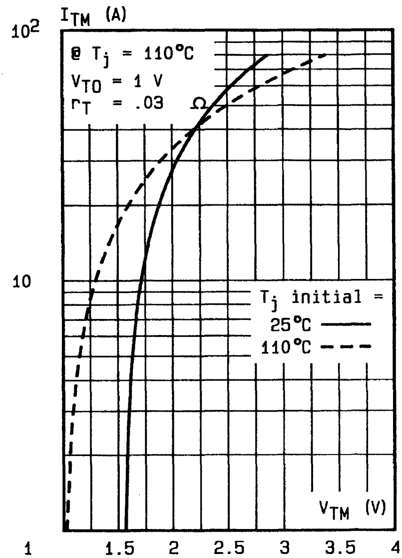
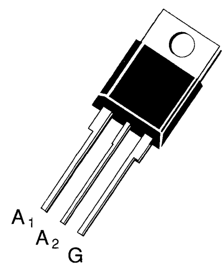


Fig.8 - On-state characteristics (maximum values).

BTA/BTB 08 B

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_C > 10\ V/\mu s$
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 08–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	4.3	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

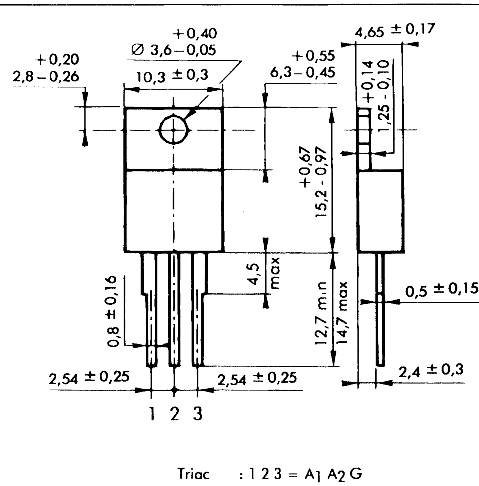
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			50	mA
				IV			100	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 200 mA	I-III-IV		50		mA
				II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 11 A	t_p = 10 ms				1.75	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			250	500		V/µs
$(dv/dt)_c$*	T_C = 75 °C $(di/dt)_c$ = 3.5 A/ms	V_D = V_{DRM}	I_T = 11 A		10			V/µs
t_{gt}	T_j = 25 °C I_G = 80 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 11 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

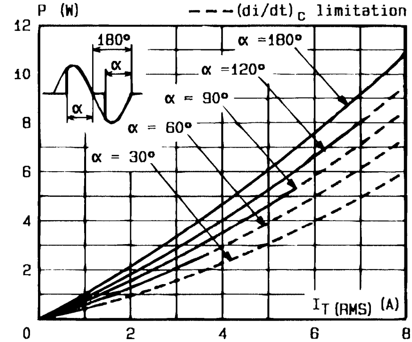


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

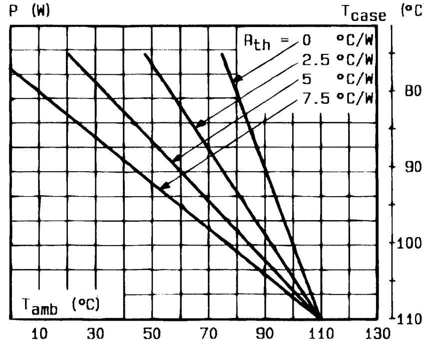


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

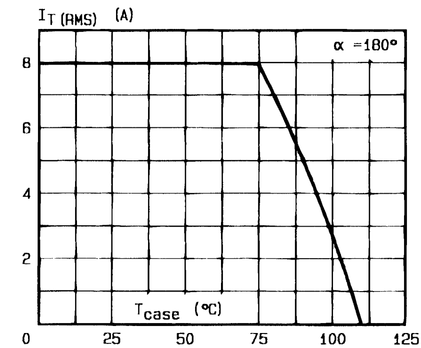


Fig.3 - RMS on-state current versus case temperature.

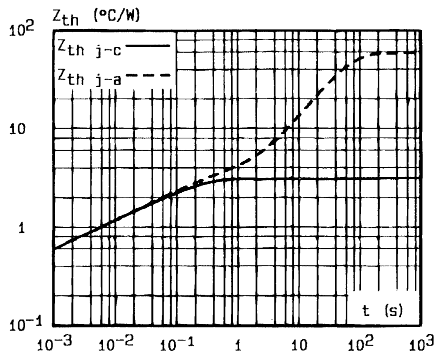


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

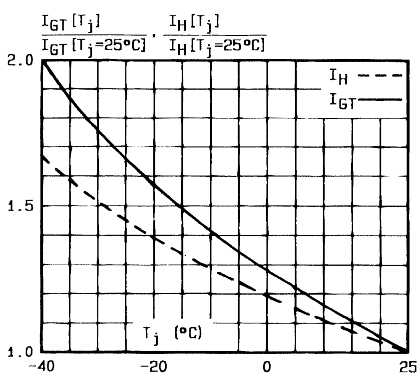


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

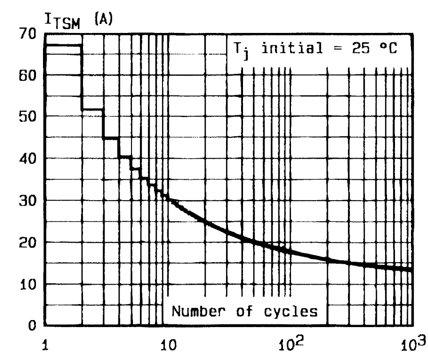


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

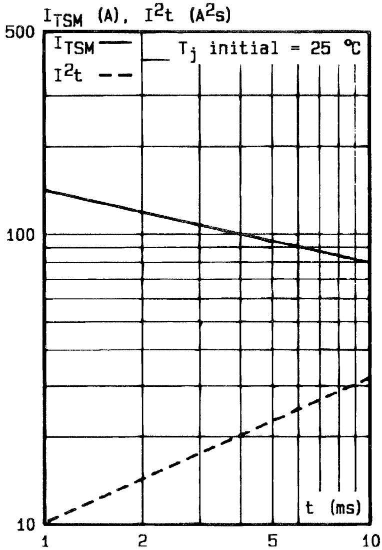


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

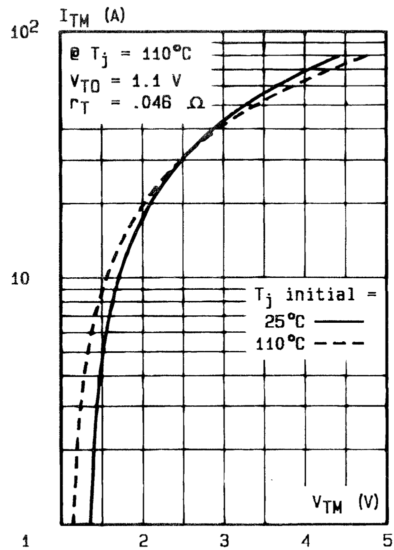
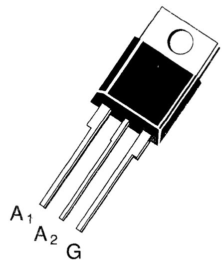


Fig.8 - On-state characteristics (maximum values).

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_c > 5\ V/\mu s$
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 08–					Unit
		200C	400C	600C	700C	800C	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 500 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	4.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

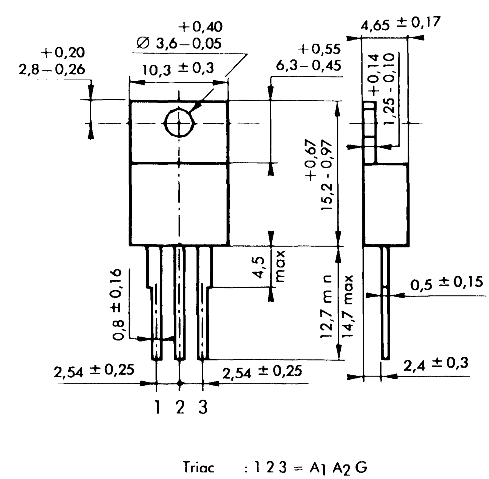
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			25	mA
		IV			50	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 100 mA Pulse Duration > 20 µs	I-III-IV		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		100	200		V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 11 A $(di/dt)_c$ = 3.5 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 11 A I_G = 80 mA di_G/dt = 1 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

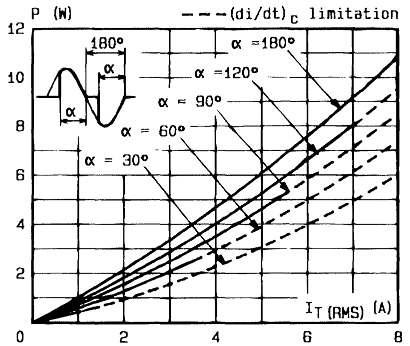


Fig.1 – Maximum mean power dissipation versus RMS on–state current (F = 60 Hz).

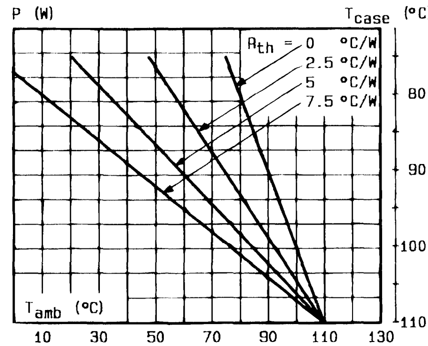


Fig.2 – Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

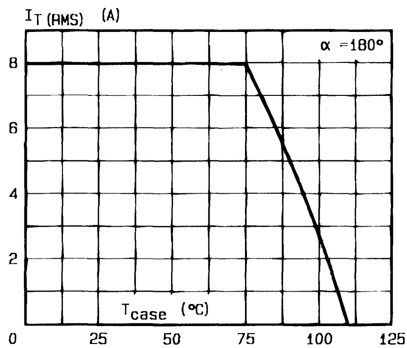


Fig.3 – RMS on-state current versus case temperature.

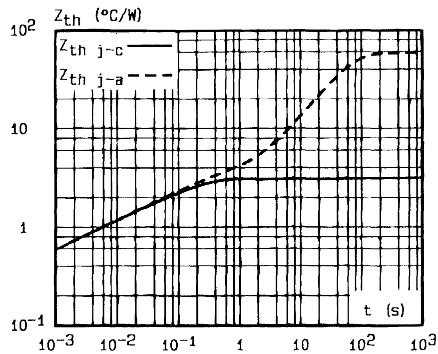


Fig.4 – Thermal transient impedance junction to case and junction to ambient versus pulse duration.

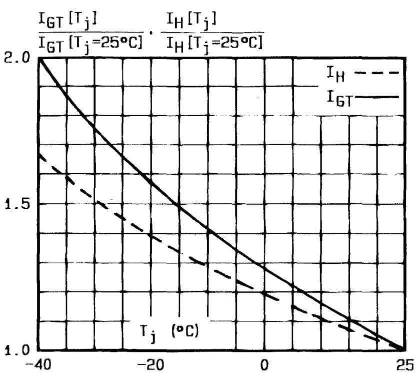


Fig.5 – Relative variation of gate trigger current and holding current versus junction temperature.

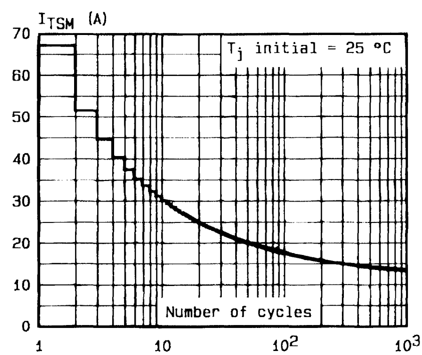


Fig.6 – Non repetitive surge peak on-state current versus number of cycles.

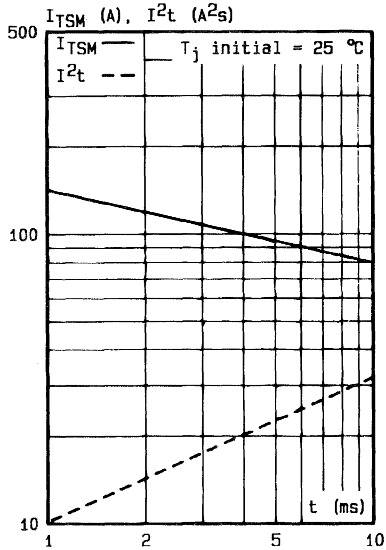


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

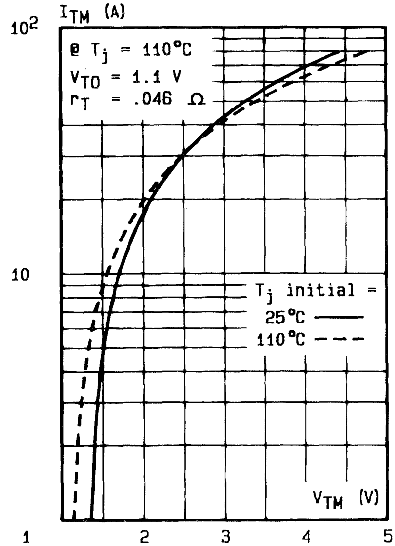


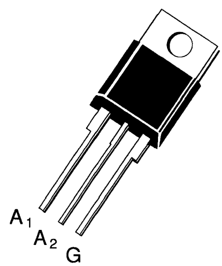
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA/BTB 08 S

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 08–					Unit
		200S	400S	600S	700S	800S	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	5.1	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	3.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

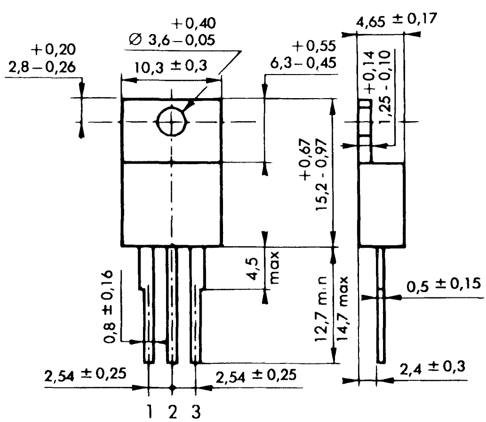
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			10	mA
V_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				25	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 20 mA	I-III-IV		25		mA
				II		50		
V_{TM}*	T_j = 25 °C	I_{TM} = 11 A	t_p = 10 ms				1.75	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			10			V/µs
(dv/dt)$_c$*	T_C = 75 °C $(di/dt)_c$ = 3.5 A/ms	V_D = V_{DRM}	I_T = 11 A			5		V/µs
t_{gt}	T_j = 25 °C I_G = 40 mA	V_D = V_{DRM} di_G/dt = 0.45 A/µs	I_T = 11 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A1 A2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

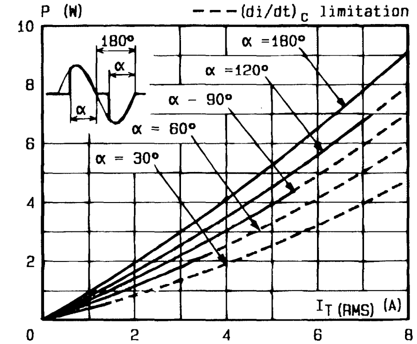


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

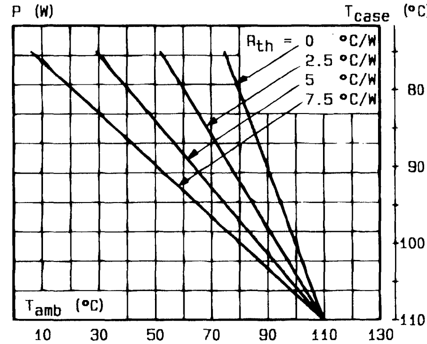


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

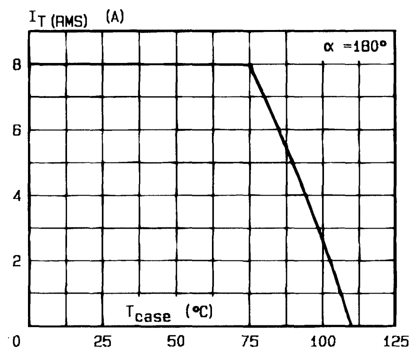


Fig.3 - RMS on-state current versus case temperature.

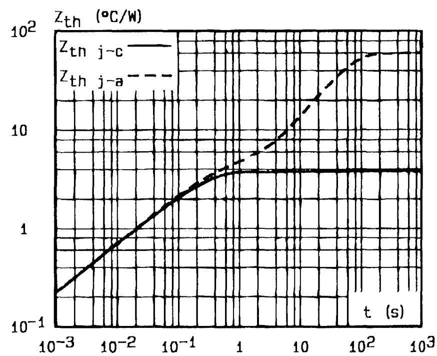


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

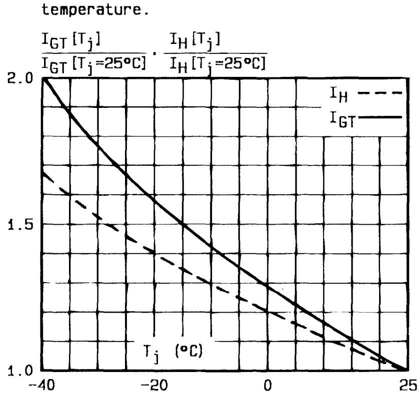


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

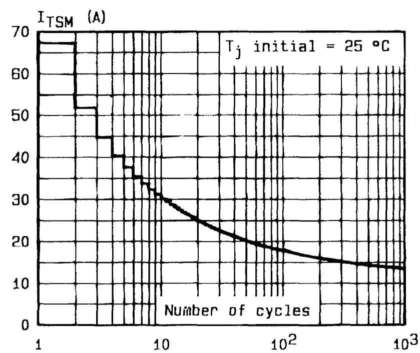


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

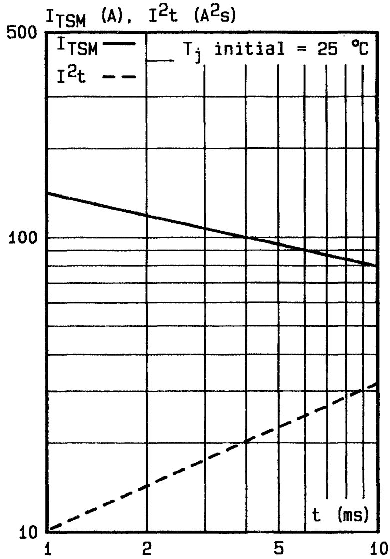


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

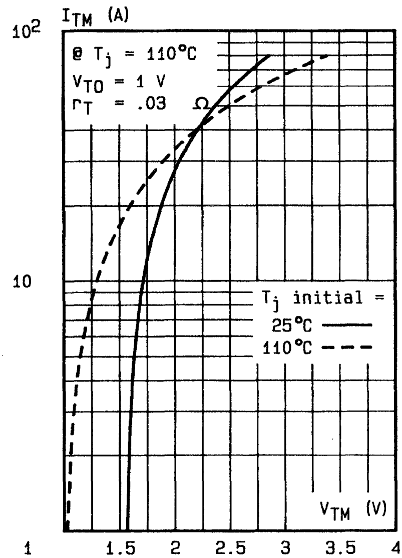


Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

SGS-THOMSON
MICROELECTRONICS

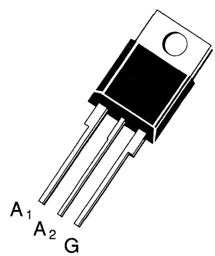
BTA/BTB 08 SW

LOGIC LEVEL TRIACS

- I_{TRMS} = 8 A at T_c = 80 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 10 mA (QI-II-III).
- $(di / dt)_c$ = 4.5 A / ms @ $(dv / dt)_c$ = 50 V / µs.
- SUITED FOR LOW POWER TRIGGER CIRCUITS (INTEGRATED CIRCUITS AND MICROPROCESSORS).
- GLASS PASSIVATED CHIP.
- HIGH EFFICIENCY SWITCHING.
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE : 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES.
- UL RECOGNIZED FOR BTA SERIES (E81734).

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.



TO 220 AB
(CB-415 Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 80 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	95	A
		t = 10 ms	85	
I^2t	I^2t value	t = 10 ms	36	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 110	°C °C

Symbol	Parameter	BTA/BTB 08-					Unit
		200 SW	400 SW	600 SW	700 SW	800 SW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 100 mA – di_G / dt = 1 A / µs.
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.6	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			10	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				25	mA
I_L	T_j = 25 °C V_D= 12 V R_L = 33 Ω Pulse duration > 20 µs I_G = 50 mA	I-III		25		mA
		II		50		
V_{TM}*	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM}*	T_j = 25 °C V_{DRM} rated Gate open				10	µA
	T_j = 110 °C				500	
dv/dt*	T_j = 110 °C Gate open Linear slope up to 0.67 V_{DRM}		50			V/µs
$(di/dt)_c$*	T_j = 110 °C $(dv/dt)_c$ = 0.1 V/µs		4.5	7		A/ms
	T_j = 110 °C $(dv/dt)_c$ = 50 V/µs		3.5	4.5		
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 50 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

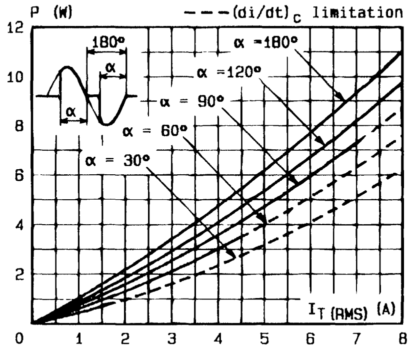


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

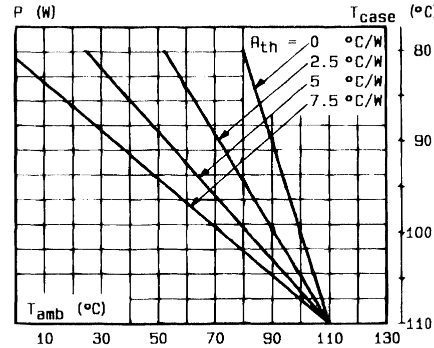


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

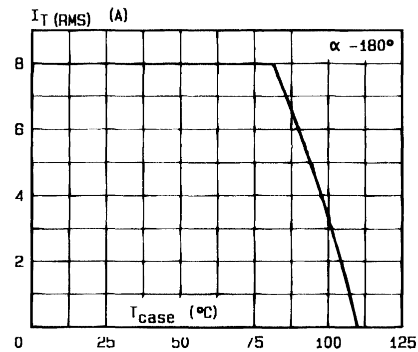


Fig.3 - RMS on-state current versus case temperature.

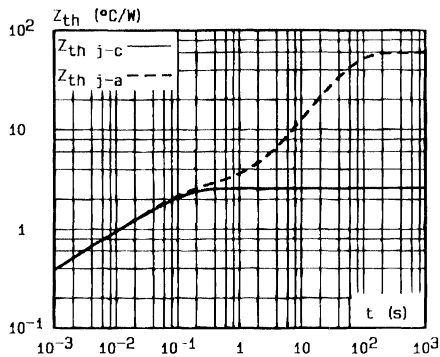


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

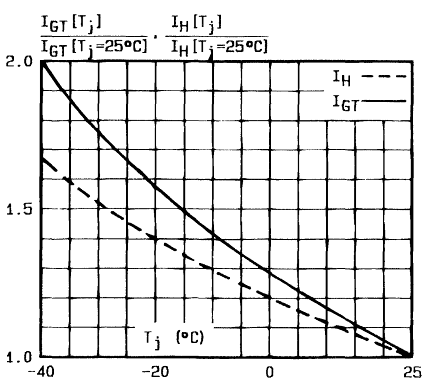


Fig 5 - Relative variation of gate trigger current and holding current versus junction temperature.

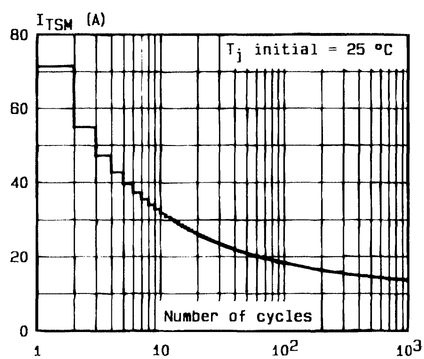


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

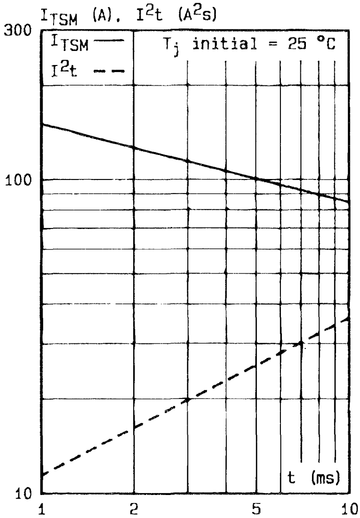


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

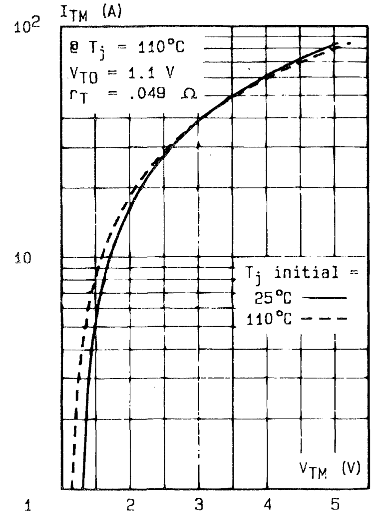


Fig.8 - On-state characteristics (maximum values).

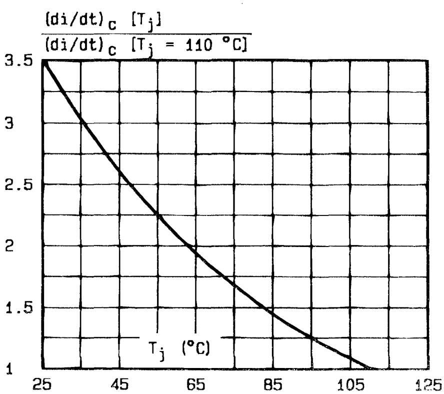


Fig.9 - Relative variation of $(di/dt)_c$ versus junction temperature.

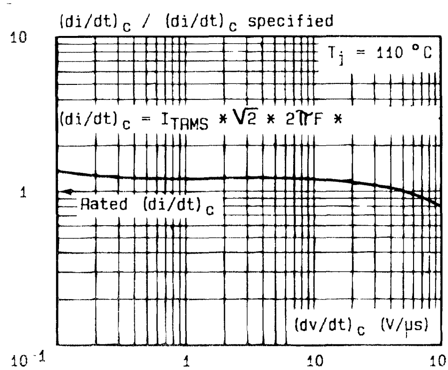
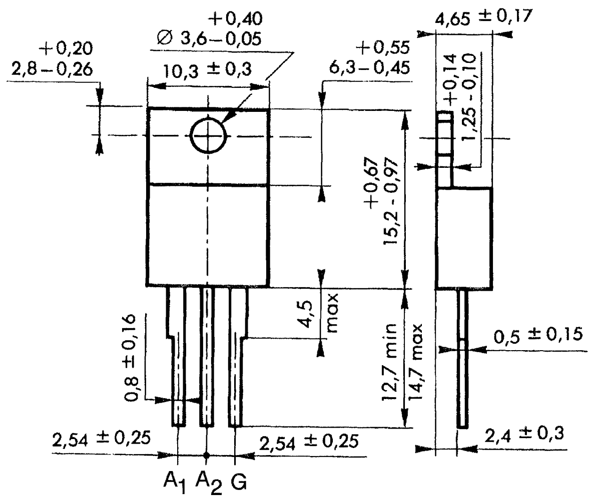


Fig.10 - Relative variation of $(di/dt)_c$ versus $(dv/dt)_c$ (inductive load) (typical values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

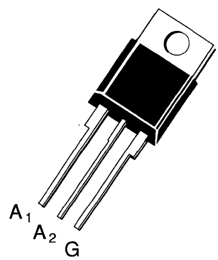
BTA/BTB 08 TW

LOGIC LEVEL TRIACS

- I_{TRMS} = 8 A at T_c = 80 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 5 mA (QI-II-III).
- $(di / dt)_c$ = 3.5 A / ms @ $(dv / dt)_c$ = 20 V / µs.
- SUITED FOR LOW POWER TRIGGER CIRCUITS (INTEGRATED CIRCUITS AND MICROPROCESSORS).
- GLASS PASSIVATED CHIP.
- HIGH EFFICIENCY SWITCHING.
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE : 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES.
- UL RECOGNIZED FOR BTA SERIES (E81734).

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.



TO 220 AB
(CB-415 Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 80 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	95	A
		t = 10 ms	85	
I^2t	I^2t value	t = 10 ms	36	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 110	°C °C

Symbol	Parameter	BTA/BTB 08-					Unit
		200 TW	400 TW	600 TW	700 TW	800 TW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 50 mA – dI_G / dt = 1 A/ µs.
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.6	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			5	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				15	mA
I_L	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs I_G = 25 mA	I-III		15		mA
		II		30		
V_{TM}*	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM}*	T_j = 25 °C V_{DRM} rated Gate open				10	µA
	T_j = 110 °C				500	
dv/dt*	T_j = 110 °C Gate open Linear slope up to 0.67 V_{DRM}		20			V/µs
$(di/dt)_c$*	T_j = 110 °C $(dv/dt)_c$ = 0.1 V/µs		3.5	5		A/ms
	T_j = 110 °C $(dv/dt)_c$ = 20 V/µs		1.8	3.5		
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 25 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

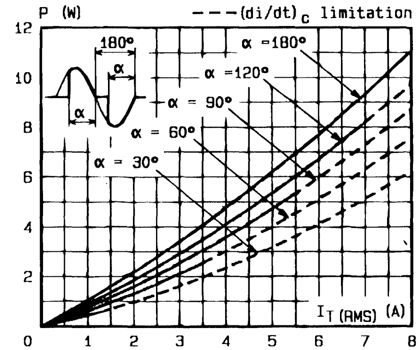


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

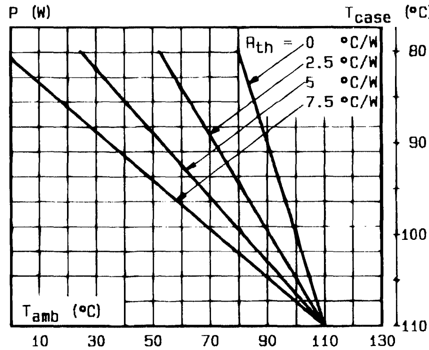


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

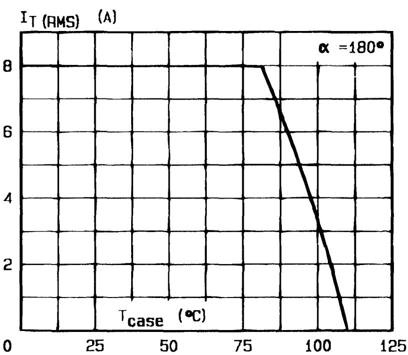


Fig.3 - RMS on-state current versus case temperature.

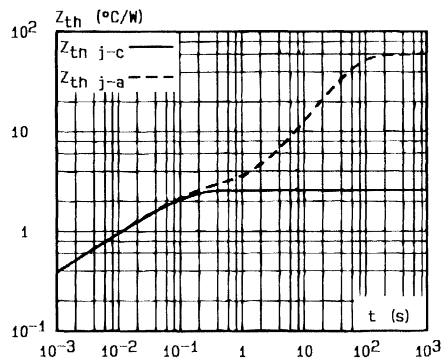


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

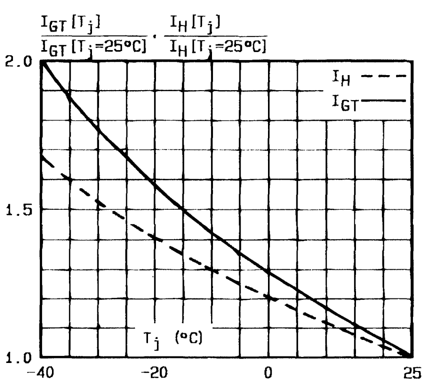


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

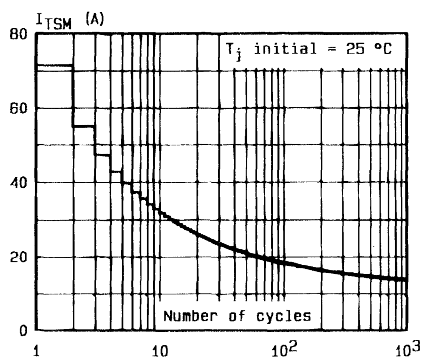


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

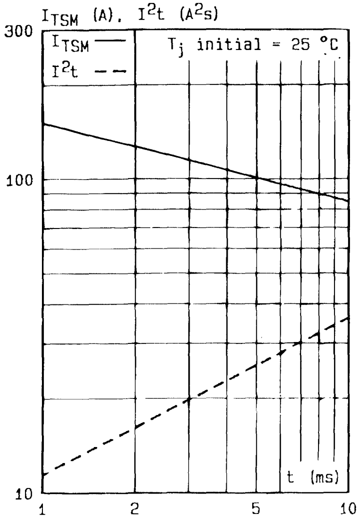


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

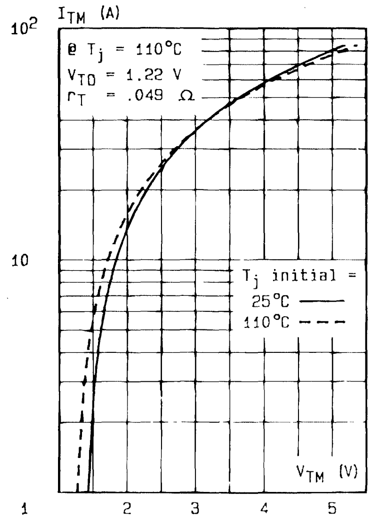


Fig.8 - On state characteristics (maximum values).

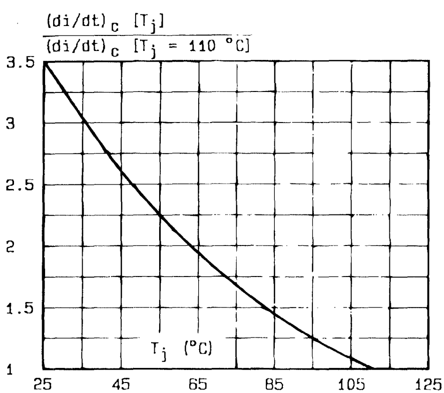


Fig.9 - Relative variation of $(di/dt)_c$ versus junction temperature.

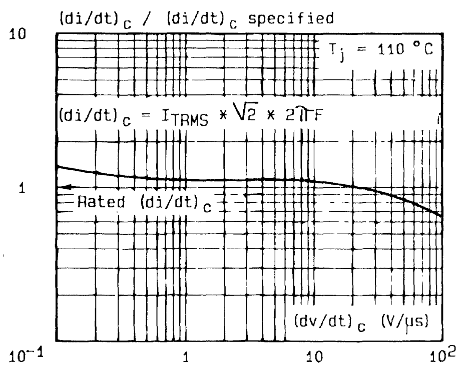
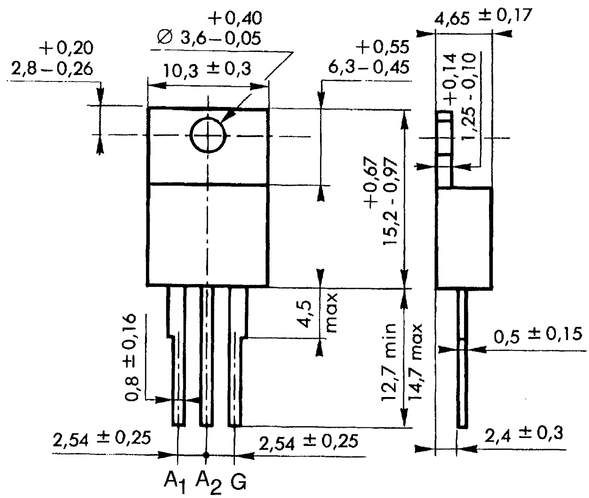


Fig.10 - Relative variation of $(di/dt)_c$ versus $(dv/dt)_c$ (inductive load) (typical values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



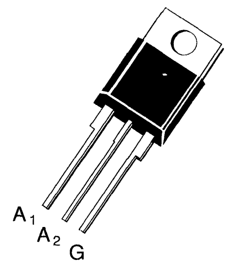
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

BTA/BTB 10 B

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_C > 10\ V/\mu s$
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	$T_C = 75\ °C$	10	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t Value for Fusing	t = 10 ms	50	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 10–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) $I_G = 1\ A$ $dI_G/dt = 1\ A/\mu s$
(2) $T_j = 110\ °C$.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	3.9	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	2.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

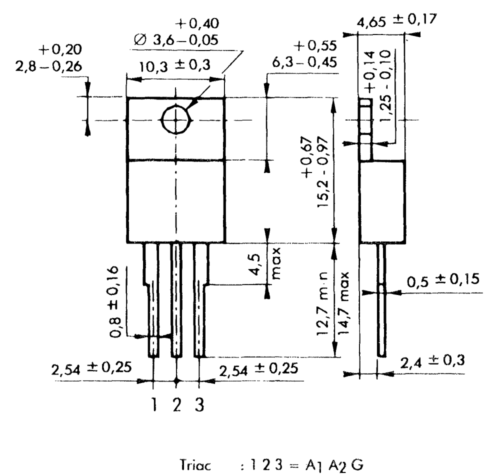
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C, Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			50	mA
				IV			100	
V_{GT}	T_j = 25 °C, Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				50	mA
I_L	T_j = 25 °C, Pulse Duration > 20 µs	V_D = 12 V	I_G = 200 mA	I-III-IV		50		mA
				II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 14 A	t_p = 10 ms				1.5	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C, Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			250	500		V/µs
(dv/dt)$_c$*	T_C = 75 °C, $(di/dt)_c$ = 4.4 A/ms	V_D = V_{DRM}	I_T = 14 A		10			V/µs
t_{gt}	T_j = 25 °C, I_G = 80 mA	V_D = V_{DRM}, di_G/dt = 1 A/µs	I_T = 14 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

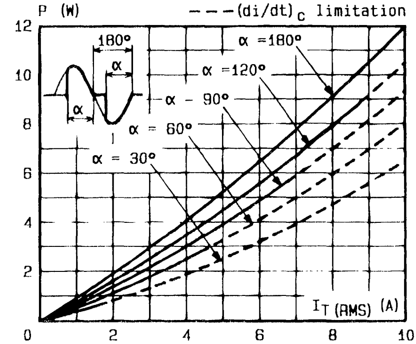


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

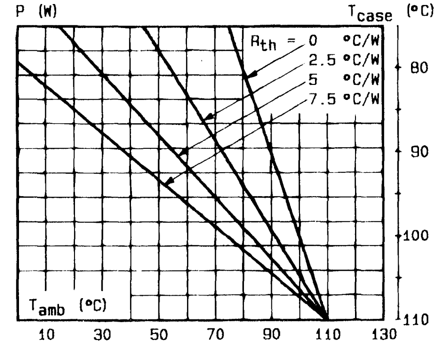


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

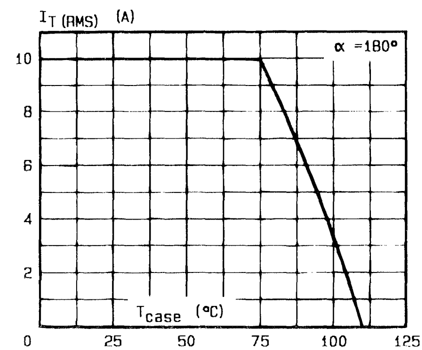


Fig.3 - RMS on-state current versus case temperature.

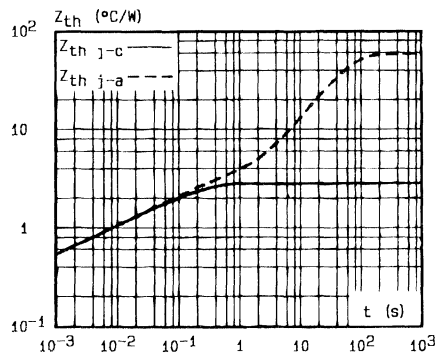


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

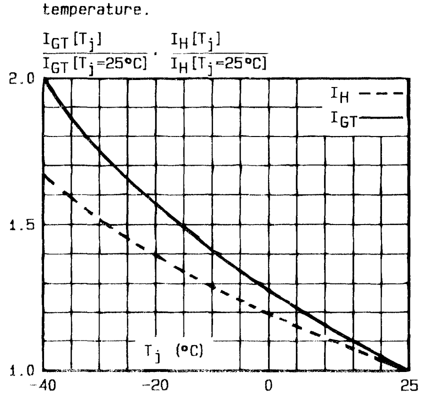


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

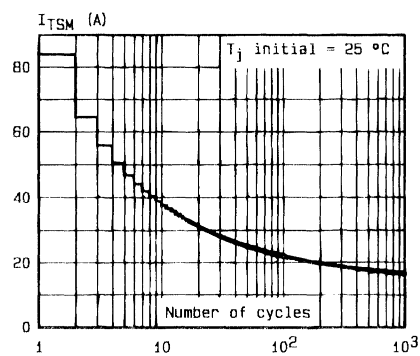


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

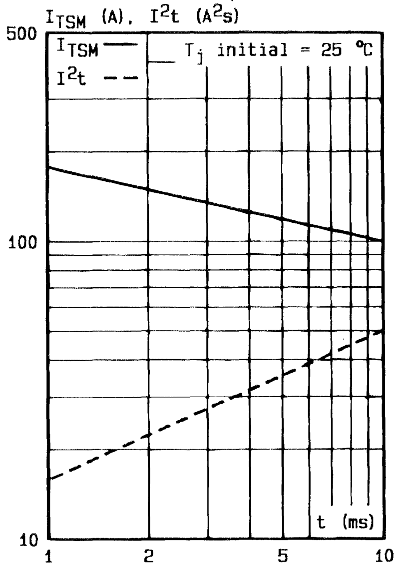


Fig.7 – Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

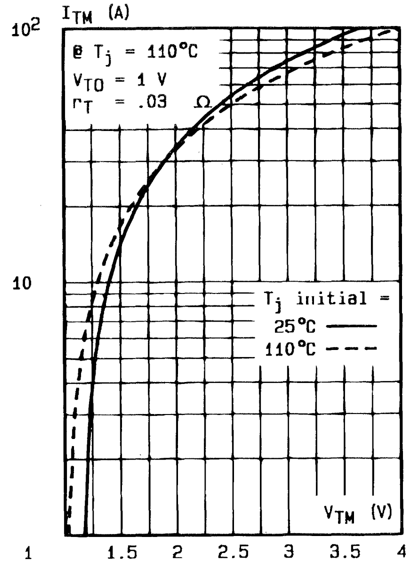


Fig.8 – On-state characteristics (maximum values).

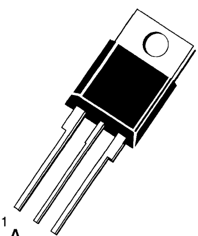
SGS-THOMSON MICROELECTRONICS

SGS-THOMSON
MICROELECTRONICS

BTA/BTB 10 C

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_C > 5\ V/\mu s$
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	10	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t Value for Fusing	t = 10 ms	50	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 10–					Unit
		200C	400C	600C	700C	800C	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 500 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	3.9	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	2.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

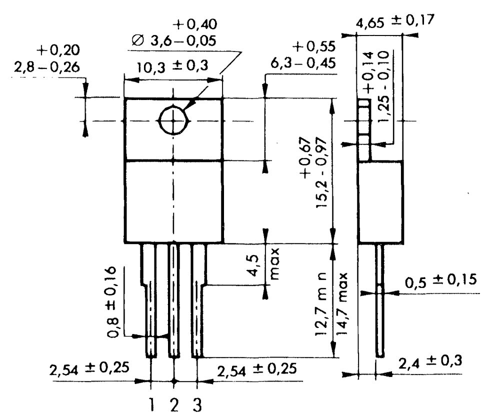
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			25	mA
		IV			50	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 100 mA Pulse Duration > 20 µs	I-III-IV		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 14 A t_p = 10 ms				1.5	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		100	200		V/µs
(dv/dt)$_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 14 A (di/dt)$_c$ = 4.4 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 14 A I_G = 80 mA di_G/dt = 1 A/µs	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A1 A2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

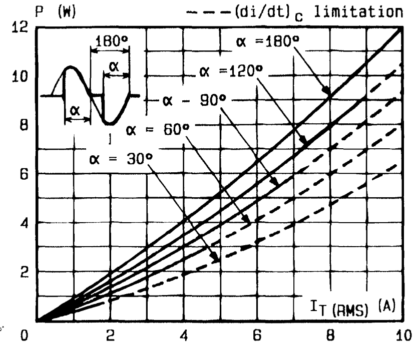


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

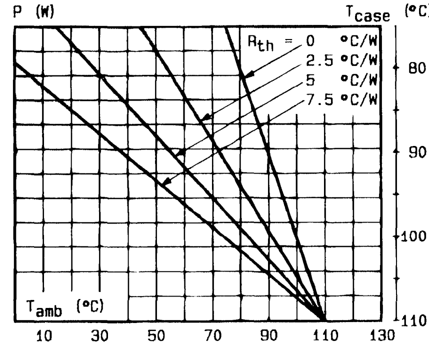


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

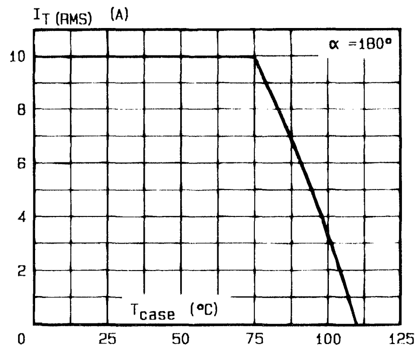


Fig.3 - RMS on-state current versus case temperature.

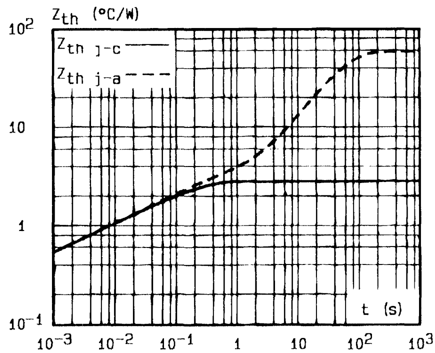


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

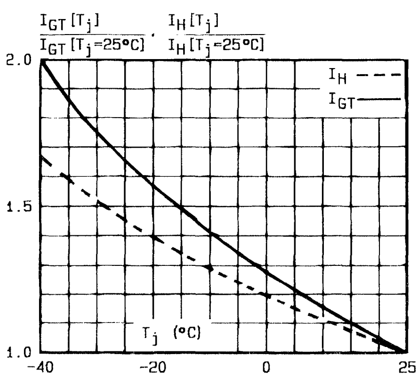


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

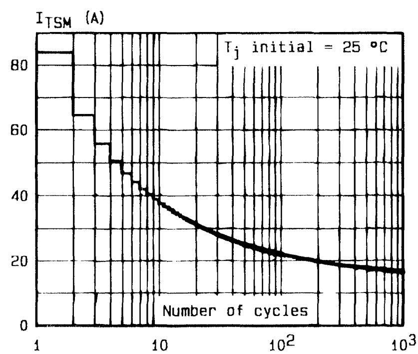


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

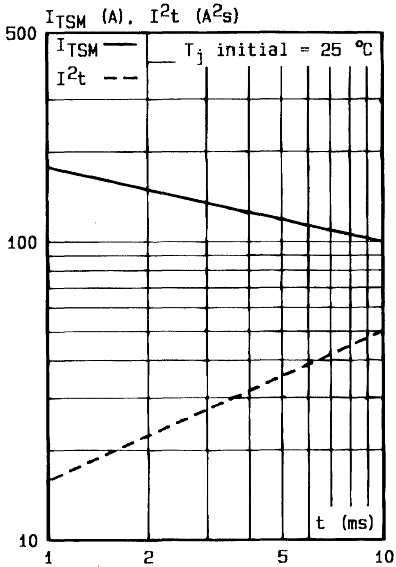


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

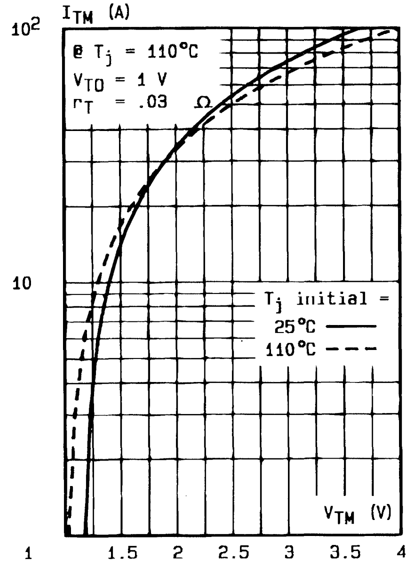


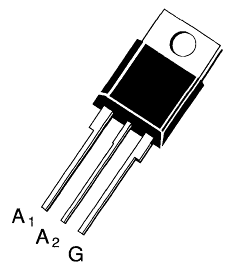
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

BTA/BTB 12 B

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_C > 10\ V/\mu s$
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V_{RMS}) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	12	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	125	A
		t = 10 ms	120	
I^2t	I^2t Value for Fusing	t = 10 ms	72	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 12–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A $\quad dI_G/dt$ = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	3.3	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	2.5	°C/W

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P_{GM} = 40 W (t_p = 10 μs) I_{GM} = 4 A (t_p = 10 μs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 μs)

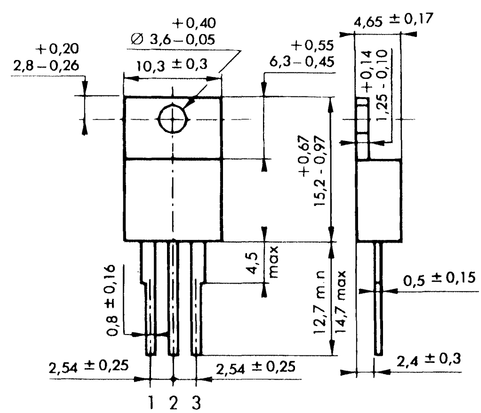
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III			50	mA
		IV			100	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 μs	I-III-IV		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 17 A t_p = 10 ms				1.5	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250	500		V/μs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 17 A $(di/dt)_c$ = 5.3 A/ms		10			V/μs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 17 A I_G = 80 mA dI_G/dt = 1 A/μs	I-II-III-IV		2		μs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A_1 A_2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

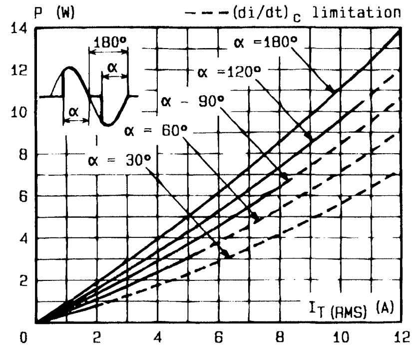
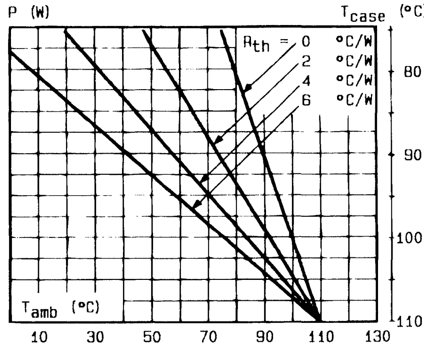


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).



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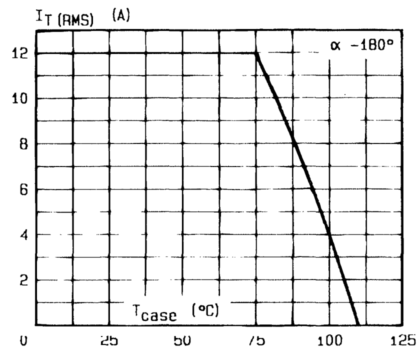


Fig.3 - RMS on-state current versus case temperature.

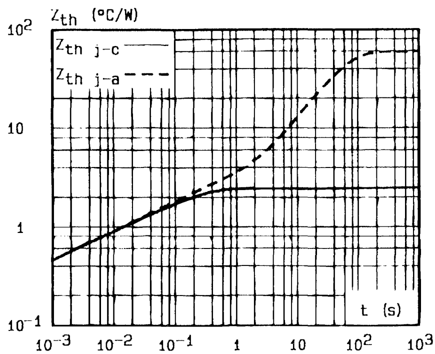
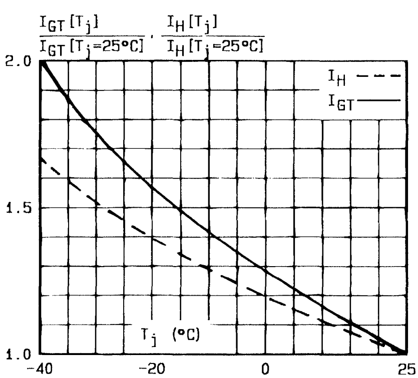


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.



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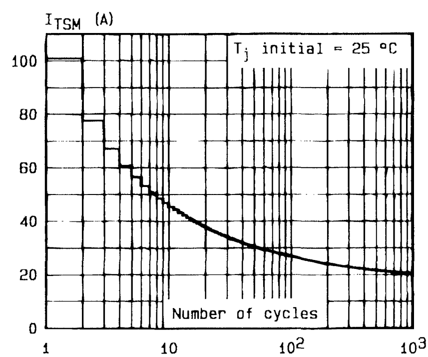
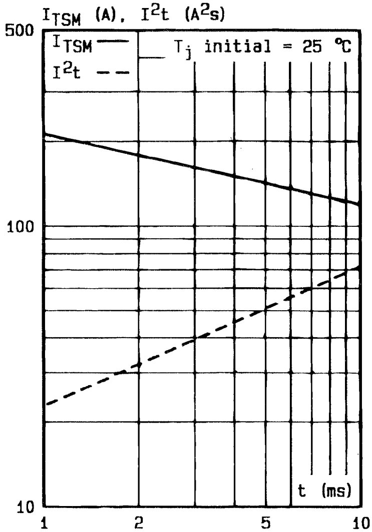


Fig 6 - Non repetitive surge peak on-state current versus number of cycles.



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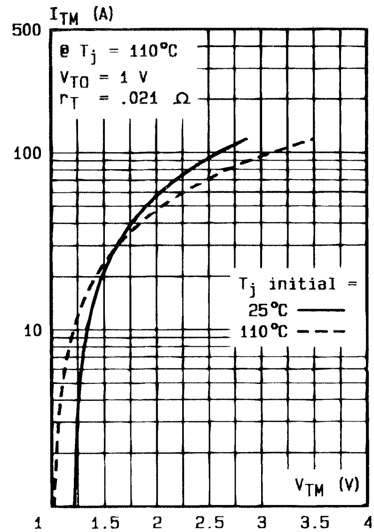

Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTA/BTB 12 C

TRIACS

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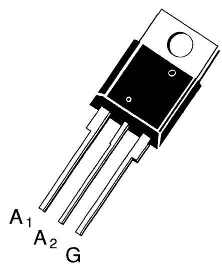

TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
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		t = 10 ms	120	
I^2t	I^2t Value for Fusing	t = 10 ms	72	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	BTA/BTB 12–					Unit
		200C	400C	600C	700C	800C	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 500 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
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$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

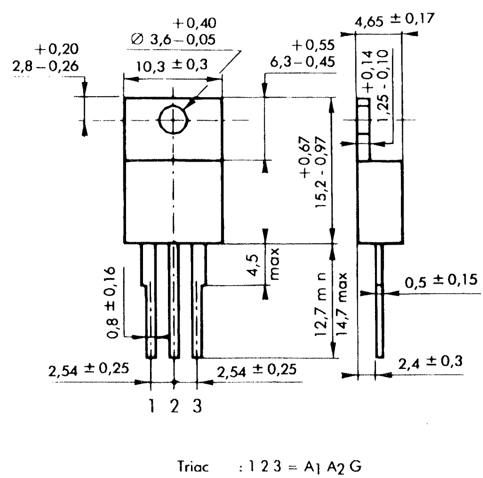
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω	I-II-III			25	mA
	Pulse Duration > 20 µs			IV			50	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				25	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 100 mA	I-III-IV		50		mA
	Pulse Duration > 20 µs			II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 17 A	t_p = 10 ms				1.5	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.5	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			100	200		V/µs
(dv/dt)$_c$*	T_C = 75 °C (di/dt)$_c$ = 5.3 A/ms	V_D = V_{DRM}	I_T = 17 A		5			V/µs
t_{gt}	T_j = 25 °C I_G = 80 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 17 A	I-II-III-IV		2		µs

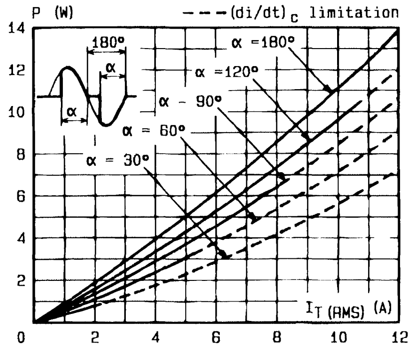
* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.



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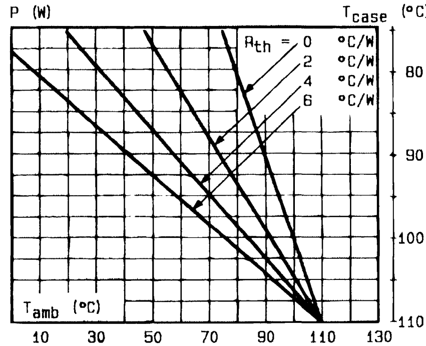

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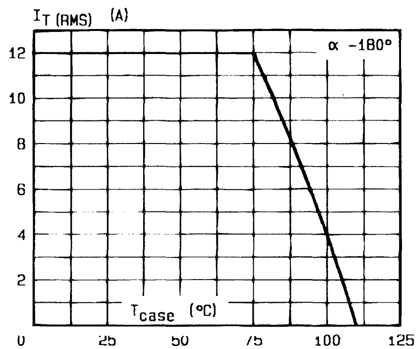


Fig.3 - RMS on-state current versus case temperature.

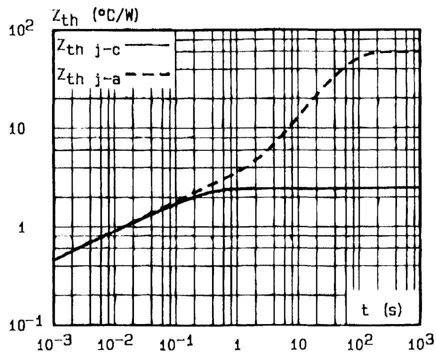


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

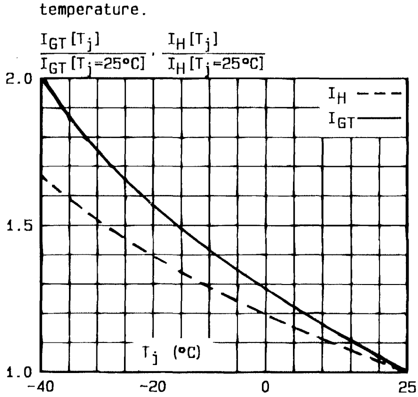


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

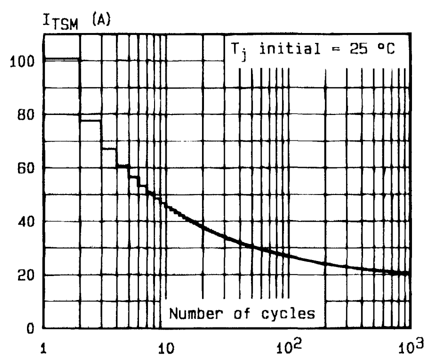


Fig 6 - Non repetitive surge peak on-state current versus number of cycles.

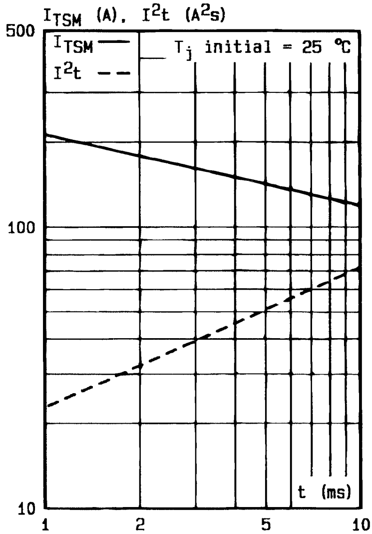


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

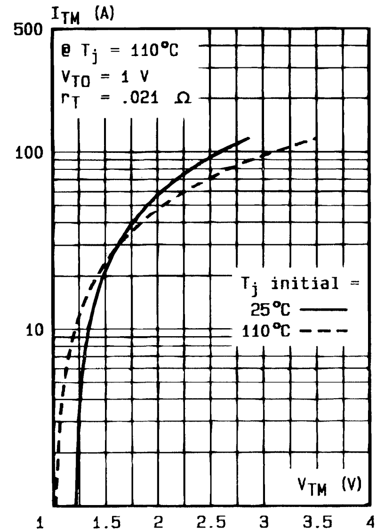
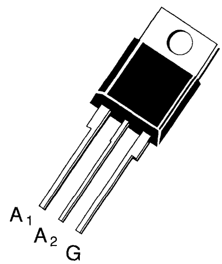


Fig.8 - On-state characteristics (maximum values).

SNUBBERLESS TRIACS

- I_{TRMS} = 6 A at T_c = 100 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 60 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 8 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 100 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t value	t = 10 ms	18	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 06-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.7	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			1.5	V
V_{GD}	T_j = 125 °C Pulse duration > 20 µs	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III	0.2			V
I_H*	T_j = 25 °C Gate open	I_T = 100 mA R_L = 140 Ω					75	mA
I_L	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	I_G = 500 mA	I-III		75		mA
				II		150		
V_{TM}*	T_j = 25 °C	I_{TM} = 8.5 A	t_p = 10 ms				1.75	V
I_{DRM}*	T_j = 25 °C	V_{DRM} rated	Gate open				0.01	mA
	T_j = 125 °C						2	
dv/dt*	T_j = 125 °C Linear slope up to 0.67 V_{DRM}	Gate open			750	1000		V/µs
$(di/dt)_c$*	T_j = 125 °C Without snubber	V_{DRM} rated			8	16		A/ms
t_{gt}	T_j = 25 °C I_T = 8.5 A	di_G/dt = 3.5 A/µs V_D = V_{DRM}	I_G = 500 mA	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

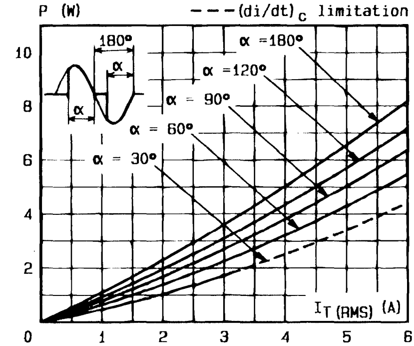


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

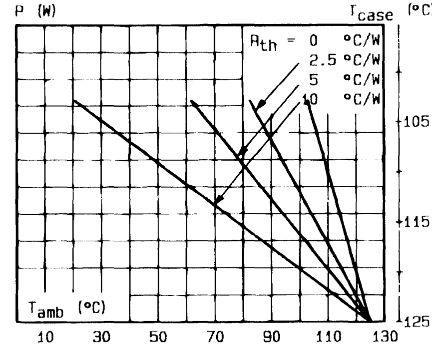


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

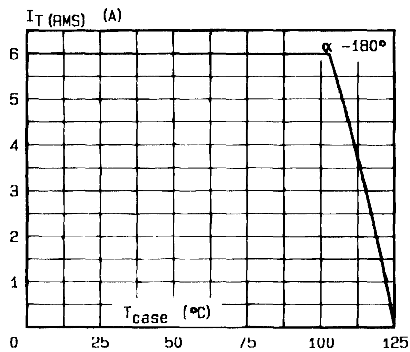


Fig.3 - RMS on-state current versus case temperature.

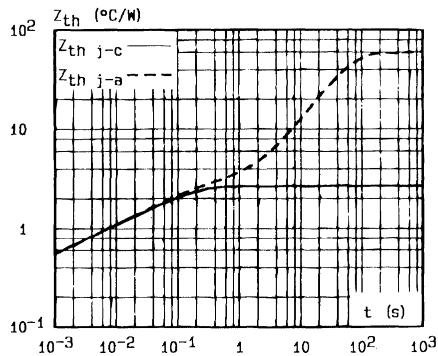


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

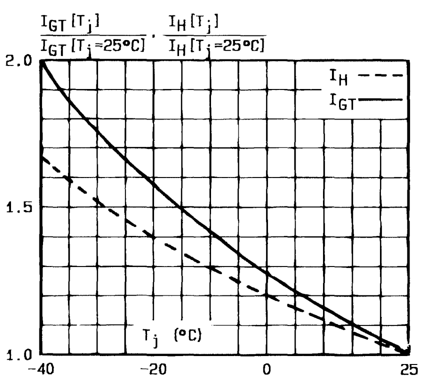


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

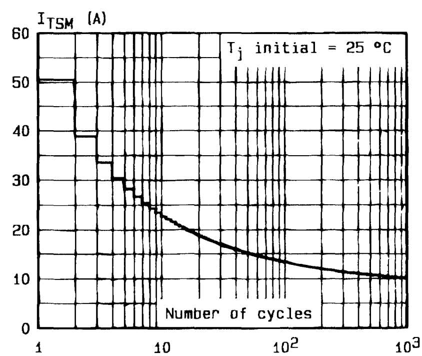


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

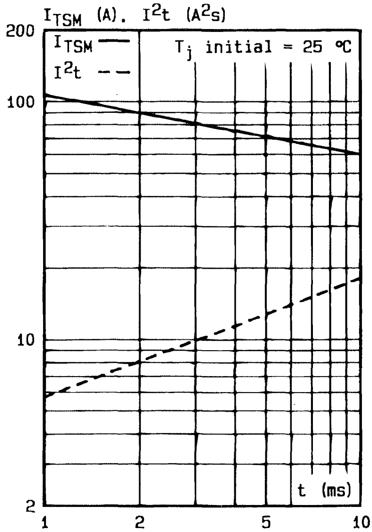


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

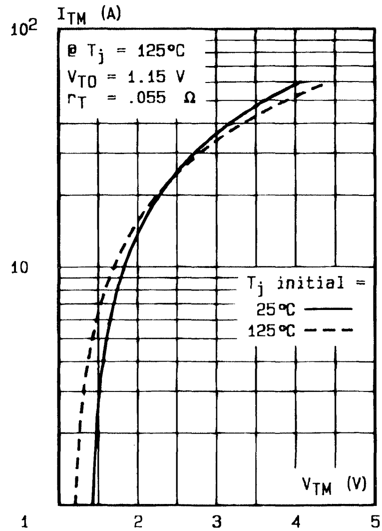
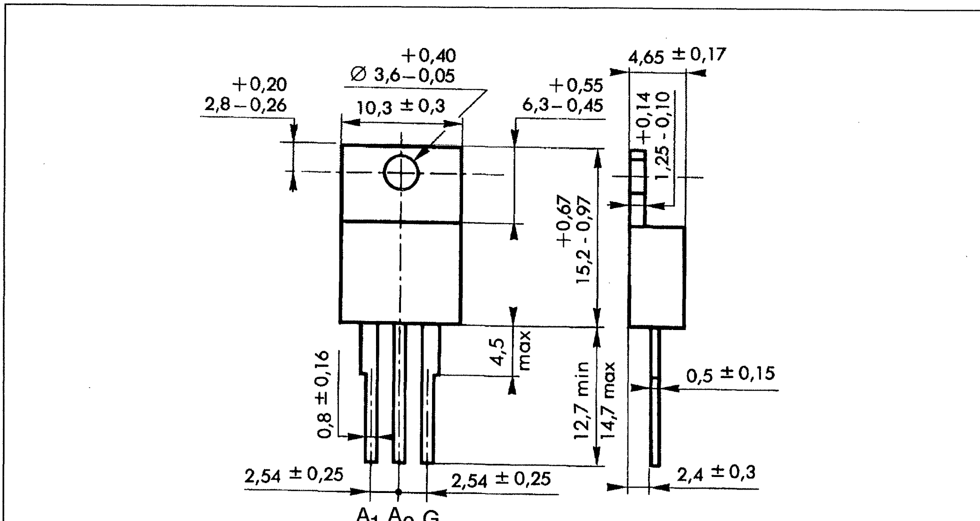


Fig.8 - On-state characteristics (maximum values) .

PACKAGE MECHANICAL DATA

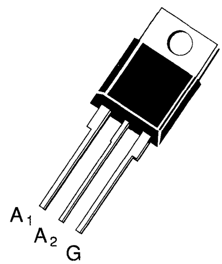
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 6 A at T_c = 100 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 60 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 5 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 100 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	63	A
		t = 10 ms	60	
$I^2 t$	$I^2 t$ value	t = 10 ms	18	$A^2 s$
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 06-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – di_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.7	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			1.5	V
V_{GD}	T_j = 125 °C Pulse duration > 20 µs	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III	0.2			V
I_H *	T_j = 25 °C Gate open	I_T = 100 mA R_L = 140 Ω					50	mA
I_L	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	I_G = 500 mA	I-III		50		mA
				II		100		
V_{TM} *	T_j = 25 °C	I_{TM} = 8.5 A	t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C	V_{DRM} rated	Gate open				0.01	mA
	T_j = 125 °C						2	
dv/dt *	T_j = 125 °C Linear slope up to 0.67 V_{DRM}	Gate open			500	750		V/µs
$(di/dt)_c$ *	T_j = 125 °C Without snubber	V_{DRM} rated			5	10		A / ms
t_{gt}	T_j = 25 °C I_T = 8.5 A	di_G/dt = 3.5 A/µs V_D = V_{DRM}	I_G = 500 mA	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

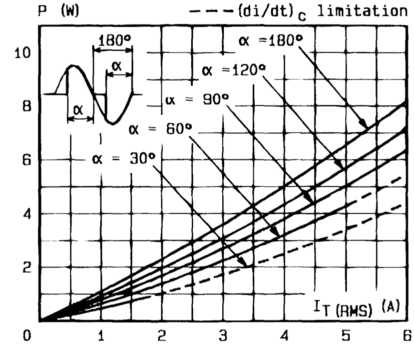


Fig.1 – Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

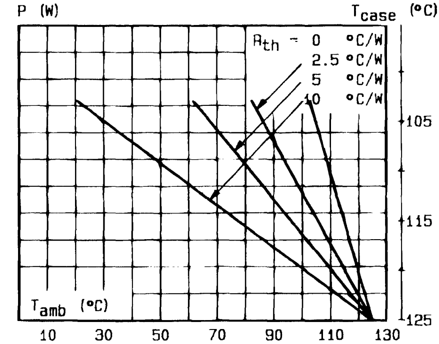


Fig.2 – Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

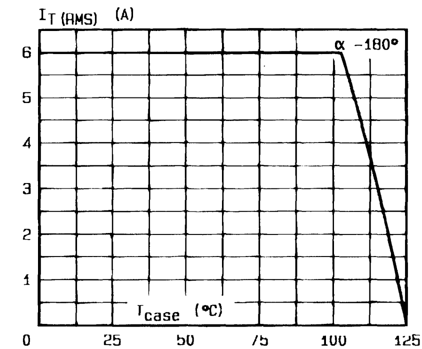


Fig.3 – RMS on-state current versus case temperature.

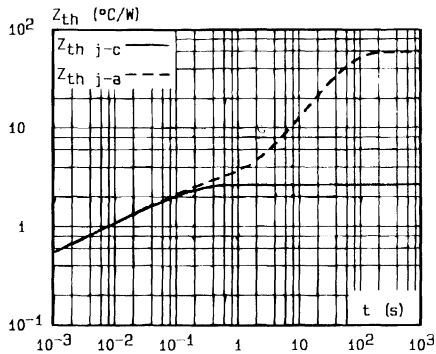


Fig.4 – Thermal transient impedance junction to case and junction to ambient versus pulse duration.

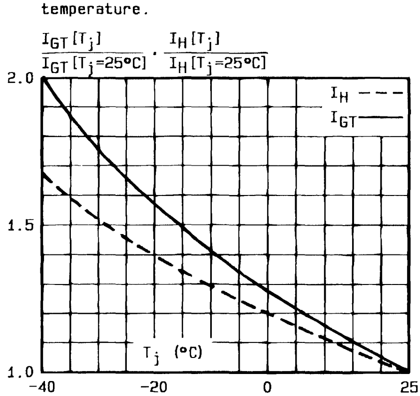


Fig.5 – Relative variation of gate trigger current and holding current versus junction temperature.

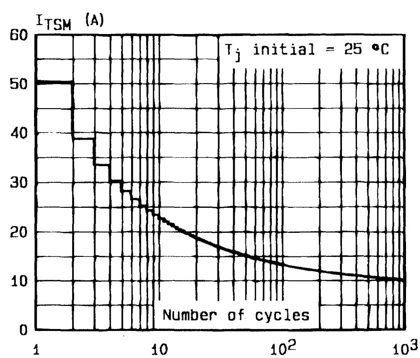


Fig.6 – Non repetitive surge peak on-state current versus number of cycles.

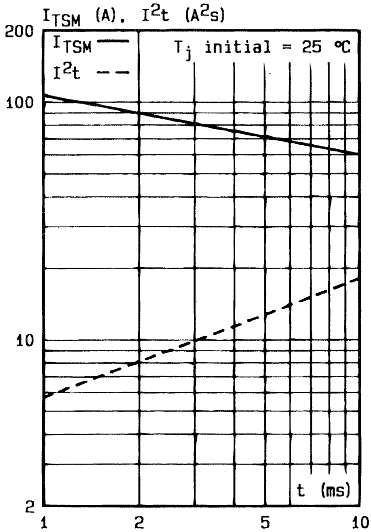


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

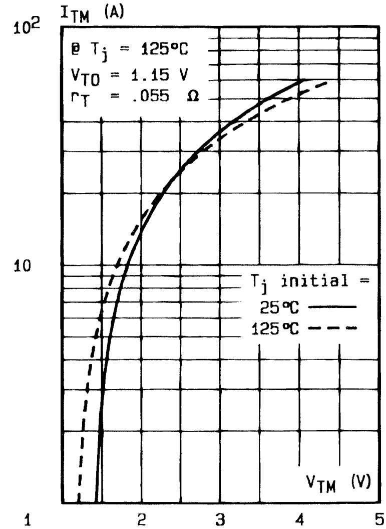
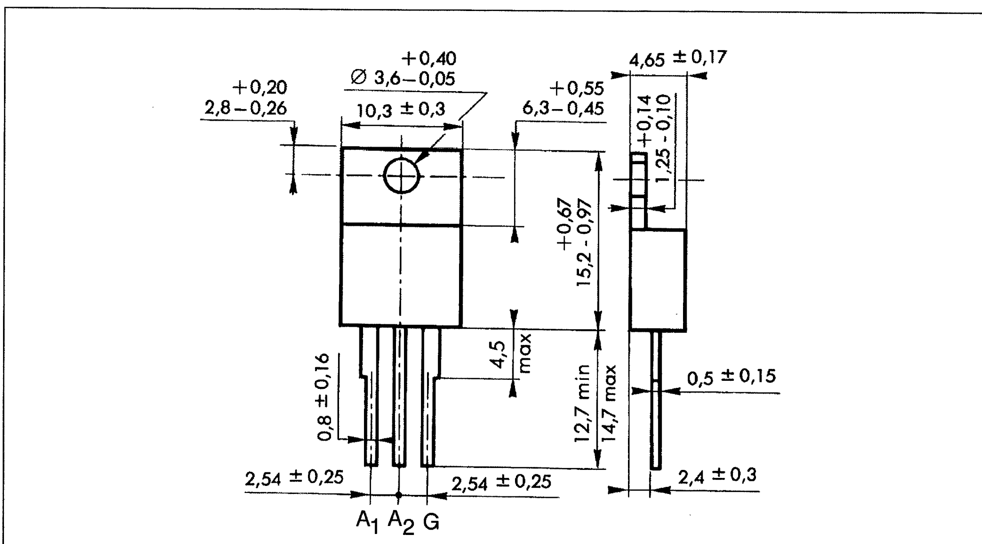


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

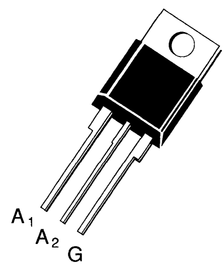
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 6 A at T_c = 100 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 60 A.
- HIGH COMMUTATION CAPABILITY : (di/dt)$_c$ > 3.5 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 100 °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	63	A
		t = 10 ms	60	
I^2t	I^2t value	t = 10 ms	18	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 06-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.7	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM} *	T_j = 25 °C I_{TM} = 8.5 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		3.5	7		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 350 mA I_T = 8.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

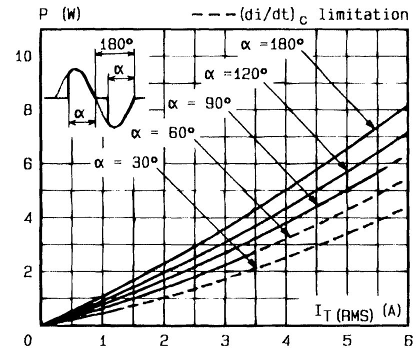


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

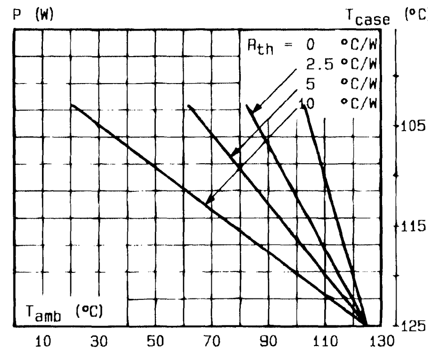


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

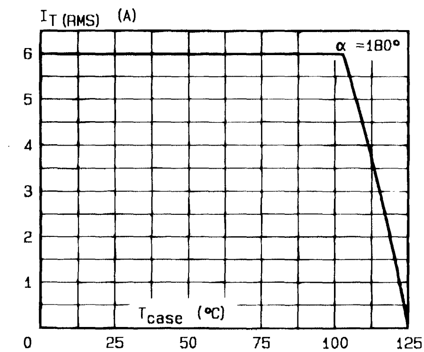


Fig.3 - RMS on-state current versus case temperature.

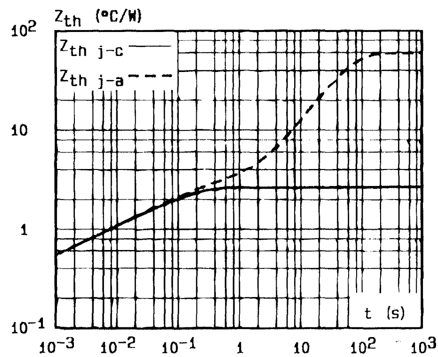


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

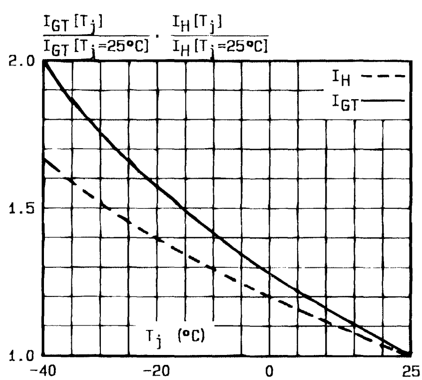


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

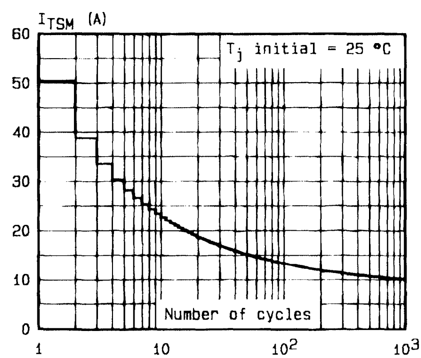


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

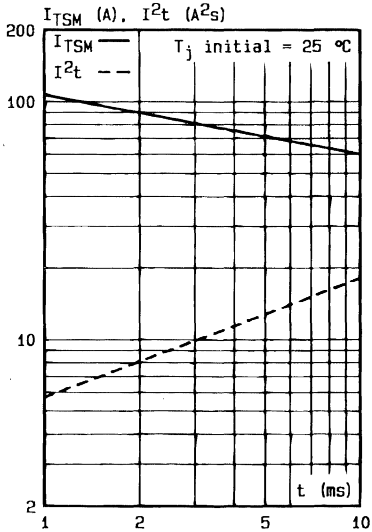


Fig.7 – Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

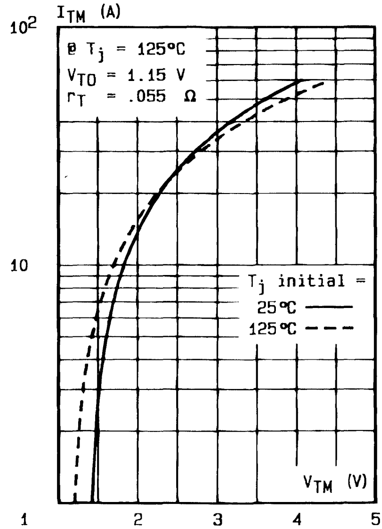
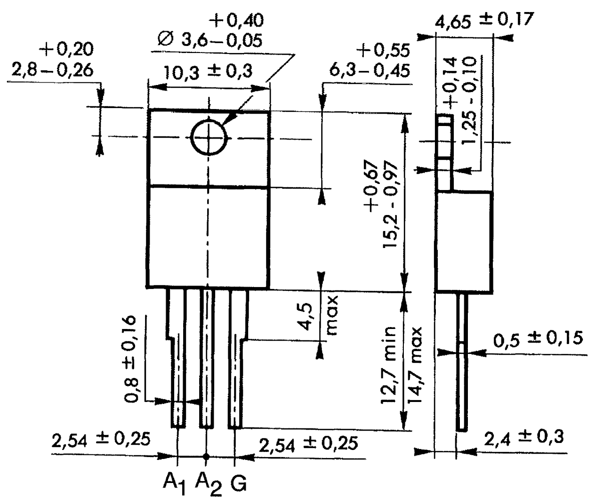


Fig.8 – On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



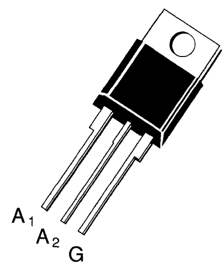
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON MICROELECTRONICS

BTB 08 AW

SNUBBERLESS TRIACS

- I_{TRMS} = 8 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 80 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 10 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	85	A
		t = 10ms	80	
I^2t	I^2t value	t = 10 ms	32	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 08-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G/dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$ $R_{th\ (j-c)}$ DC $R_{th\ (j-c)}$ AC	Junction to ambient Junction to case for DC Junction to case for 360 ° conduction angle (F = 50 Hz)	60 3.5 2.7	°C/W °C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		75		mA
		II		150		
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
V_{TM} *	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		10	20		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

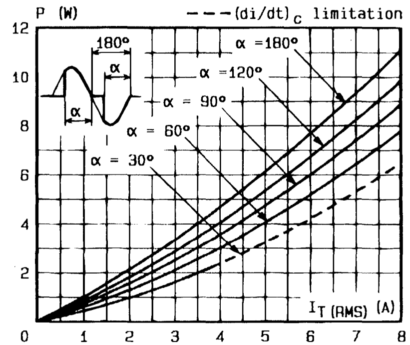


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

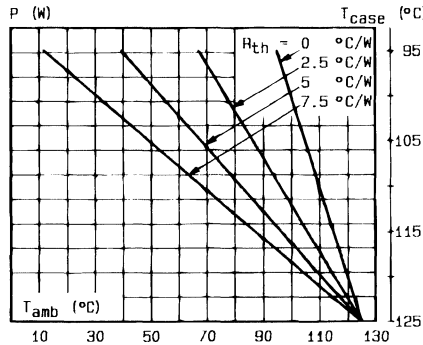


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

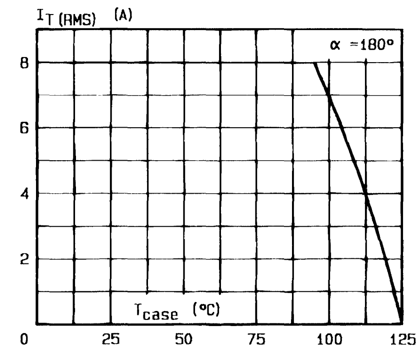


Fig.3 - RMS on-state current versus case temperature.

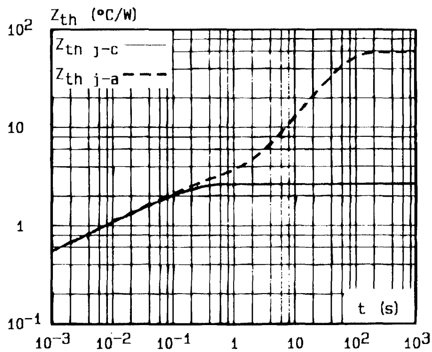


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

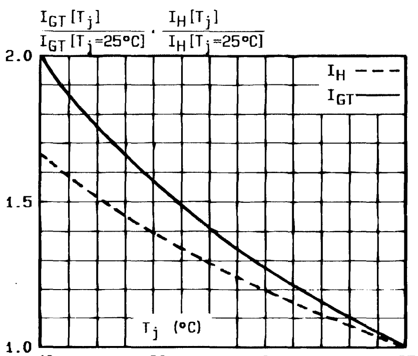


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

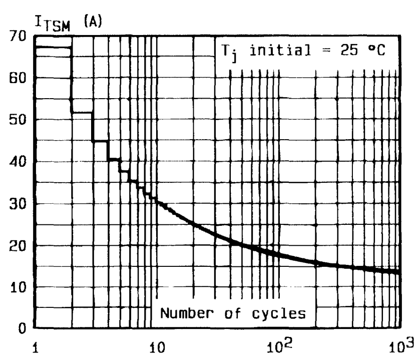


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

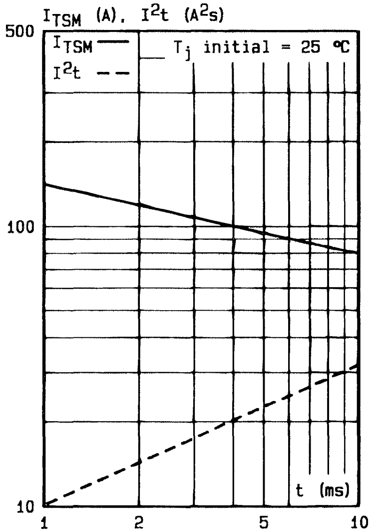


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

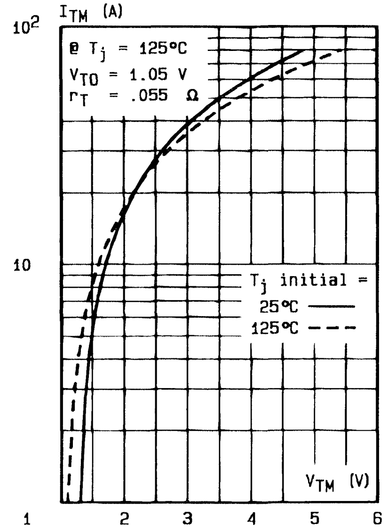
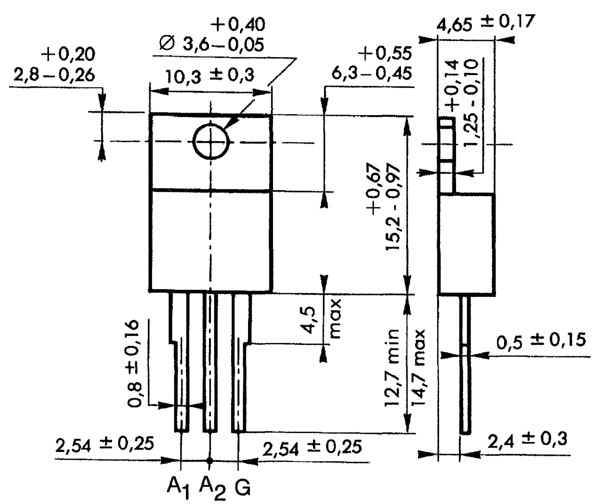


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

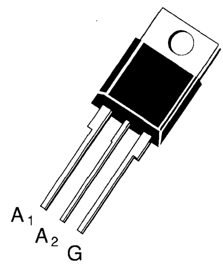
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 8 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 80 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 7 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	85	A
		t = 10 ms	80	
I^2t	I^2t value	t = 10 ms	32	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 08-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	3.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	2.7	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D =12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM} *	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
(di/dt) $_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		7	14		A/ms
t_{gt}	T_j = 25 °C dI_G/dt = 3.5 A/µs I_G = 500 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

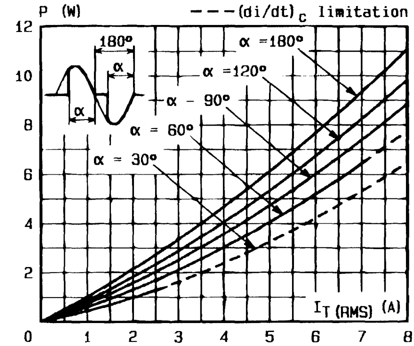


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

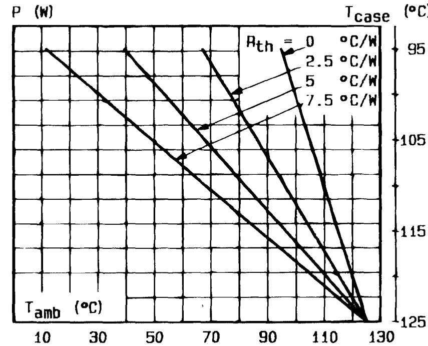


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

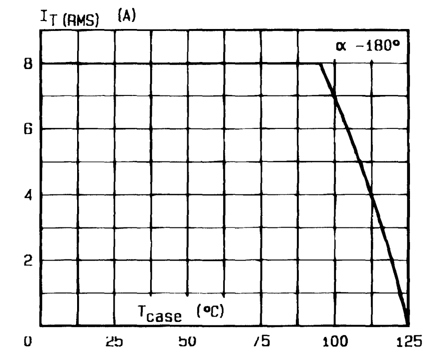


Fig.3 - RMS on-state current versus case temperature.

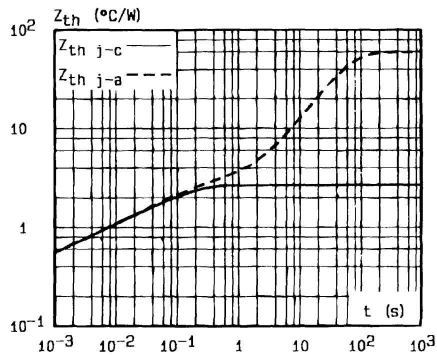


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

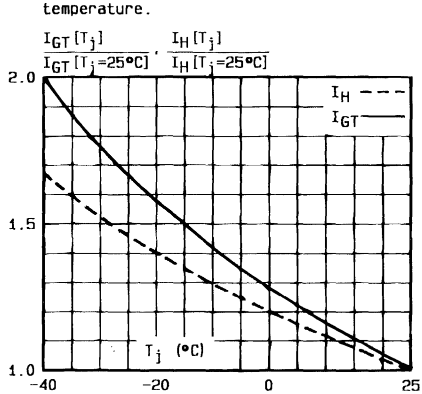


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

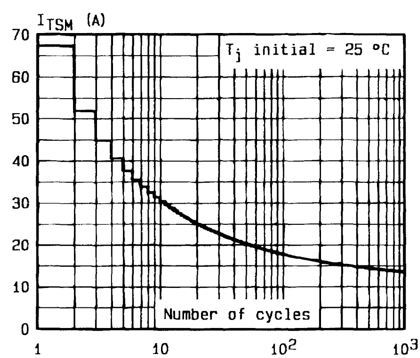


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

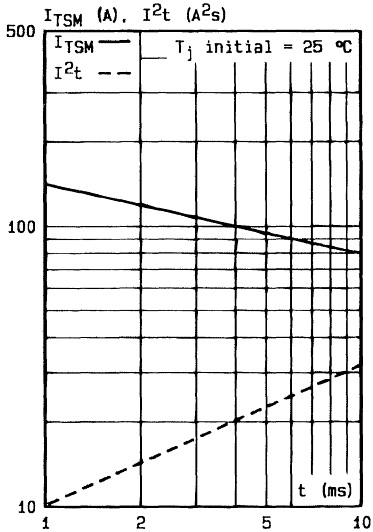


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

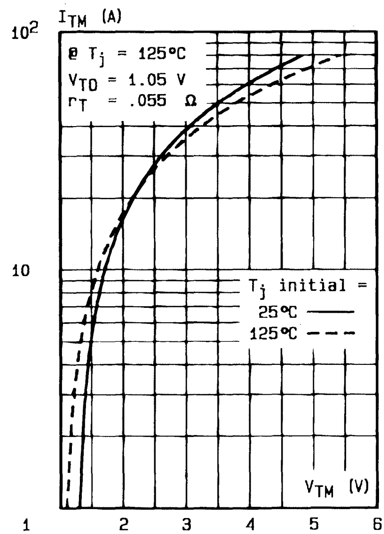
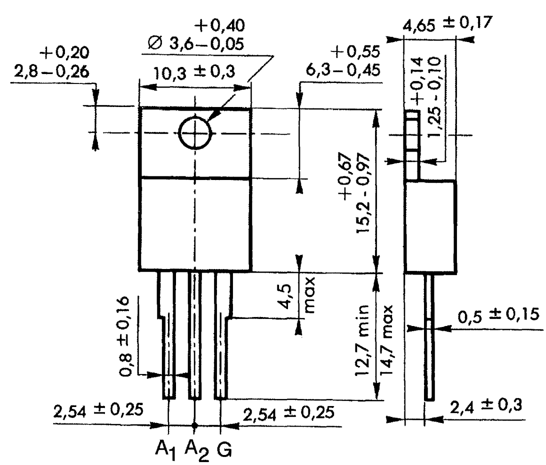


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

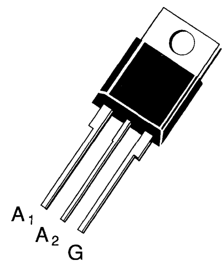
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 8 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 80 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 4.5 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	85	A
		t = 10 ms	80	
I^2t	I^2t value	t = 10 ms	32	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 08-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$ $R_{th\ (j-c)}$ DC $R_{th\ (j-c)}$ AC	Junction to ambient Junction to case for DC Junction to case for 360 ° conduction angle (F = 50 Hz)	60 3.5 2.7	°C/W °C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM} *	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.75	V
I_{DRM} *	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
(di/dt) $_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		4.5	9		A/ms
t_{gt}	T_j = 25 °C dI_G/dt = 1 A/µs I_G = 350 mA I_T = 11 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

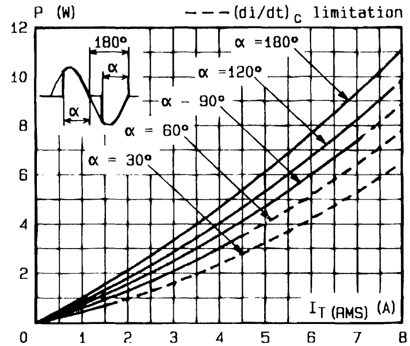


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

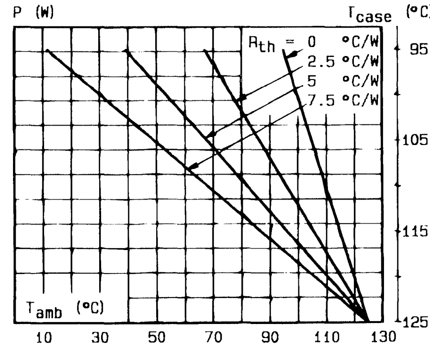


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

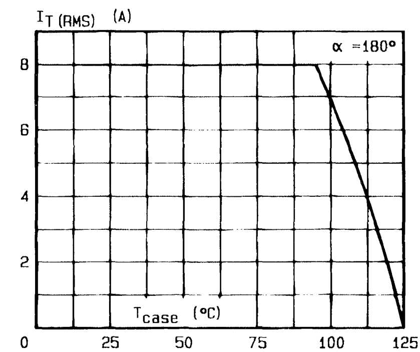


Fig.3 - RMS on-state current versus case temperature.

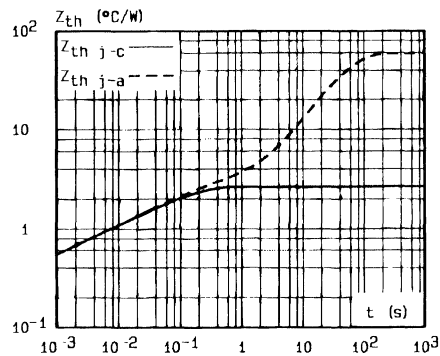


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

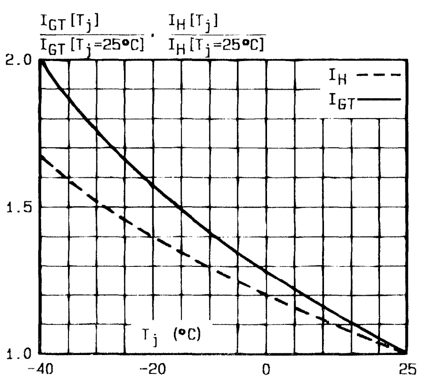


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

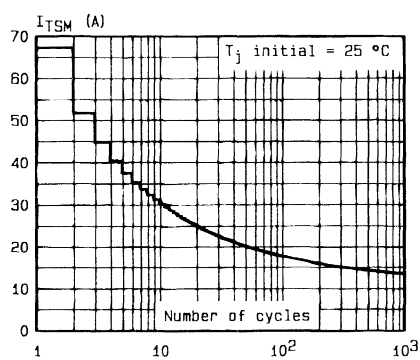


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

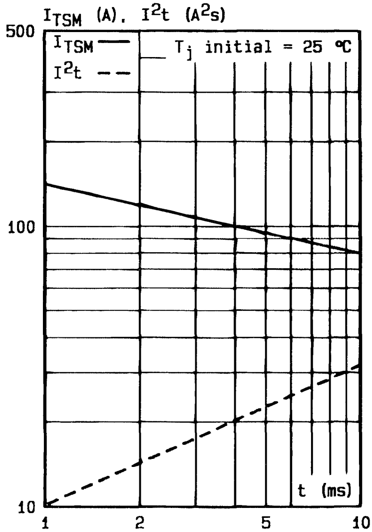


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

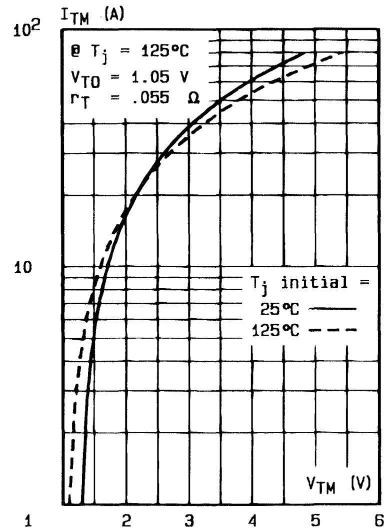
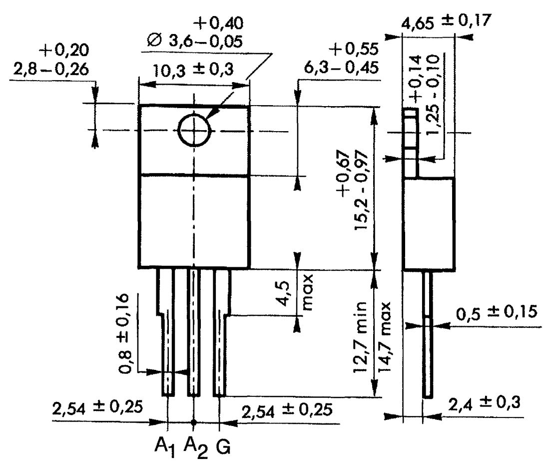


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

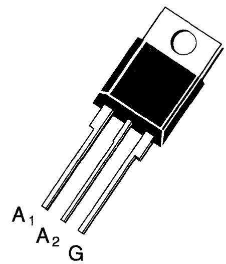
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 10 A at T_c = 100 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 100 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 12 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 100 °C	10	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t value	t = 10 ms	50	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 10-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	2.7	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		75		mA
		II		150		
V_{TM}*	T_j = 25 °C I_{TM} = 14 A t_p = 10 ms				1.65	V
I_{DRM}*	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C — V_{DRM} rated Gate open				2	
dv/dt*	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$*	T_j = 125 °C V_{DRM} rated Without snubber		12	24		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 14 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

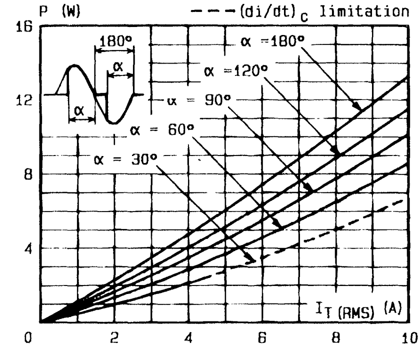


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

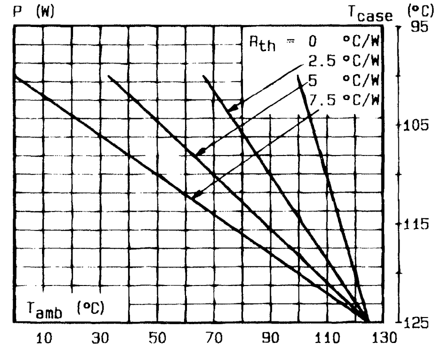


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

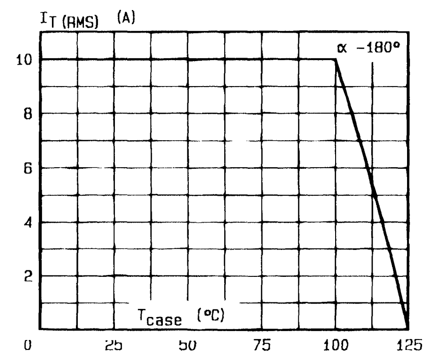


Fig.3 - RMS on-state current versus case temperature.

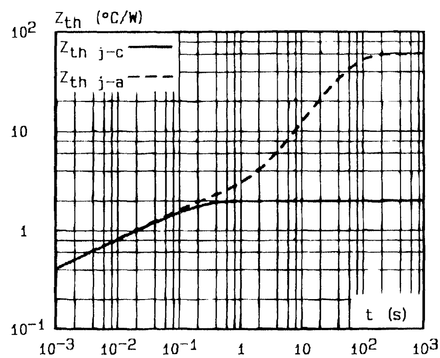


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

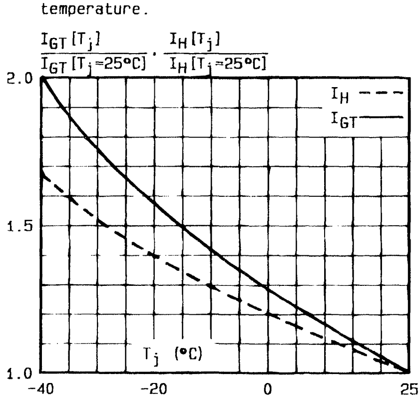


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

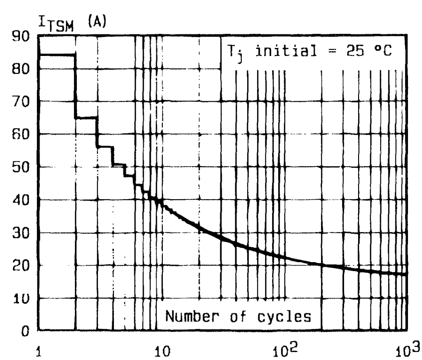


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

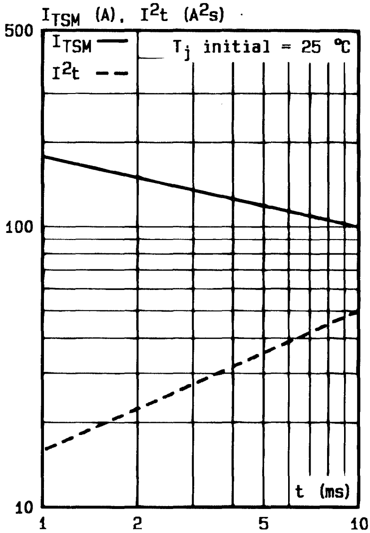


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

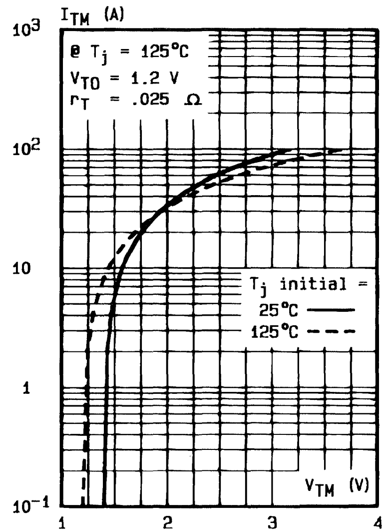
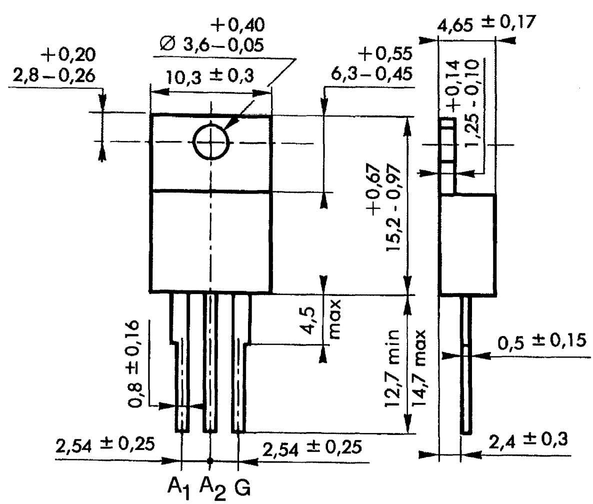


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

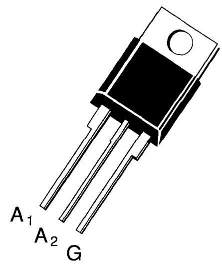
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 10 A at T_c = 100 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 100 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 9 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 100 °C	10	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t value	t = 10 ms	50	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 10-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – dI_G/dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	°C/W
$R_{th(j-c)}DC$	Junction to case for DC	2.7	°C/W
$R_{th(j-c)}AC$	Junction to case for 360° conduction angle (F = 50 Hz)	2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G(AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM} *	T_j = 25 °C I_{TM} = 14 A t_p = 10 ms				1.65	V
I_{DRM}*	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
$(di/dt)_c$*	T_j = 125 °C V_{DRM} rated Without snubber		9	18		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 14 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

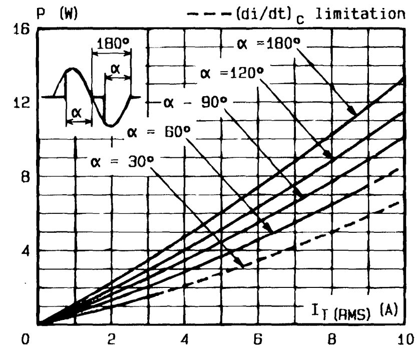


Fig.1 – Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

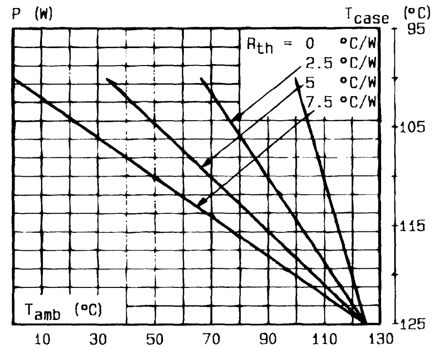


Fig.2 – Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

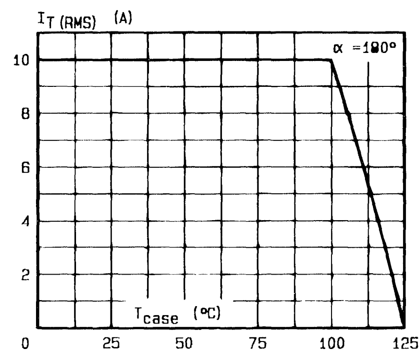


Fig.3 – RMS on-state current versus case temperature.

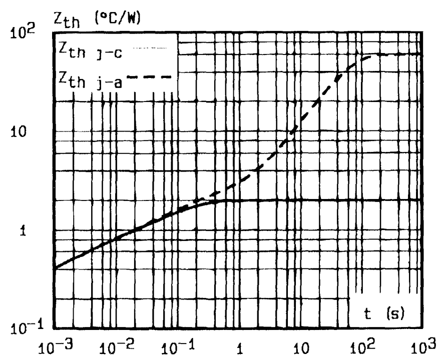


Fig.4 – Thermal transient impedance junction to case and junction to ambient versus pulse duration.

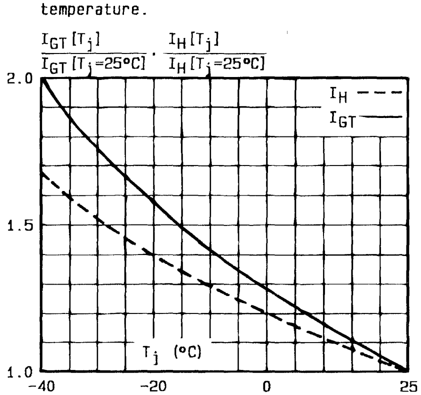


Fig.5 – Relative variation of gate trigger current and holding current versus junction temperature.

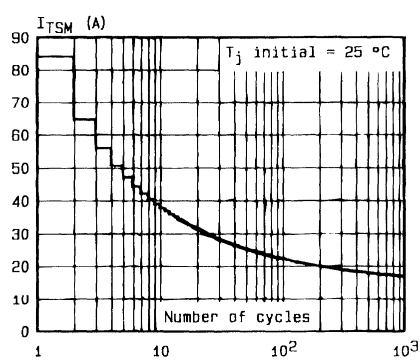


Fig.6 – Non repetitive surge peak on-state current versus number of cycles.

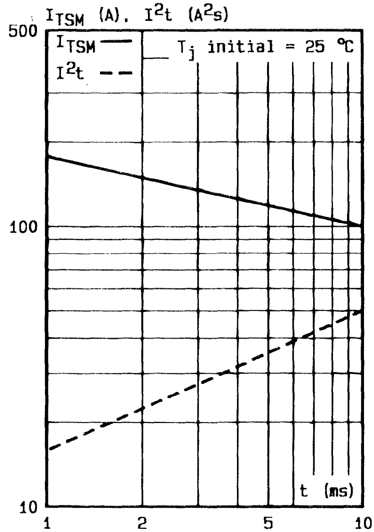


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

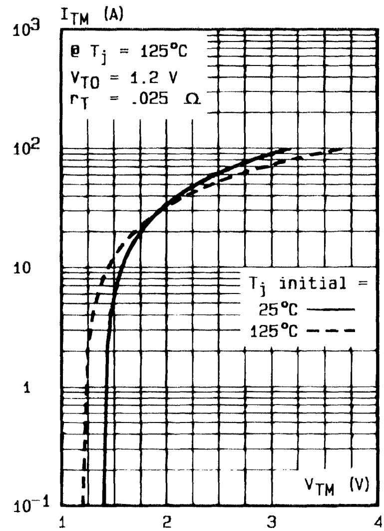
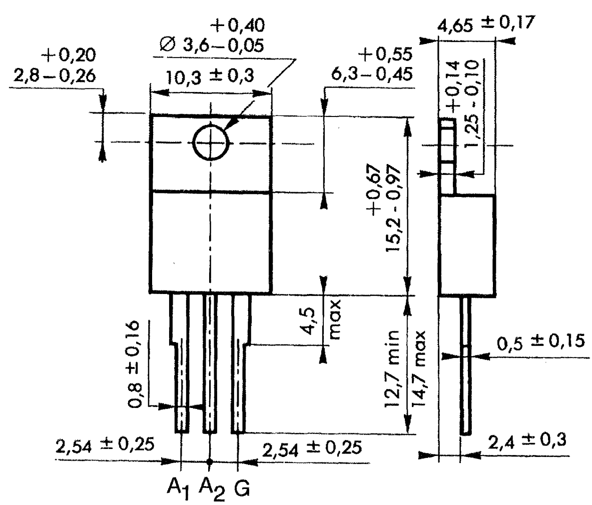


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

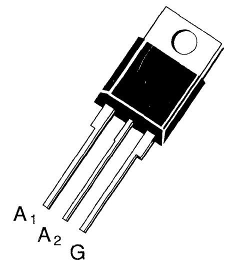


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTB 10 CW

SNUBBERLESS TRIACS

- I_{TRMS} = 10 A at T_c = 100 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 100 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 5.5 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 100 °C	10	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	105	A
		t = 10 ms	100	
I^2t	I^2t value	t = 10 ms	50	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 10-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	°C/W
$R_{th(j-c)}DC$	Junction to case for DC	2.7	°C/W
$R_{th(j-c)}AC$	Junction to case for 360° conduction angle (F = 50 Hz)	2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G(AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D =12 V	R_L = 33 Ω	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			1.5	V
V_{GD}	T_j = 125 °C Pulse duration > 20 µs	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III	0.2			V
I_H*	T_j = 25 °C Gate open	I_T = 100 mA R_L = 140 Ω					35	mA
I_L	T_j = 25 °C Pulse duration > 20 µs	V_D = 12 V	I_G = 350 mA	I-III			50	mA
				II			80	
V_{TM}*	T_j = 25 °C	I_{TM} = 14 A	t_p = 10 ms				1.65	V
I_{DRM}*	T_j = 25 °C	V_{DRM} rated	Gate open				0.01	mA
	T_j = 125 °C						2	
dv/dt*	T_j = 125 °C Linear slope up to 0.67 V_{DRM}	Gate open			250	500		V/µs
$(di/dt)_c$*	T_j = 125 °C Without snubber	V_{DRM} rated			5.5	11		A/ms
t_{gt}	T_j = 25 °C I_T = 14 A	dI_G/dt = 1 A/µs V_D = V_{DRM}	I_G = 350 mA	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

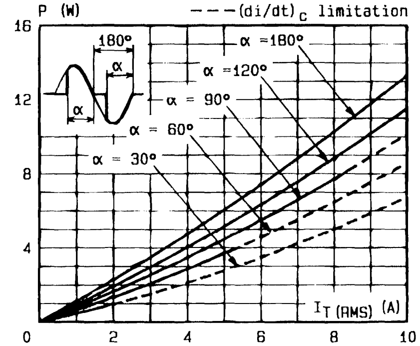


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

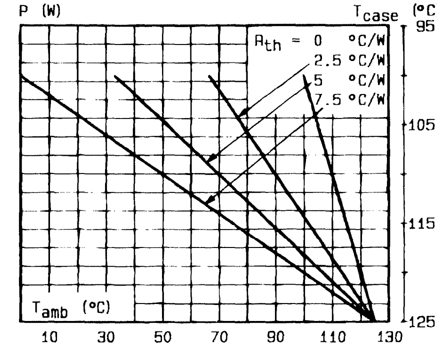


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

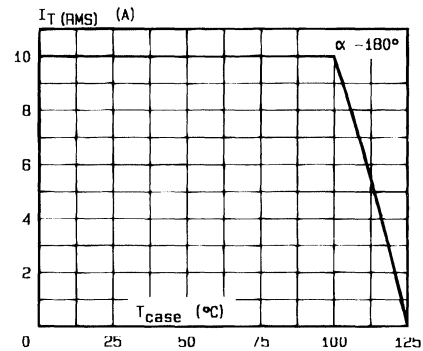


Fig.3 - RMS on-state current versus case temperature.

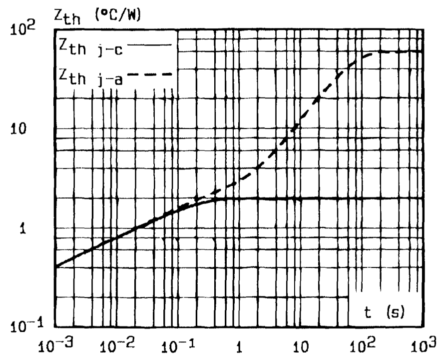


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

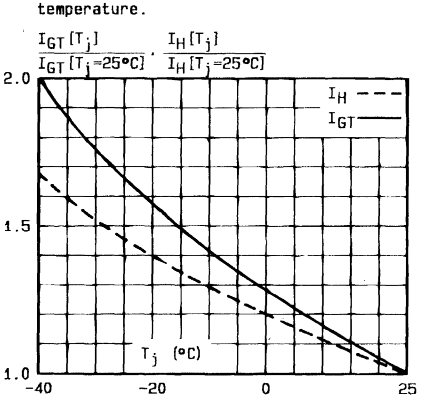


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

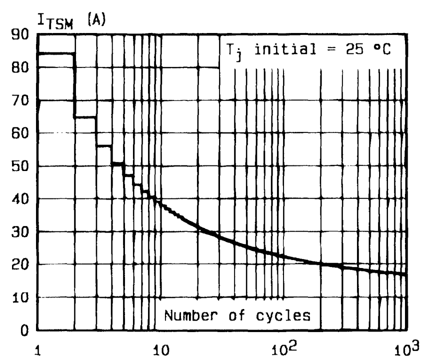


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

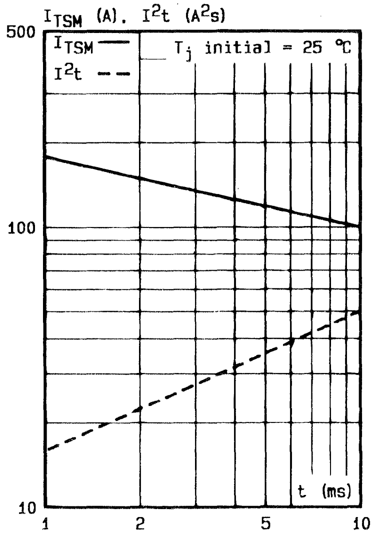


Fig.7 – Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

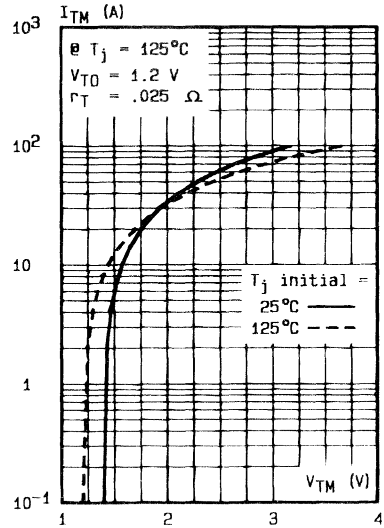
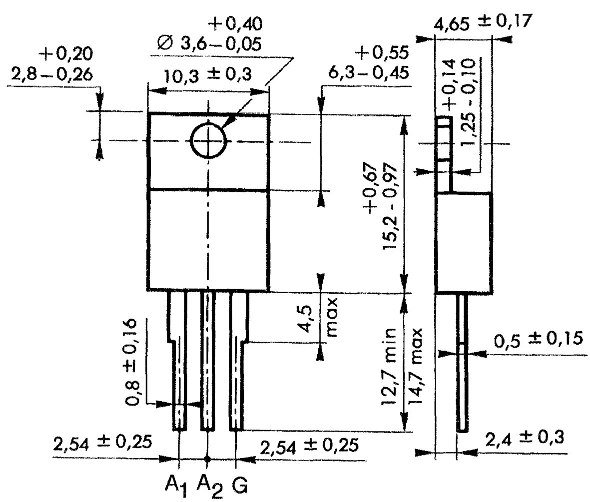


Fig.8 – On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



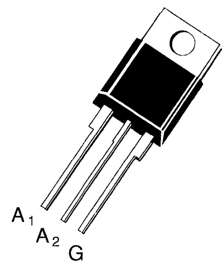
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON
MICROELECTRONICS

BTB 12 AW

SNUBBERLESS TRIACS

- I_{TRMS} = 12 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 120 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 16 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	126	A
		t = 10 ms	120	
I^2t	I^2t value	t = 10 ms	72	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 12-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA -- di_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	°C/W
$R_{th(j-c)}DC$	Junction to case for DC	2.7	°C/W
$R_{th(j-c)}AC$	Junction to case for 360° conduction angle (F = 50 Hz)	2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 μs) $P_{G(AV)}$ = 1 W I_{GM} = 4 A (t = 10 μs) V_{GM} = 16 V (t = 10 μs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse duration > 20 μs	V_D = 12 V	R_L = 33 Ω	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C Pulse duration > 20 μs	V_D = 12 V	R_L = 33 Ω	I-II-III			1.5	V
V_{GD}	T_j = 125 °C Pulse duration > 20 μs	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III	0.2			V
I_H*	T_j = 25 °C Gate open	I_T = 100 mA R_L = 140 Ω					75	mA
I_L	T_j = 25 °C Pulse duration > 20 μs	V_D = 12 V	I_G = 500 mA	I-III		75		mA
				II		150		
V_{TM}*	T_j = 25 °C	I_{TM} = 17 A	t_p = 10 ms				1.6	V
I_{DRM}*	T_j = 25 °C	V_{DRM} rated	Gate open				0.01	mA
	T_j = 125 °C						2	
dv/dt*	T_j = 125 °C Linear slope up to 0.67 V_{DRM}	Gate open			750	1000		V/μs
$(di/dt)_c$*	T_j = 125 °C Without snubber	V_{DRM} rated			16	32		A/ms
t_{gt}	T_j = 25 °C I_T = 17 A	di_G/dt = 3.5 A/μs V_D = V_{DRM}	I_G = 500 mA	I-II-III		2		μs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

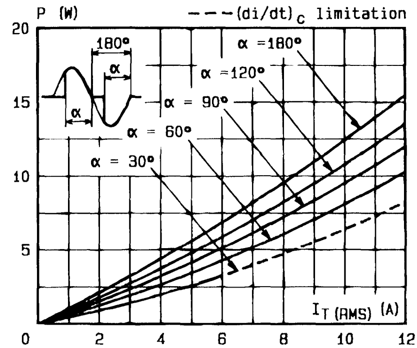


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

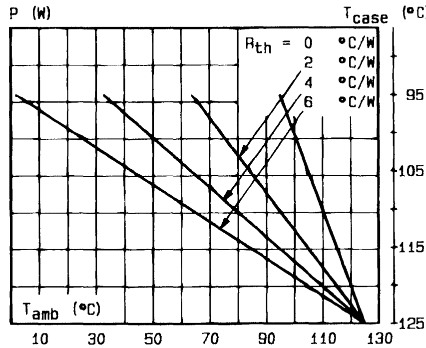


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

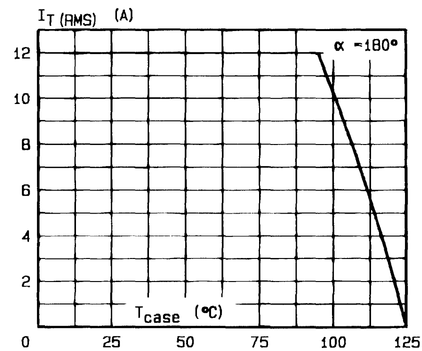


Fig.3 - RMS on-state current versus case temperature.

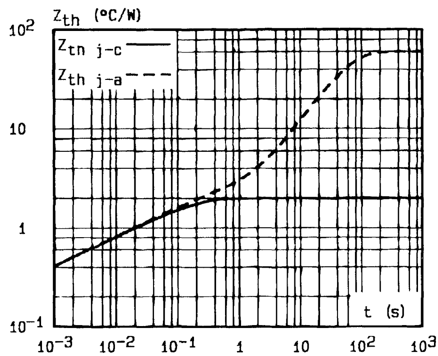


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

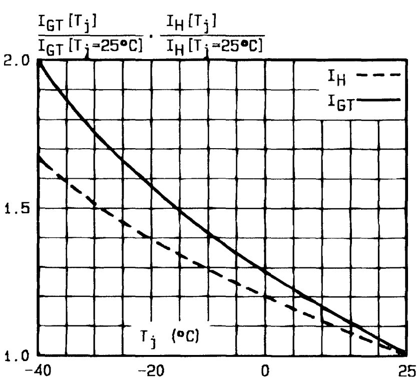


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

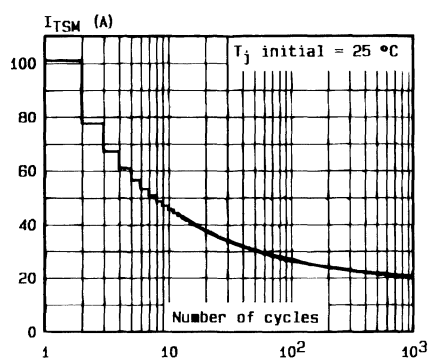


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

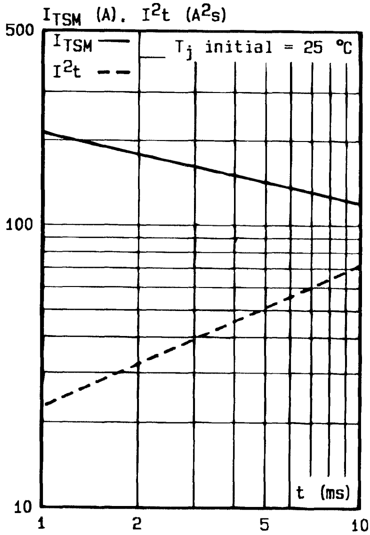


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

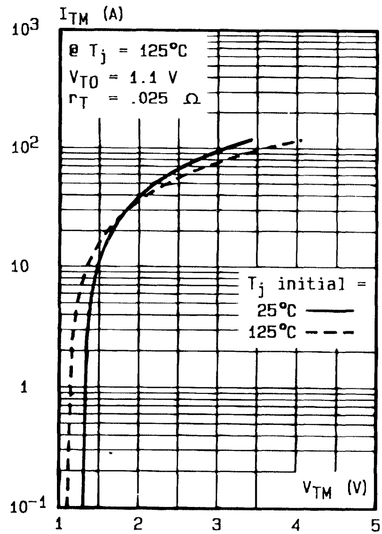
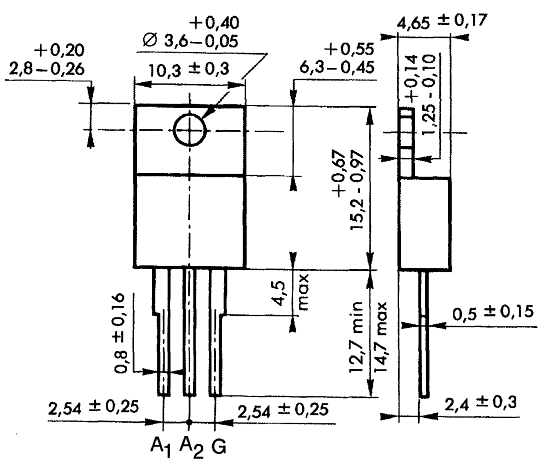


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

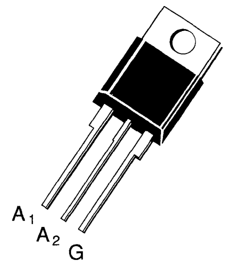


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTB 12 BW

SNUBBERLESS TRIACS

- I_{TRMS} = 12 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 120 A.
- HIGH COMMUTATION CAPABILITY :
  (di/dt) $_c$ > 12 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	126	A
		t = 10 ms	120	
I^2t	I^2t value	t = 10 ms	72	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 12-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$ $R_{th(j-c)}DC$ $R_{th(j-c)}AC$	Junction to ambient Junction to case for DC Junction to case for 360° conduction angle (F = 50 Hz)	60 2.7 2	°C/W °C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G(AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 17 A t_p = 10 ms				1.6	V
I_{DRM}*	T_j = 25 °C — V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
(di/dt)$_c$*	T_j = 125 °C V_{DRM} rated Without snubber		12	24		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 17 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

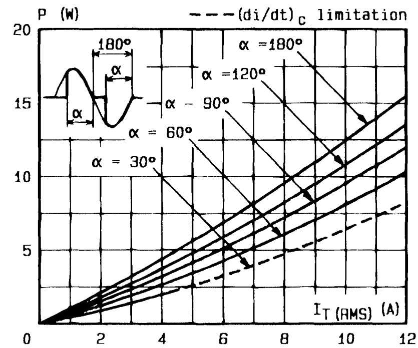


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

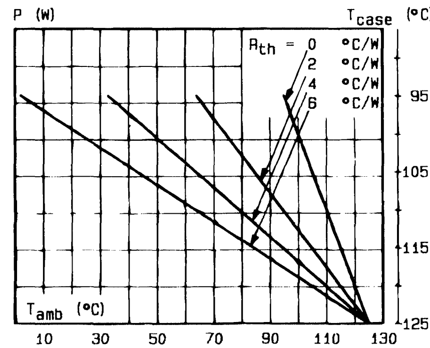


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

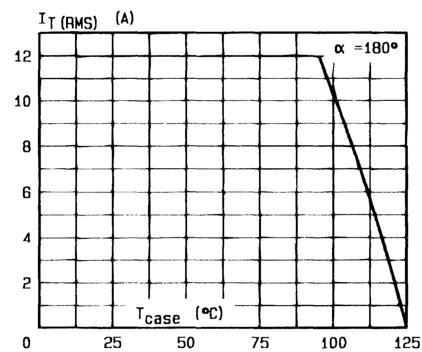


Fig.3 - RMS on-state current versus case temperature.

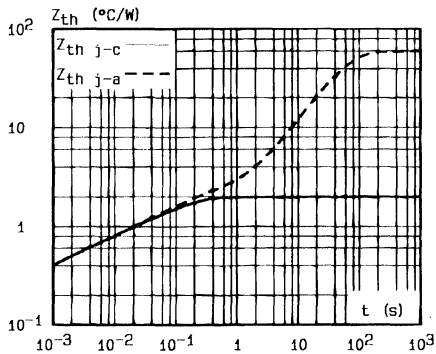


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

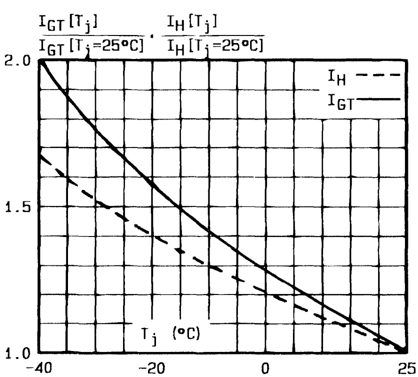


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

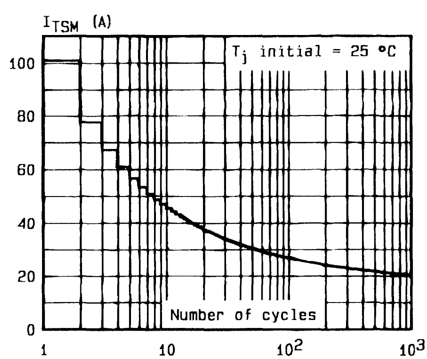


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

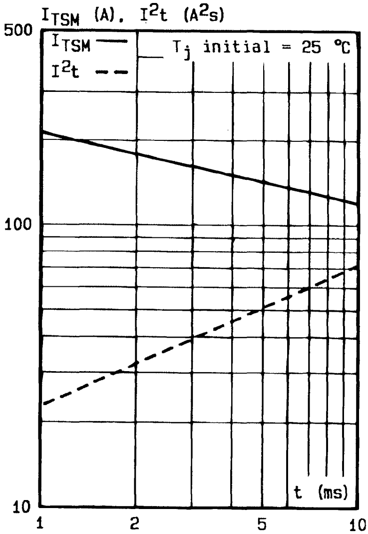


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

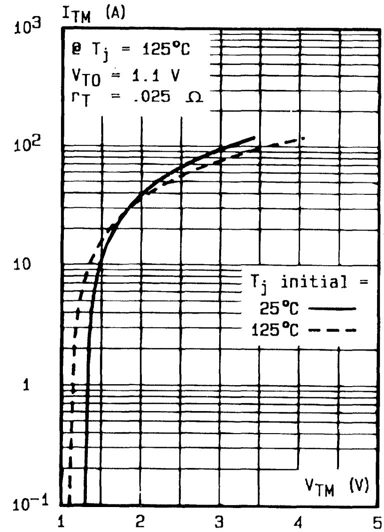
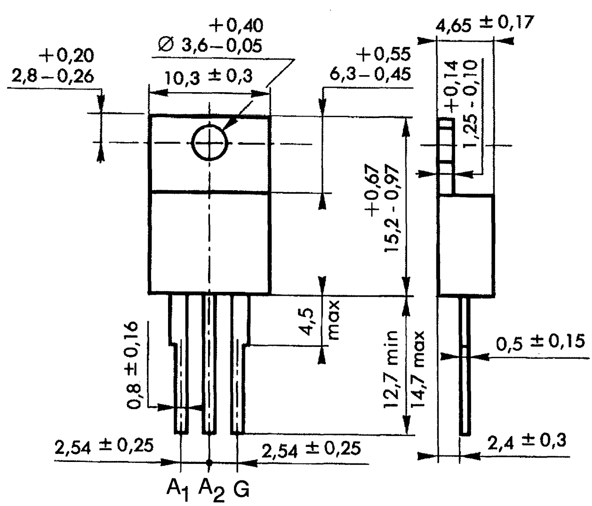


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

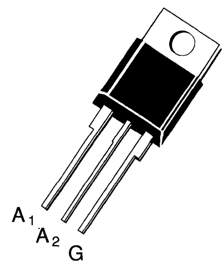
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SNUBBERLESS TRIACS

- I_{TRMS} = 12 A at T_c = 95 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 120 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 6.5 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 95 °C	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	126	A
		t = 10 ms	120	
I^2t	I^2t value	t = 10 ms	72	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 12-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – di_G/dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	°C/W
$R_{th(j-c)}DC$	Junction to case for DC	2.7	°C/W
$R_{th(j-c)}AC$	Junction to case for 360° conduction angle (F = 50 Hz)	2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G(AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM}*	T_j = 25 °C I_{TM} = 17 A t_p = 10 ms				1.6	V
I_{DRM}*	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
$(di/dt)_c$*	T_j = 125 °C V_{DRM} rated Without snubber		6.5	13		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 350 mA I_T = 17 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

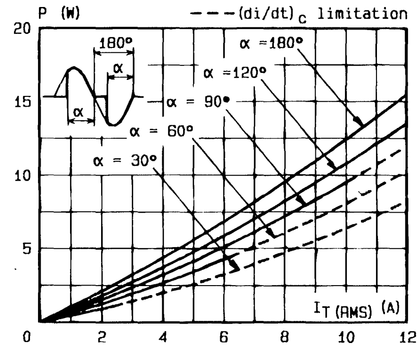


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

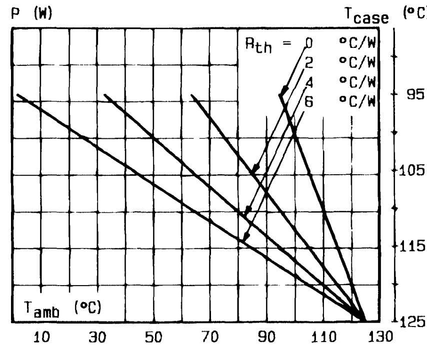


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

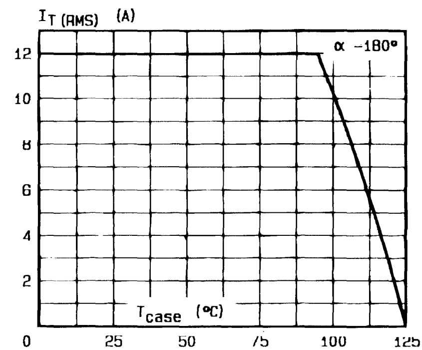


Fig.3 - RMS on-state current versus case temperature.

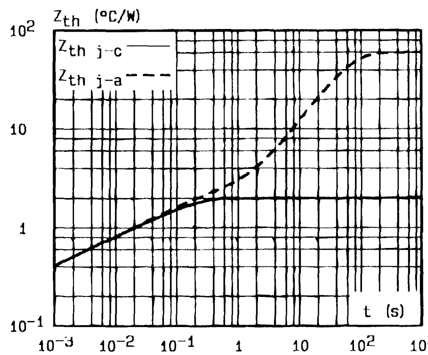


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

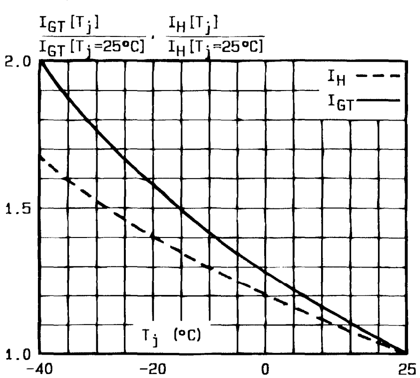


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

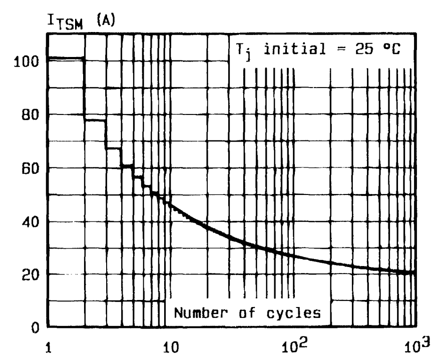


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

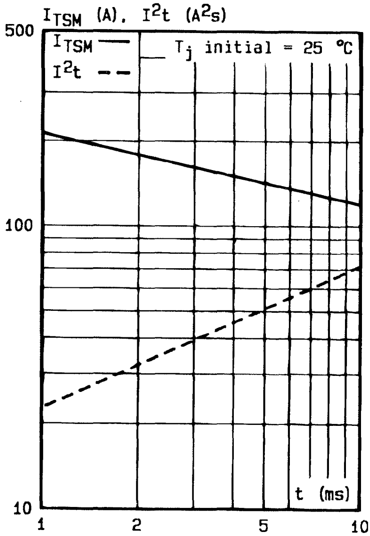


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

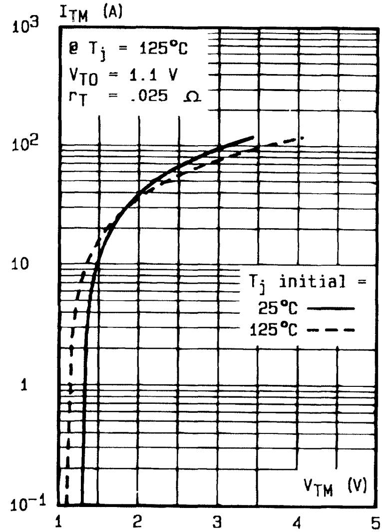
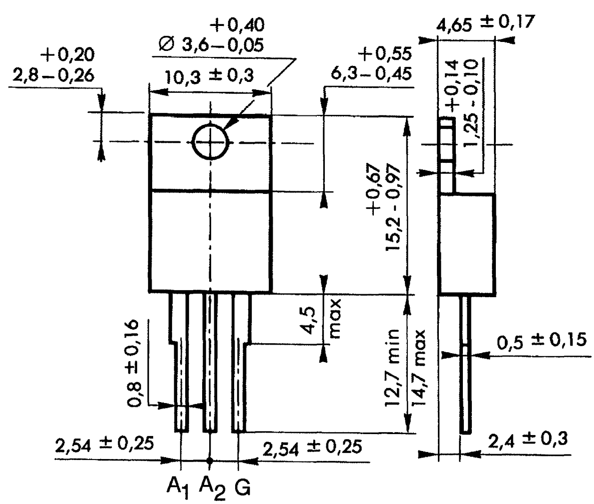


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

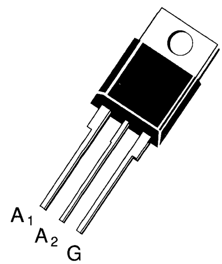


Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

BTB 13 B

TRIACS

- GLASS PASSIVATED CHIP
- HIGH CAPACITOR DISCHARGE CURRENT



TO 220 AB
(Plastic)

DESCRIPTION

Design primarly for applications such as phase control, static switching, power supply

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 100 °C	12	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t Value for Fusing	t = 10 ms	112.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTB 13–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 750 mA dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	2.4	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	1.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G (AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

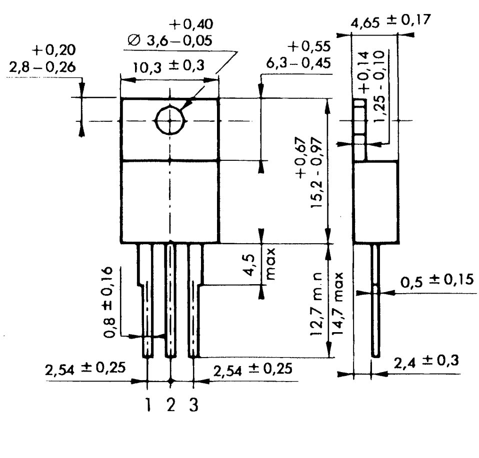
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			50	mA
				IV			75	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 150 mA	I-III-IV		50		mA
				II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 17 A	t_p = 10 ms				1.4	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			500			V/µs
(dv/dt)$_c$*	T_c = 100 °C $(di/dt)_c$ = 5.3 A/ms	V_D = V_{DRM}	I_T = 17 A		10			V/µs
t_{gt}	T_j = 25 °C I_G = 500 mA	V_D = V_{DRM} di_G/dt = 3.5 A/µs	I_T = 17 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

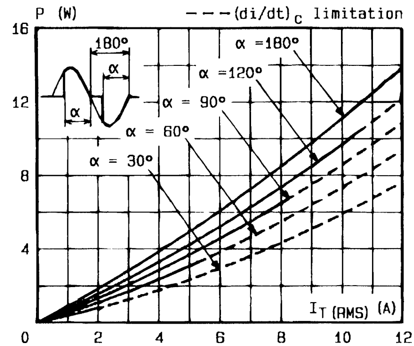


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

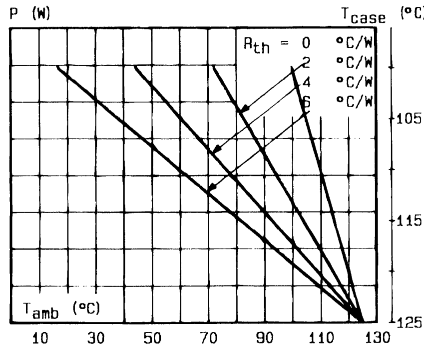


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

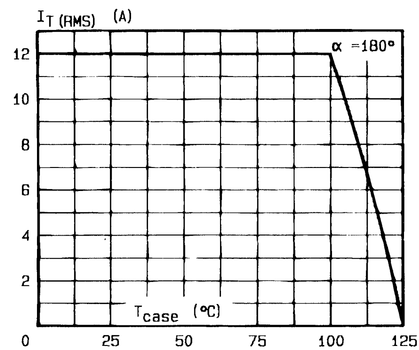


Fig.3 - RMS on-state current versus case temperature.

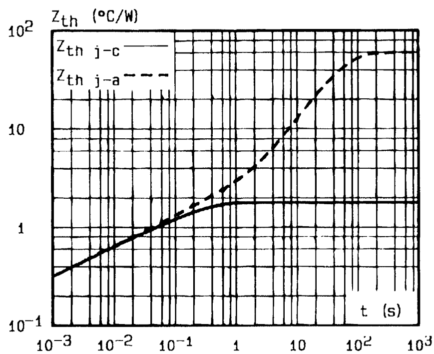


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

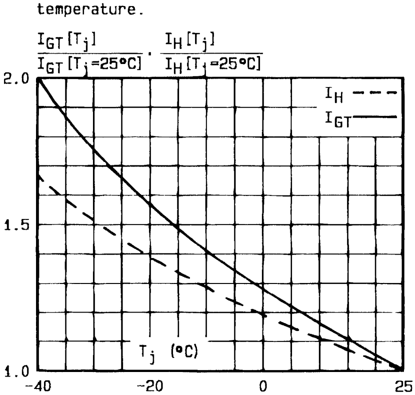


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

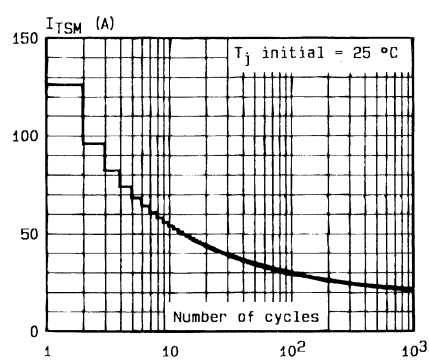


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

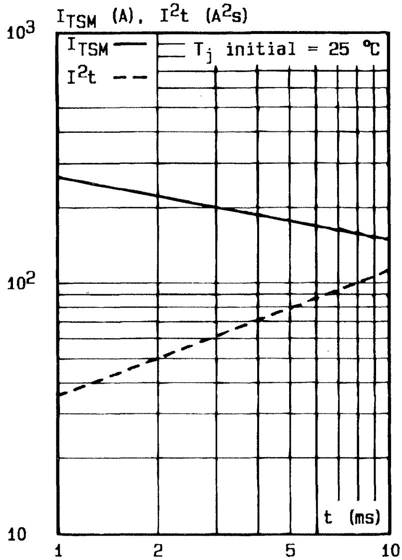


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

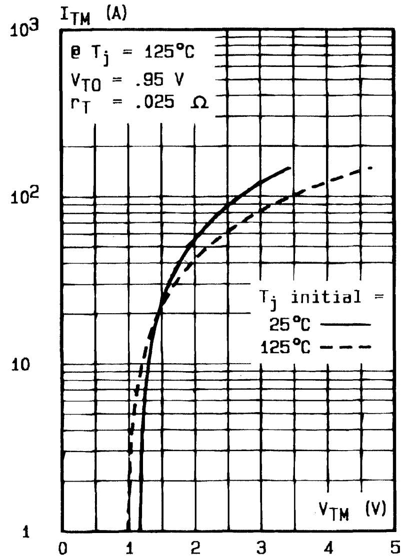


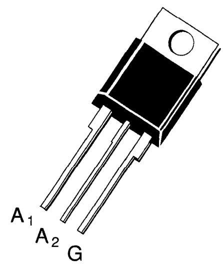
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

BTB 15 B

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 90 °C	15	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t Value for Fusing	t = 10 ms	112.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTB 15–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 750 mA dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	2.66	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	2	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 μs) I_{GM} = 4 A (t_p = 10 μs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 μs)

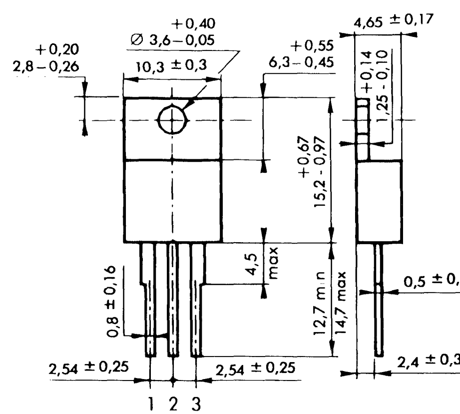
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III			50	mA
		IV			75	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 150 mA Pulse Duration > 20 μs	I-III-IV		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 21 A t_p = 10 ms				1.5	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 125 °C				2	
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250	500		V/μs
(dv/dt)$_c$*	T_C = 90 °C V_D = V_{DRM} I_T = 21 A (di/dt)$_c$ = 6.7 A/ms		10			V/μs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 21 A I_G = 500 mA di_G/dt = 3.5 A/μs	I-II-III-IV		2		μs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Triac : 1 2 3 = A1 A2 G

Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

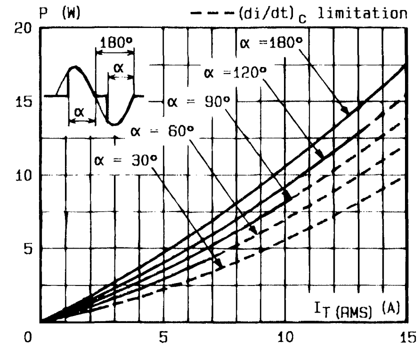


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

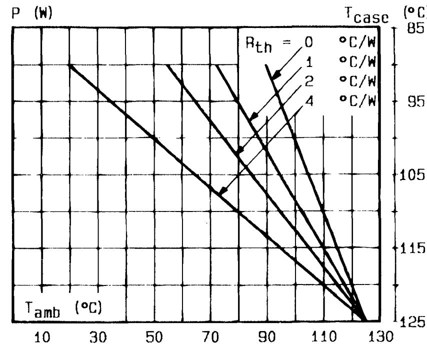


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

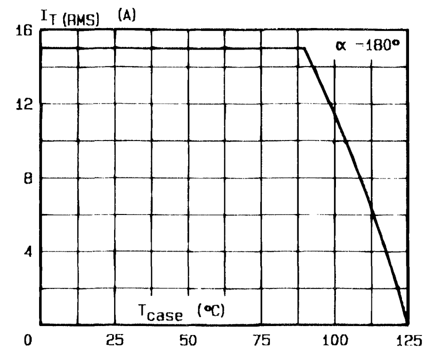


Fig.3 - RMS on-state current versus case temperature.

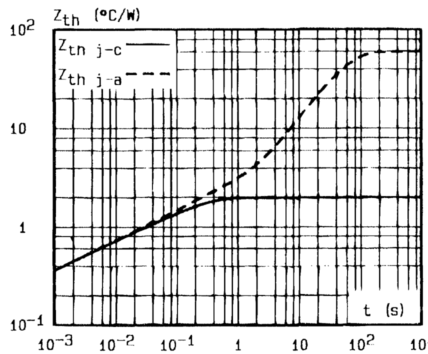


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

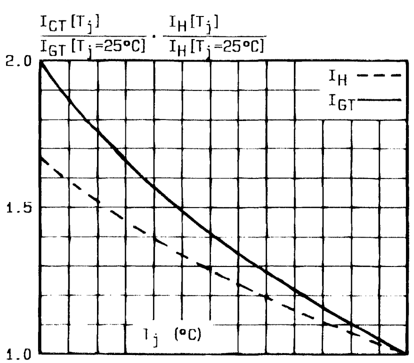


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

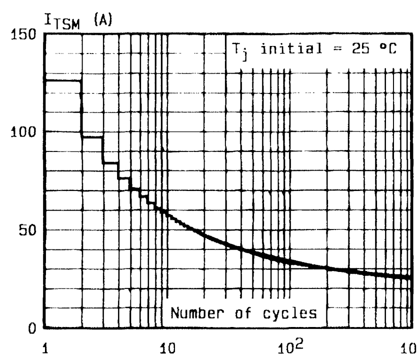


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

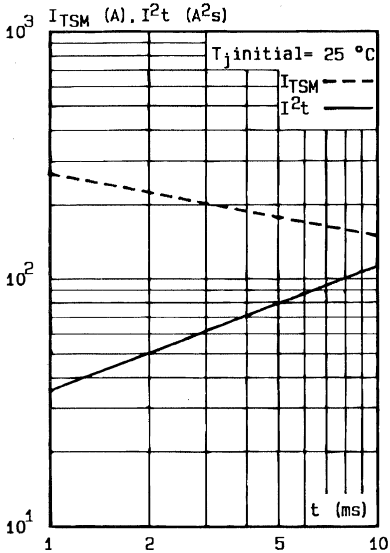


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: t≤ 10ms, and corresponding value of I^2t.

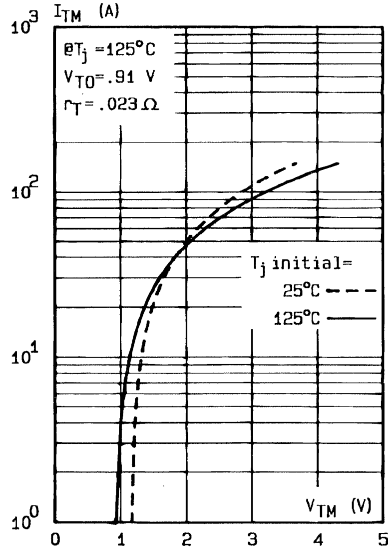
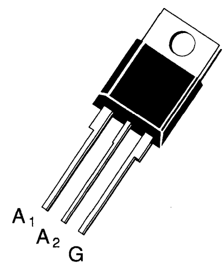


Fig.8 - On-state characteristic (maximum values) .

SNUBBERLESS TRIACS

- I_{TRMS} = 16 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 75 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 150 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 21 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t value	t = 10 ms	112	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 16-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 750 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to ambient	60	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to case for DC	2.4	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	1.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		75	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				75	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		75		mA
		II		150		
V_{TM} *	T_j = 25 °C I_{TM} = 22.5 A t_p = 10 ms				1.5	V
I_{DRM} *	T_j = 25 °C; V_{DRM} rated, Gate open				0.01	mA
	T_j = 125 °C; V_{DRM} rated, Gate open				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		21	42		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 3.5 A/µs I_G = 500 mA I_T = 22.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

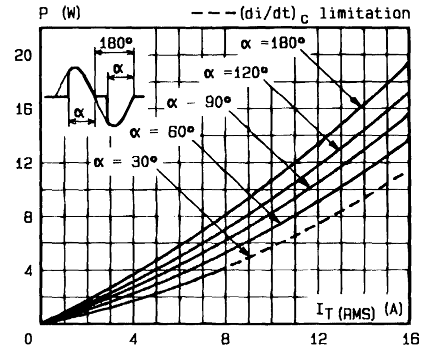


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

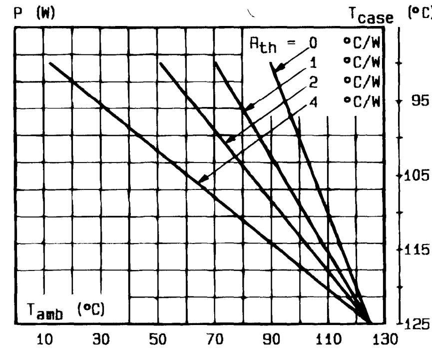


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

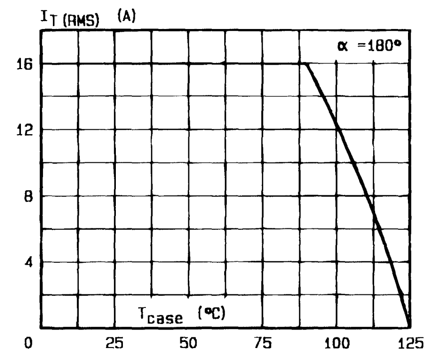


Fig.3 - RMS on-state current versus case temperature.

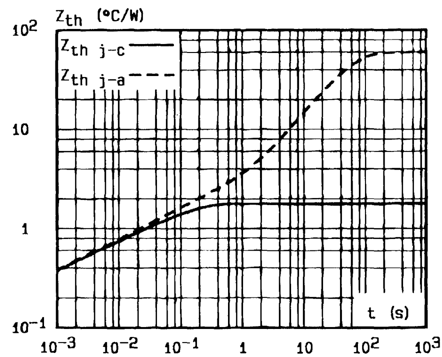


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

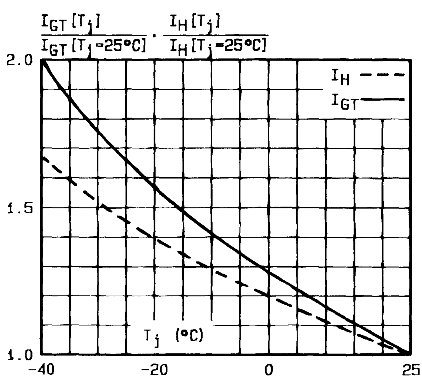


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

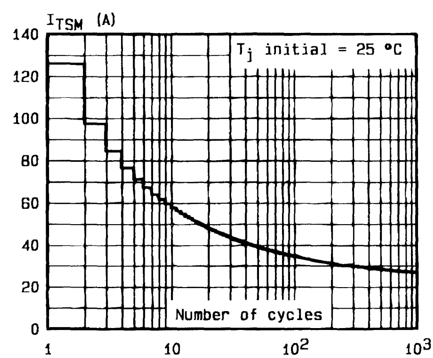


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

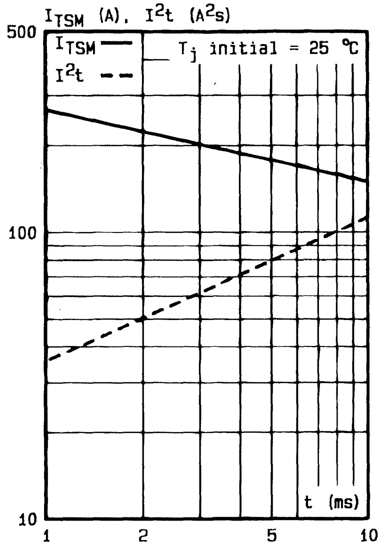


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

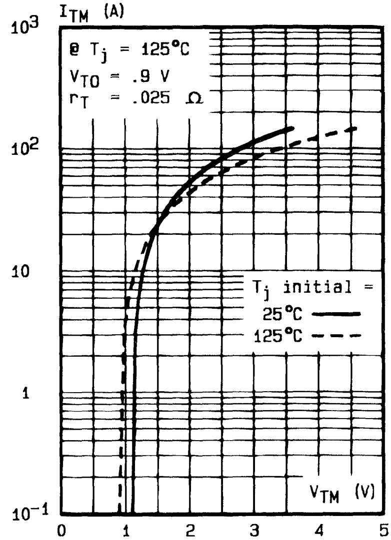
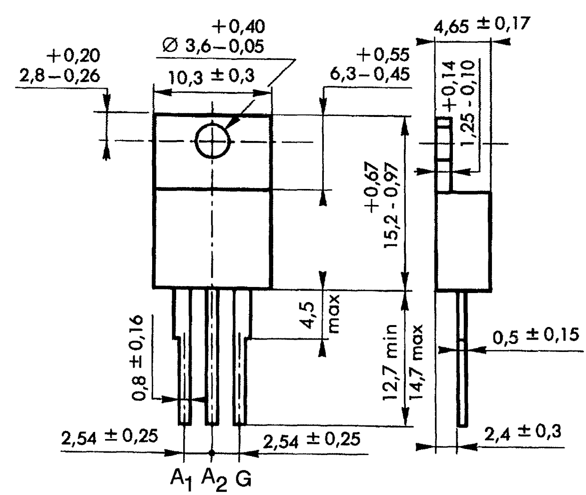


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

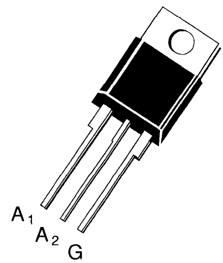
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

TRIACS

- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_c > 10\ V/\mu s$
- I_{GT} SPECIFIED IN FOUR QUADRANTS



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	$T_C = 90\ °C$	16	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	170	A
		t = 10 ms	160	
I^2t	I^2t Value for Fusing	t = 10 ms	128	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTB 16–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) $I_G = 1\ A$ $dI_G/dt = 1\ A/\mu s$
(2) $T_j = 125\ °C$.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	2.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	1.88	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G (AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

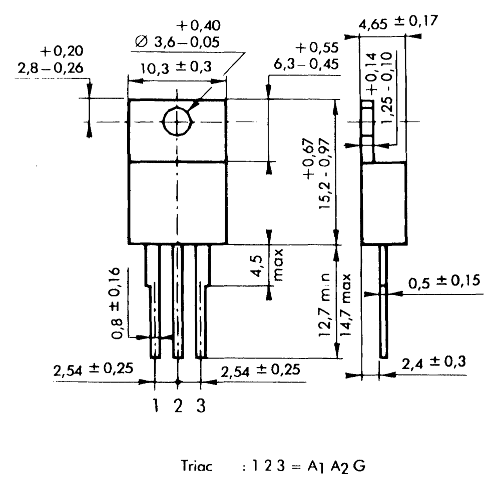
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			50	mA
				IV			100	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 200 mA	I-III-IV		50		mA
				II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 22.5 A	t_p = 10 ms				1.6	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 125 °C				0.5	
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			250	500		V/µs
(dv/dt)$_c$*	T_C = 90 °C (di/dt)$_c$ = 7 A/ms	V_D = V_{DRM}	I_T = 22.5 A		10			V/µs
t_{gt}	T_j = 25 °C I_G = 500 mA	V_D = V_{DRM} di$_G$/dt = 3.5 A/µs	I_T = 22.5 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

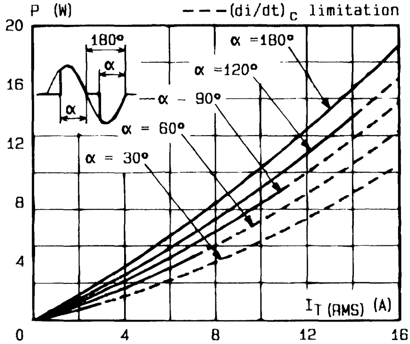


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

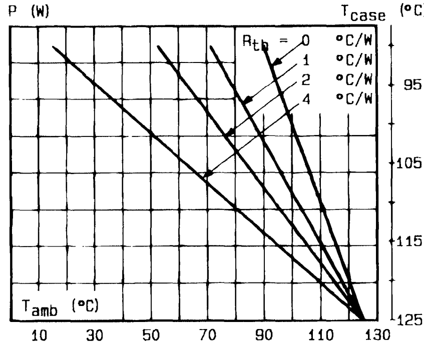


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

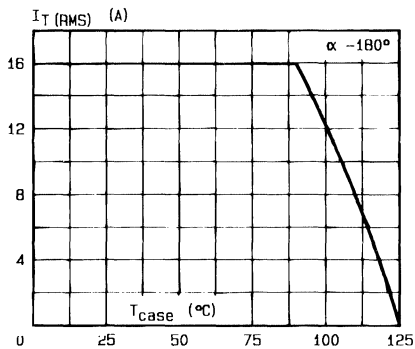


Fig.3 - RMS on-state current versus case temperature.

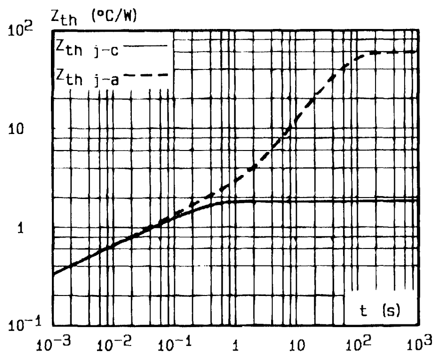


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

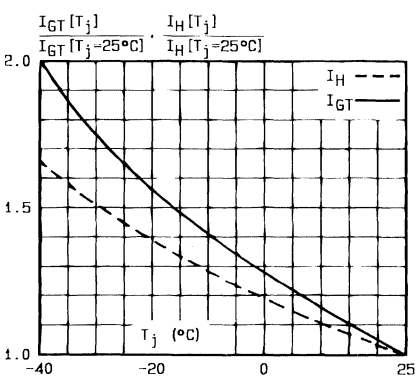


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

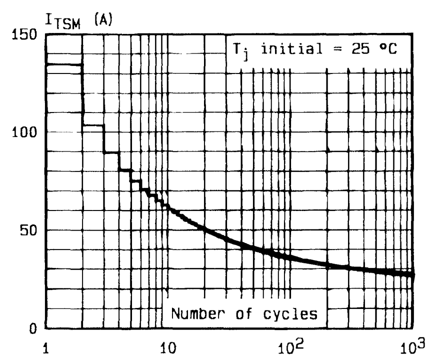


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

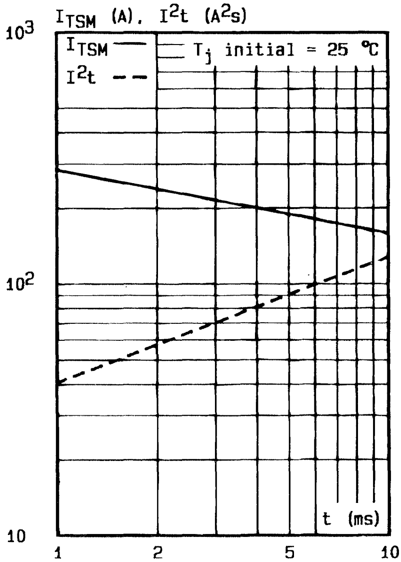


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

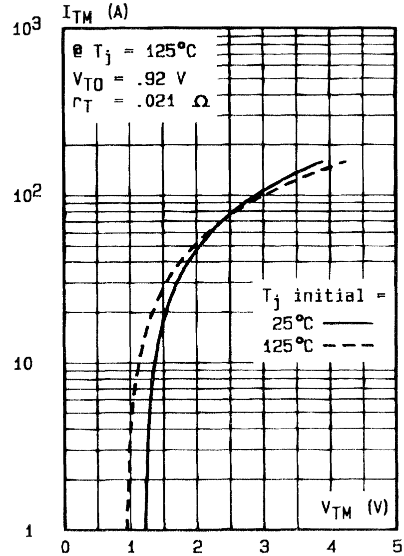
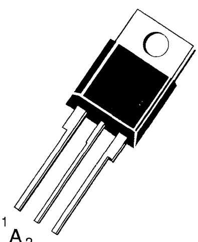


Fig.8 - On-state characteristics (maximum values).

SNUBBERLESS TRIACS

- I_{TRMS} = 16 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 50 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 150 A.
- HIGH COMMUTATION CAPABILITY : (di/dt) $_c$ > 14 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t value	t = 10 ms	112	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 16-					Unit
		200 BW	400 BW	600 BW	700 BW	800 BW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 500 mA – di_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	2.4	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	1.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	2		50	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				50	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 500 mA Pulse duration > 20 µs	I-III		50		mA
		II		100		
V_{TM} *	T_j = 25 °C I_{TM} = 22.5 A t_p = 10 ms				1.5	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		500	750		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		14	28		A/ms
t_{gt}	T_j = 25 °C dI_G/dt = 3.5 A/µs I_G = 500 mA I_T = 22.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

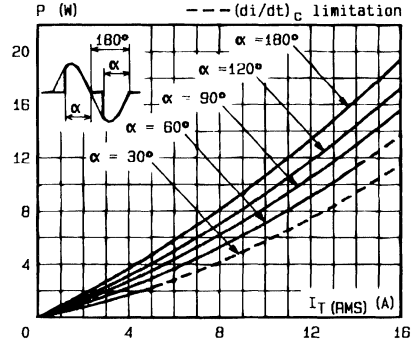


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

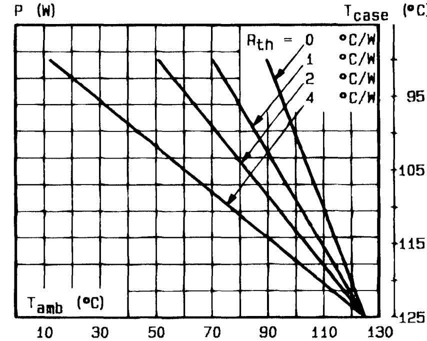


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

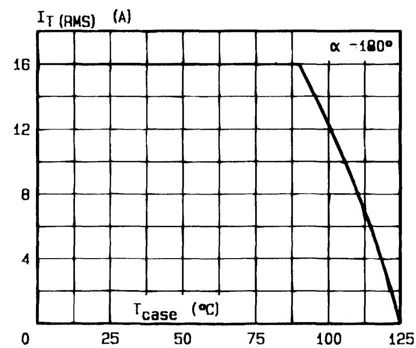


Fig.3 - RMS on-state current versus case temperature.

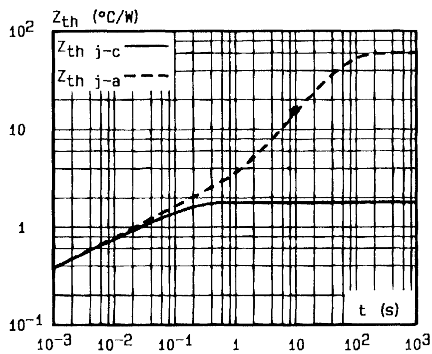


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

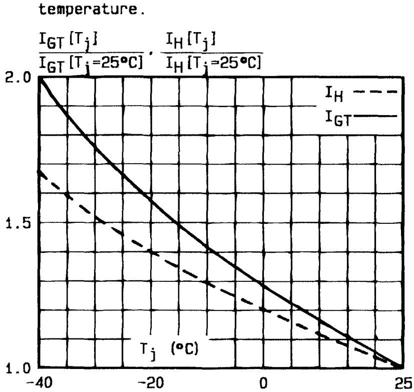


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

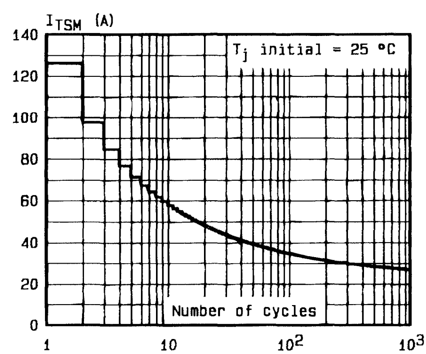


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

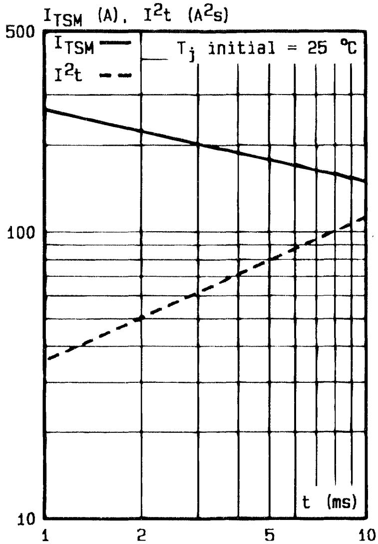


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

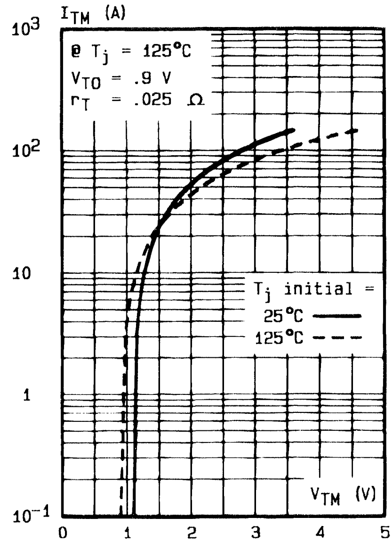
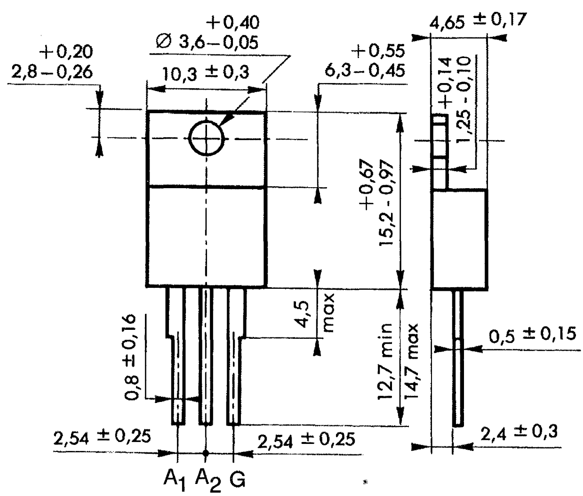


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



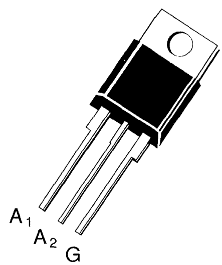
Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

SGS-THOMSON MICROELECTRONICS

BTB 16 CW

SNUBBERLESS TRIACS

- I_{TRMS} = 16 A at T_c = 90 °C.
- V_{DRM} : 200 V to 800 V.
- I_{GT} = 35 mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : I_{TSM} = 150 A.
- HIGH COMMUTATION CAPABILITY : $(di/dt)_c$ > 8.5 A / ms without snubber.



TO 220 AB
(CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	T_c = 90 °C	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	t = 8.3 ms	157	A
		t = 10 ms	150	
I^2t	I^2t value	t = 10 ms	112	A^2s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTB 16-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : I_G = 350 mA – dI_G / dt = 1 A / µs.
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to case for DC	2.4	°C/W
$R_{th\ (j-c)}$ AC	Junction to case for 360 ° conduction angle (F = 50 Hz)	1.8	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t = 10 µs) $P_{G\ (AV)}$ = 1 W I_{GM} = 4 A (t = 10 µs) V_{GM} = 16 V (t = 10 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III	1		35	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ Pulse duration > 20 µs	I-II-III	0.2			V
I_H *	T_j = 25 °C I_T = 100 mA Gate open R_L = 140 Ω				35	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 350 mA Pulse duration > 20 µs	I-III			50	mA
		II			80	
V_{TM} *	T_j = 25 °C I_{TM} = 22.5 A t_p = 10 ms				1.5	V
I_{DRM} *	T_j = 25 °C V_{DRM} rated Gate open				0.01	mA
	T_j = 125 °C				2	
dv/dt *	T_j = 125 °C Gate open Linear slope up to 0.67 V_{DRM}		250	500		V/µs
$(di/dt)_c$ *	T_j = 125 °C V_{DRM} rated Without snubber		8.5	17		A/ms
t_{gt}	T_j = 25 °C di_G/dt = 1 A/µs I_G = 350 mA I_T = 22.5 A V_D = V_{DRM}	I-II-III		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

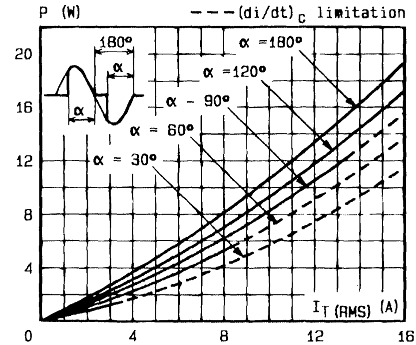


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

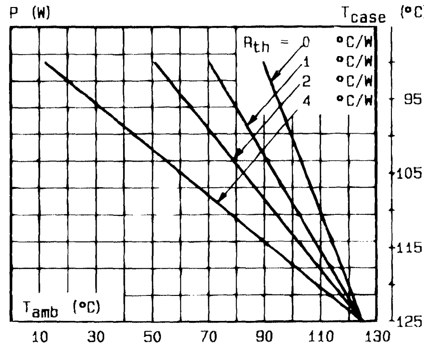


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

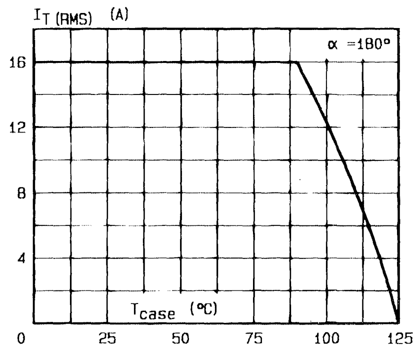


Fig.3 - RMS on-state current versus case temperature.

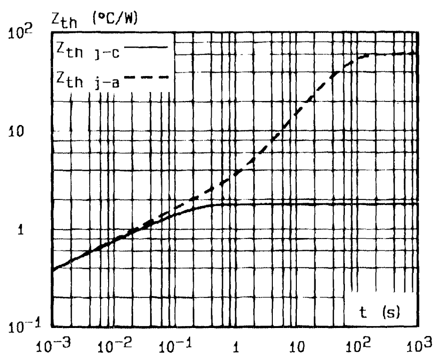


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

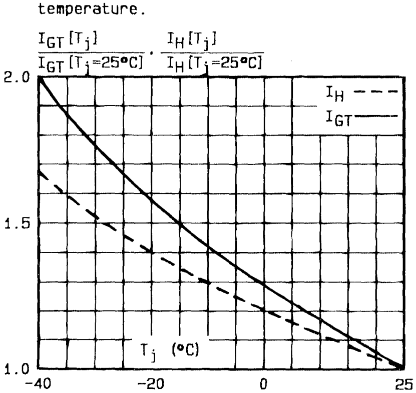


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

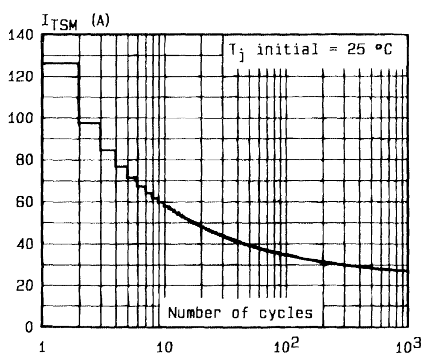


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

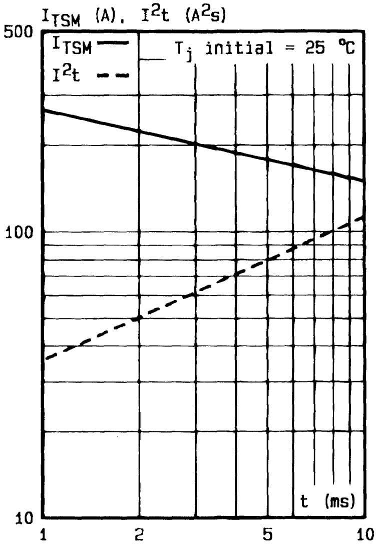


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

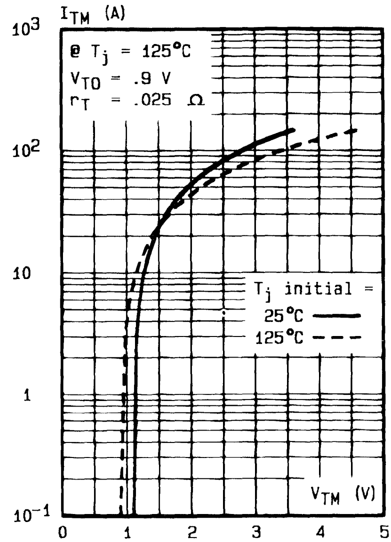
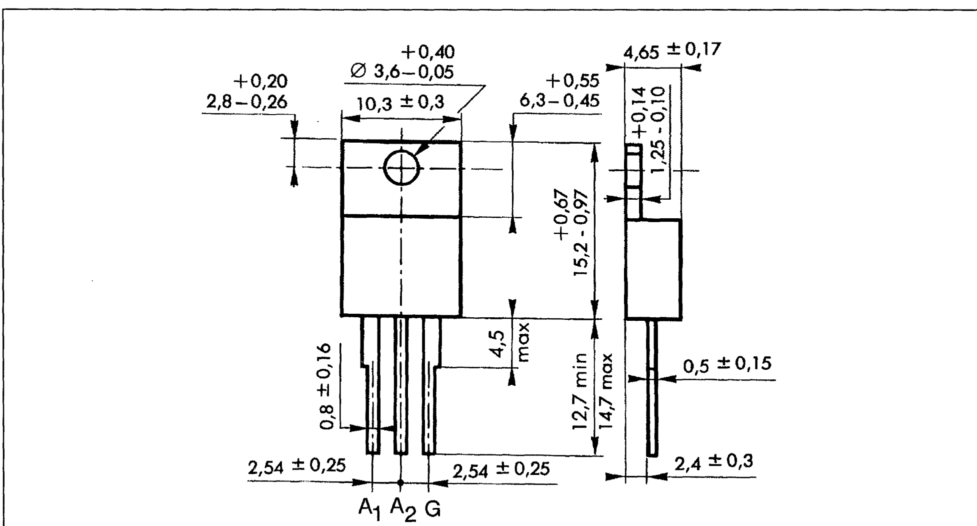


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

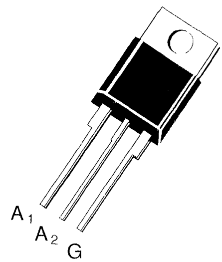
TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS



TO 220 AB
(Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	25	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	210	A
		t = 10 ms	200	
I^2t	I^2t Value for Fusing	t = 10 ms	200	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/μs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	BTB 24–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/μs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.97	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	1.48	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

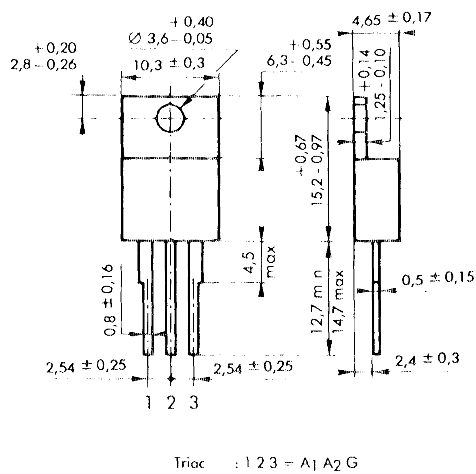
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			50	mA
				IV			100	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 200 mA	I-III-IV		50		mA
				II		100		
V_{TM}*	T_j = 25 °C	I_{TM} = 35 A	t_p = 10 ms				1.8	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 125 °C				1	
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open			250	500		V/µs
(dv/dt)$_c$*	T_C = 75 °C (di/dt)$_c$ = 11.1 A/ms	V_D = V_{DRM}	I_T = 35 A		10			V/µs
t_{gt}	T_j = 25 °C I_G = 500 mA	V_D = V_{DRM} di$_G$/dt = 3.5 A/µs	I_T = 35 A	I-II-III-IV		2		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g.

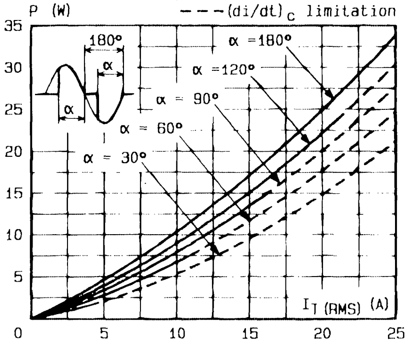


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

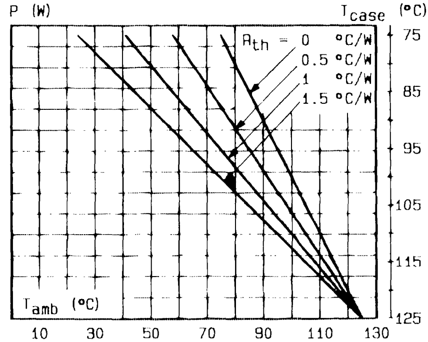


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

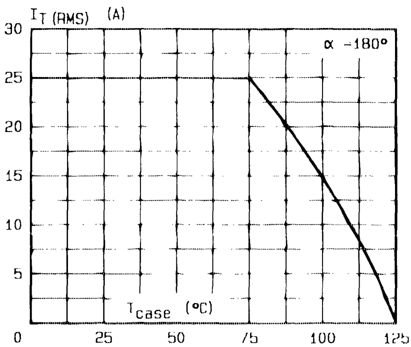


Fig.3 - RMS on-state current versus case temperature.

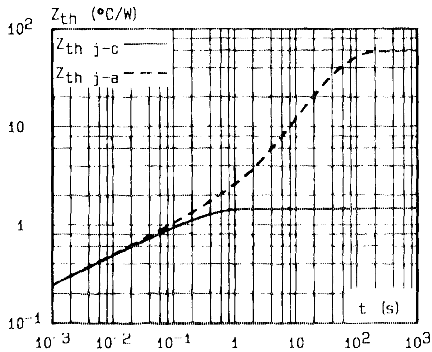


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

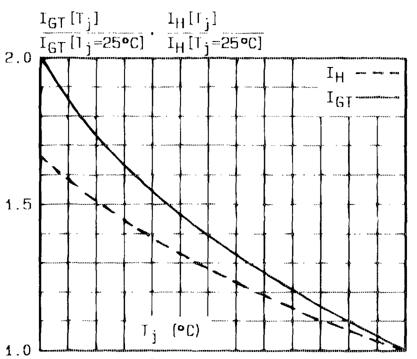


Fig 5 - Relative variation of gate trigger current and holding current versus junction temperature.

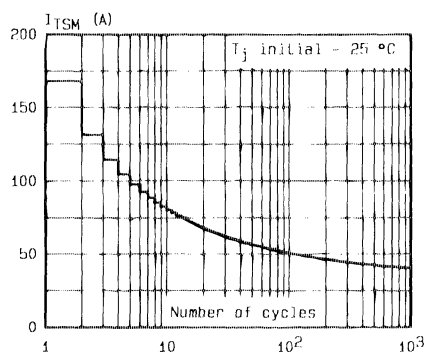


Fig.6 Non repetitive surge peak on-state current versus number of cycles.

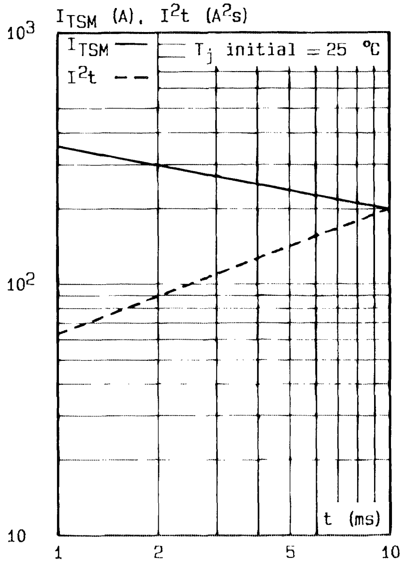


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

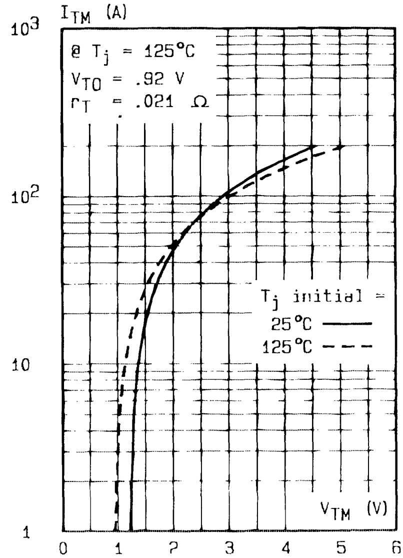


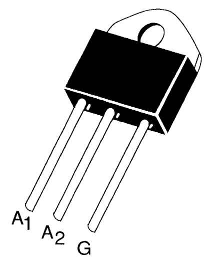
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

BTB 26 A

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS



TOP 3
(Plastic)

DESCRIPTION

This new design of plastic uninsulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 90 °C	30	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	260	A
		t = 10 ms	250	
I^2t	I^2t Value for Fusing	t = 10 ms	312.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTB 26–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs)　　I_{GM} = 6 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W　　V_{GM} = 16 V (t_p = 10 µs)

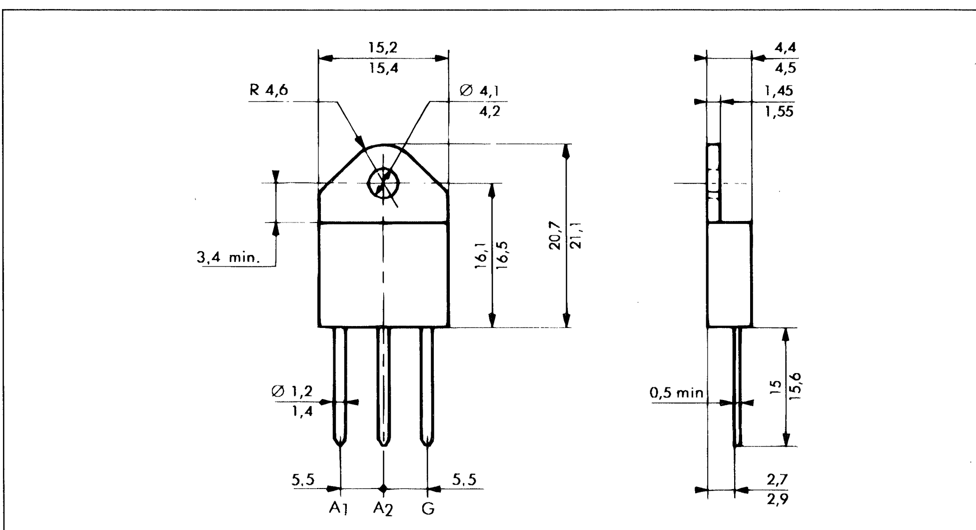
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C　V_D = 12 V　R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		100	mA
		IV	1		150	
V_{GT}	T_j = 25 °C　V_D = 12 V　R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C　V_D = V_{DRM}　R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C　I_T = 500 mA　Gate Open			30	100	mA
I_L	T_j = 25 °C　V_D = 12 V　I_G = 300 mA Pulse Duration > 20 µs	I-II-III-IV			150	mA
V_{TM}*	T_j = 25 °C　I_{TM} = 35 A　t_p = 10 ms				1.7	V
I_{DRM}*	T_j = 125 °C　V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C　Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 90 °C　V_D = V_{DRM}　I_T = 35 A $(di/dt)_c$ = 13.3 A/ms		10			V/µs
t_{gt}	T_j = 25 °C　V_D = V_{DRM}　I_T = 35 A I_G = 1 A　dI_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

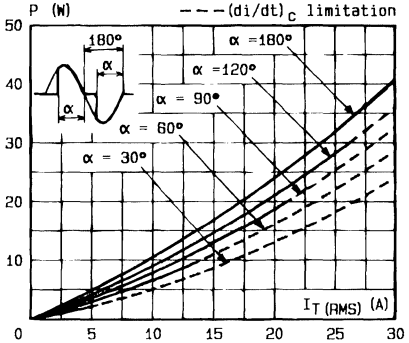


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

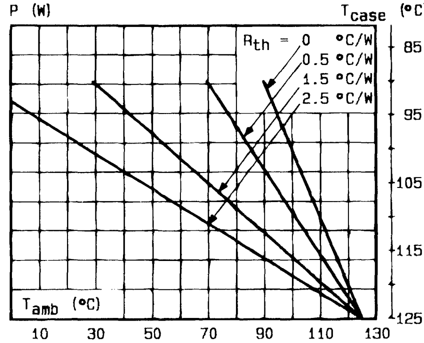


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

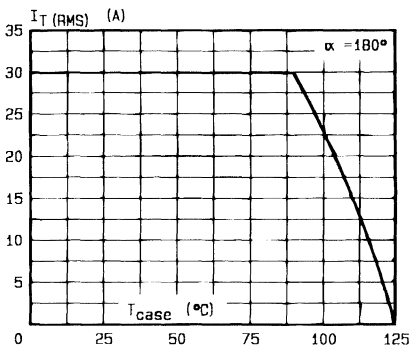


Fig.3 - RMS on-state current versus case temperature.

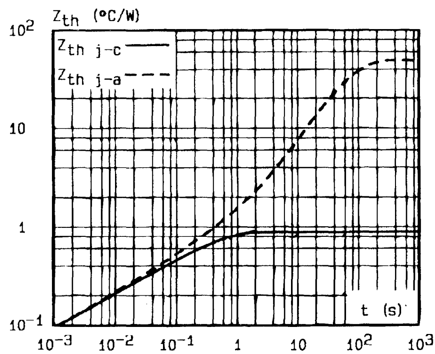


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

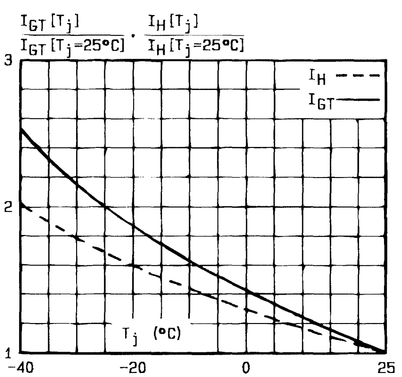


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

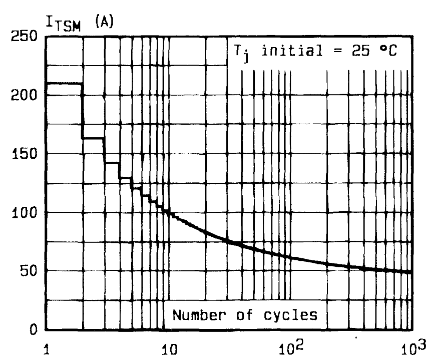


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

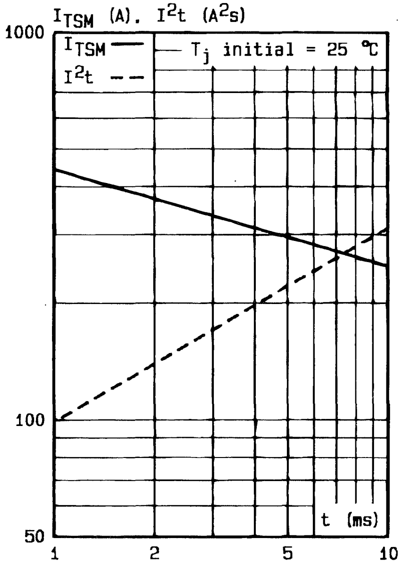


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

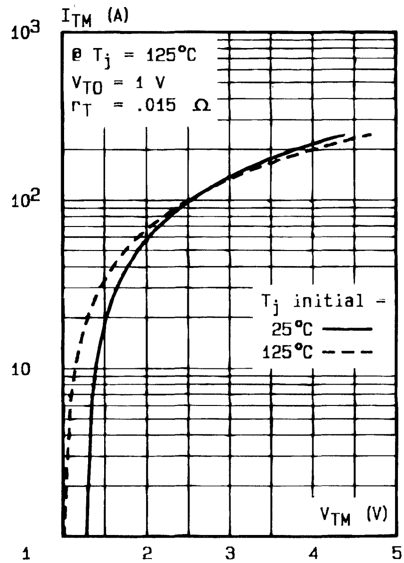
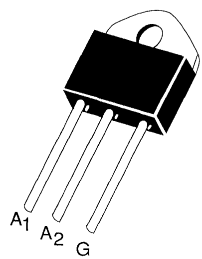


Fig.8 - On-state characteristics (maximum values).

BTB 26 B

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS



TOP 3
(Plastic)

DESCRIPTION

This new design of plastic uninsulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 90 °C	30	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	260	A
		t = 10 ms	250	
I^2t	I^2t Value for Fusing	t = 10 ms	312.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTB 26–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 6 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

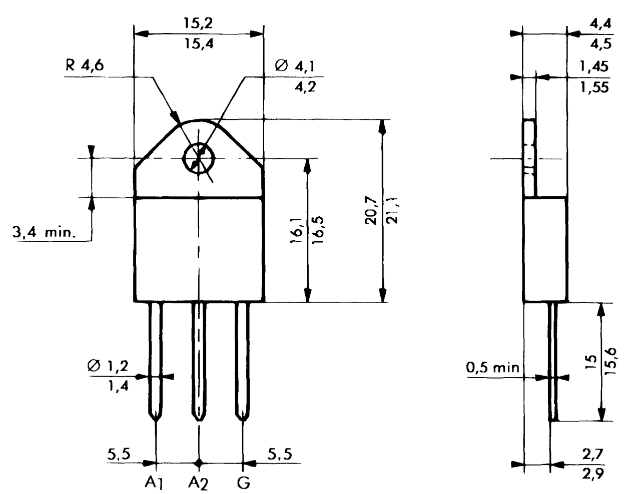
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		50	mA
		IV	1		100	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	80	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-II-III-IV			100	mA
V_{TM}*	T_j = 25 °C I_{TM} = 35 A t_p = 10 ms				1.7	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 90 °C V_D = V_{DRM} I_T = 35 A $(di/dt)_c$ = 13.3 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 35 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

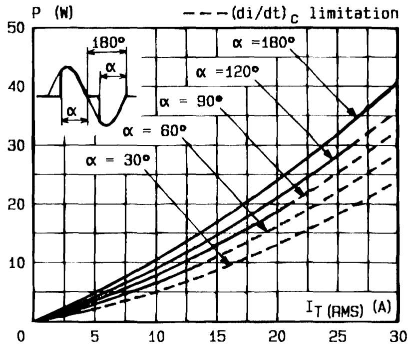


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

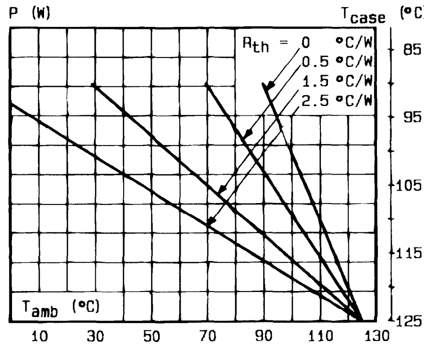


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

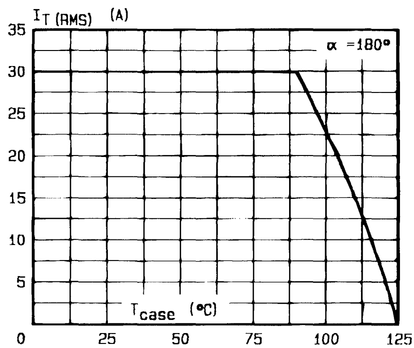


Fig.3 - RMS on-state current versus case temperature.

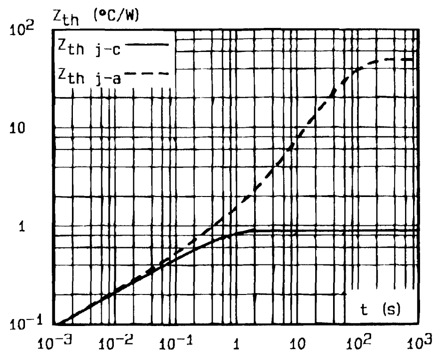


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

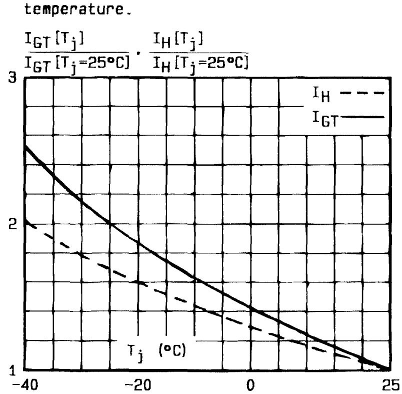


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

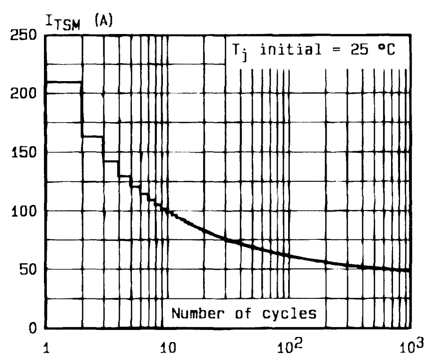


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

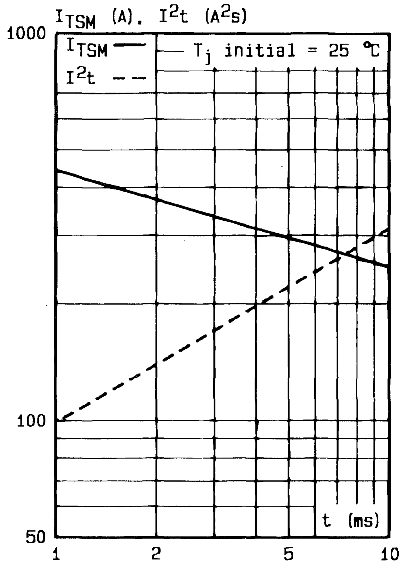


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

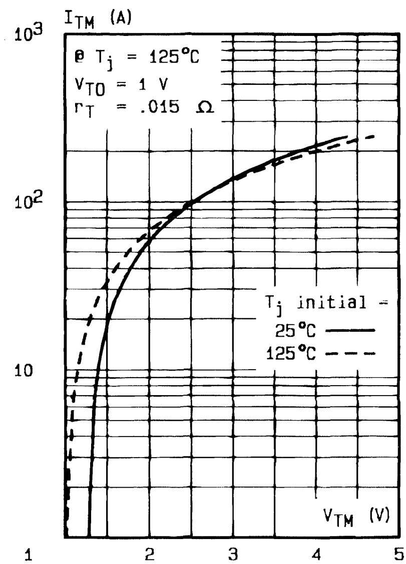


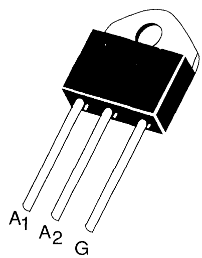
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

BTB 41 A

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS



TOP 3
(Plastic)

DESCRIPTION

This new design of plastic uninsulated power triacs offers maximum efficiency with maximum ease of mounting.

ADVANTAGES

- NO TAPPING REQUIRED FOR FIXING
- EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 80 °C	45	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	315	A
		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTB 41–					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	0.95	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.7	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 10 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

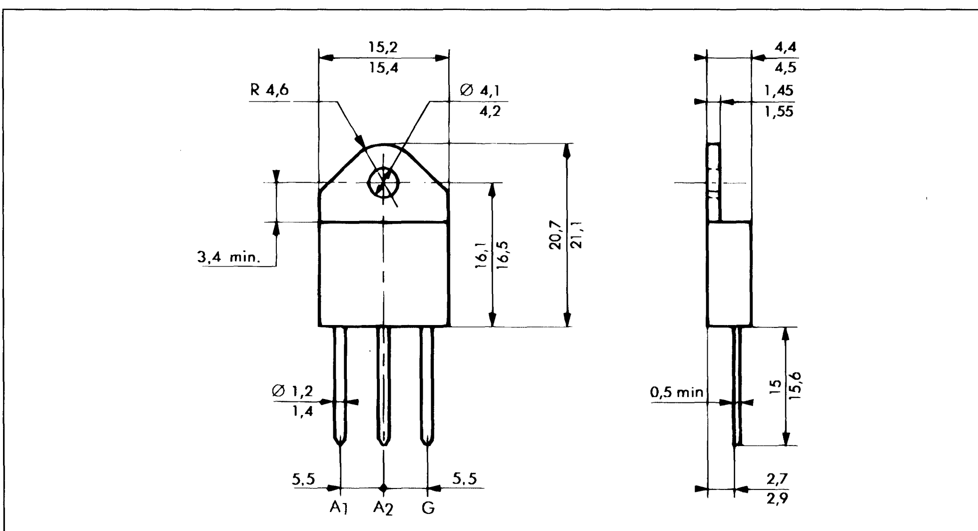
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		100	mA
		IV	1		150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration ≥ 20 µs	I-II-III-IV			150	mA
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A $(di/dt)_c$ = 20 A/ms		10			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

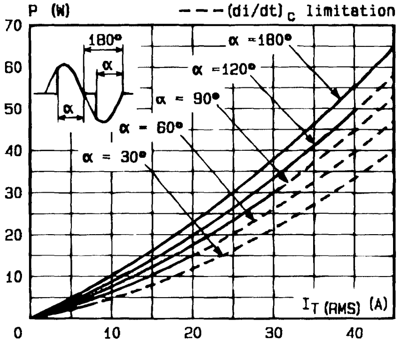


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

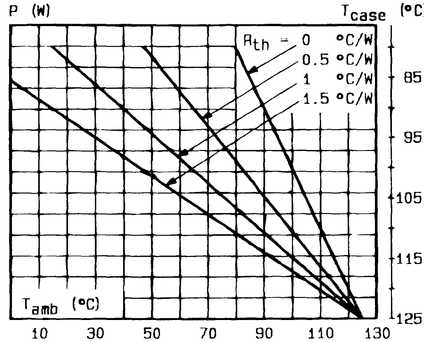


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

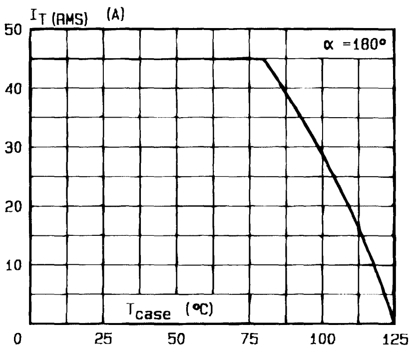


Fig.3 - RMS on-state current versus case temperature.

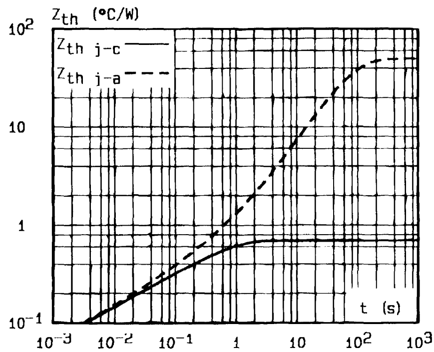


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

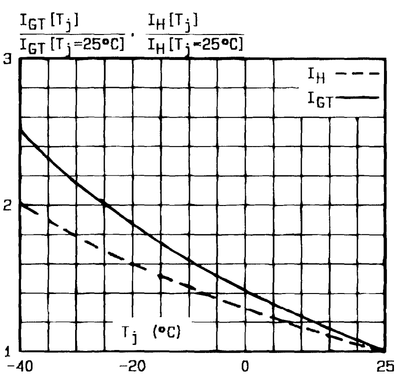


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

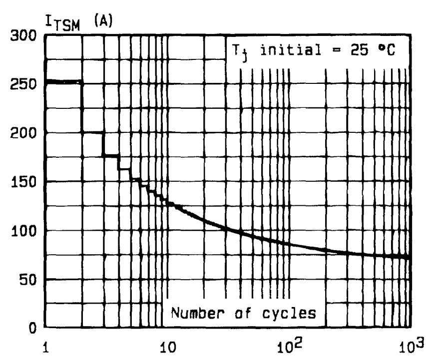


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

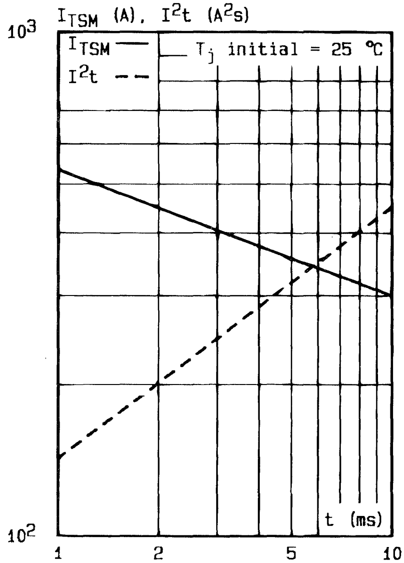


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leqslant 10$ ms, and corresponding value of I^2t.

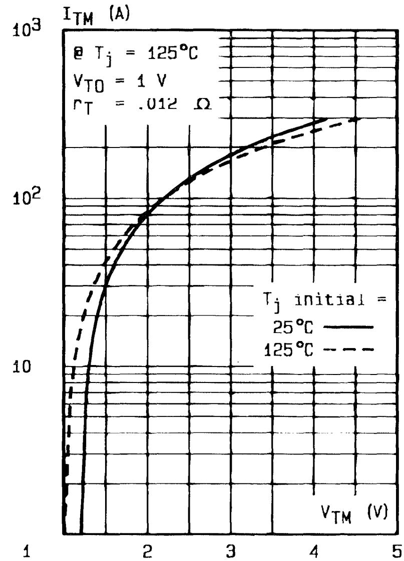


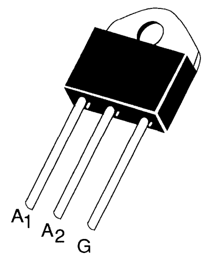
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

BTB 41 B

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS



TOP 3
(Plastic)

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		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	BTB 41–					Unit
		200B	400B	600B	700B	800B	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.2	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	0.95	°C/W
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GATE CHARACTERISTICS (maximum values)

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$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

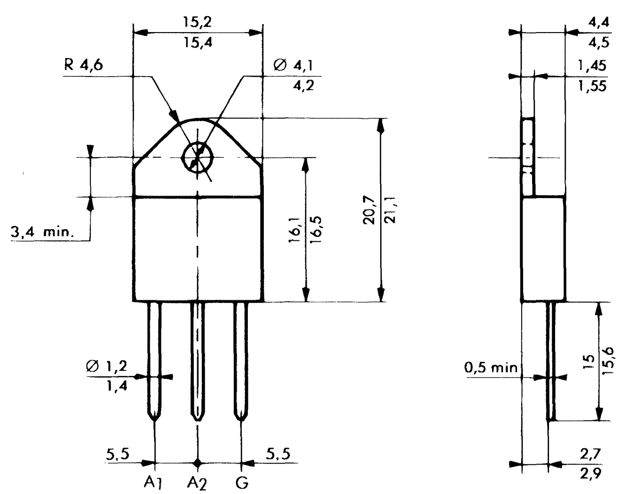
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III	1		50	mA
		IV	1		100	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			30	80	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-II-III-IV			100	mA
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified			1.5	6	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A $(di/dt)_c$ = 20 A/ms		5			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 1 A di_G/dt = 10 A/µs	I-II-III-IV		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

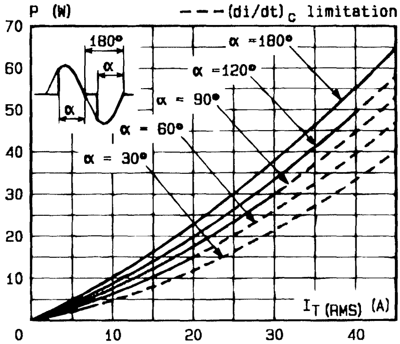
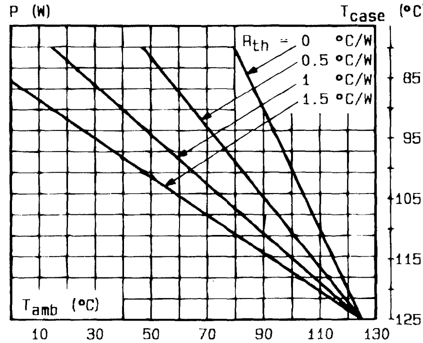


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).



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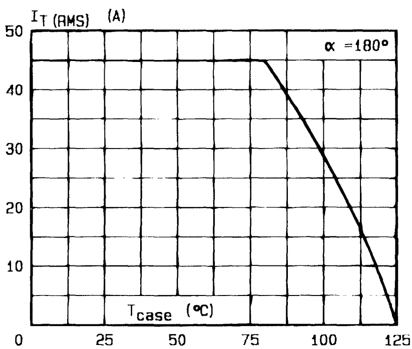
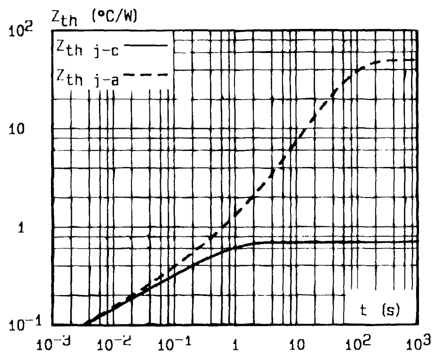


Fig.3 - RMS on-state current versus case temperature.



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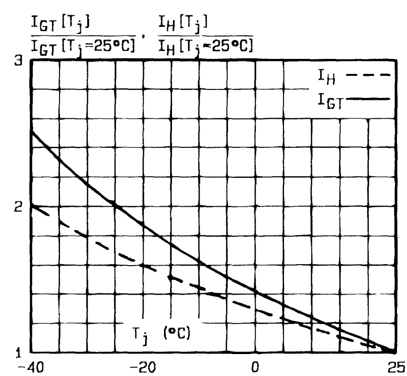


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

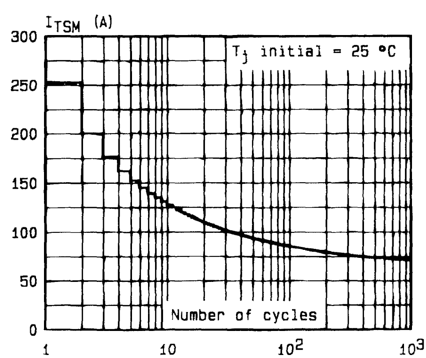


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

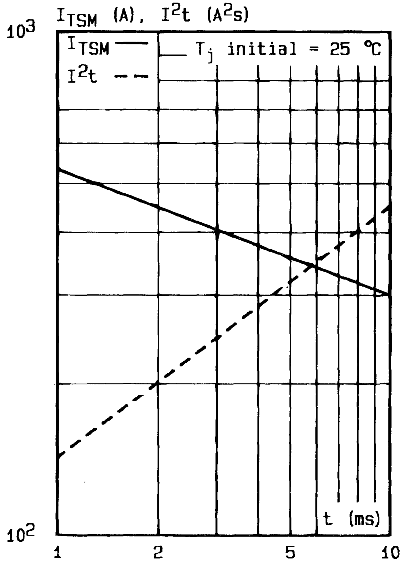


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

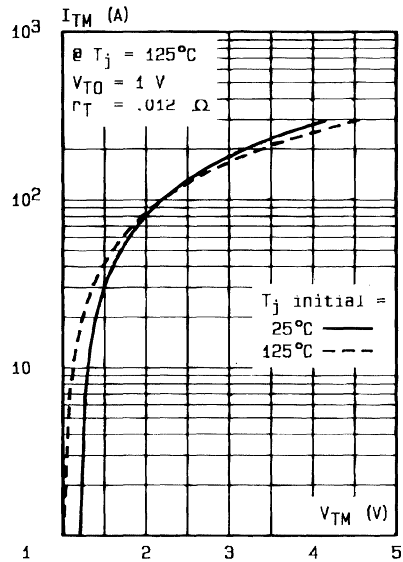


Fig.8 - On-state characteristics (maximum values).

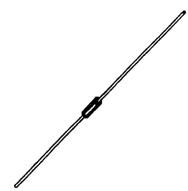
SGS-THOMSON MICROELECTRONICS

DB 3/DB 4

TRIGGER DIODES

APPLICATIONS

Thyristors and triacs triggering.



DO 35
(Glass)

ADVANTAGES

High reliability glass passivation insuring parameter stability and protection against junction contamination

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P	Power Dissipation on Printed Circuit (L = 10 mm)	T_a = 50 °C	150	mW
I_{TRM}	Repetitive Peak on-state Current	t_p = 20 μs F = 100 Hz	2	A
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 110	°C °C

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$ $R_{th\ (j-l)}$	Junction-ambient Junction-leads	400 150	°C/W °C/W

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

Symbol	Parameter	Test Conditions	Types	Min.	Typ.	Max.	Unit
V_{BO}	Breakover Voltage*	C = 22 nF** See diagram 1	DB3	28	32	36	V
			DB4	35	40	45	
$[\|+V_{BO}\|-\|-V_{BO}\|]$	Breakover Voltage Symmetry	C = 22 nF** See diagram 1				± 3	V
$\|\Delta V\pm\|$	Dynamic Breakback Voltage*	$\Delta I = [I_{BO}$ to $I_F = 10$ mA] See diagram 1		5			V
V_O	Output Voltage*	See diagram 2		5			V
I_{BO}	Breakover Current*	C = 22 nF**				100	µA
t_r	Rise Time*	See diagram 3			1.5		µs
I_B	Leakage Current*	$V_B = 0.5\ V_{BO}$ max See diagram 1				10	µA

* Electrical characteristic applicable in both forward and reverse directions.
** Connected in parallel with the device.

DIAGRAM 1 : Current-voltage characteristics.

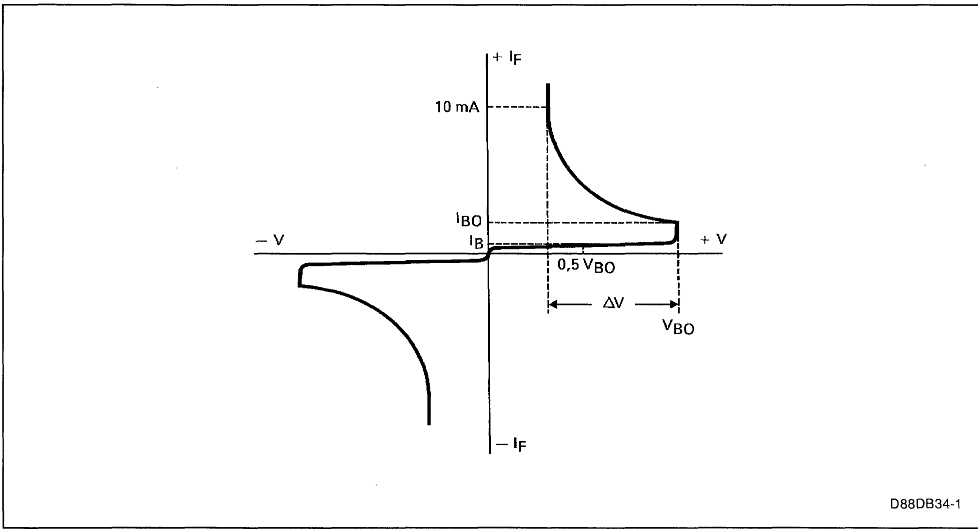


DIAGRAM 2 : Test circuit for output voltage.

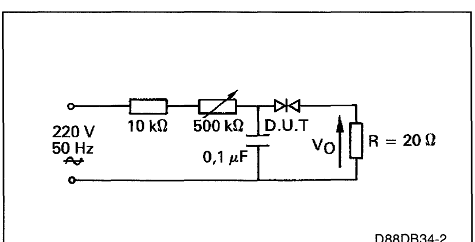
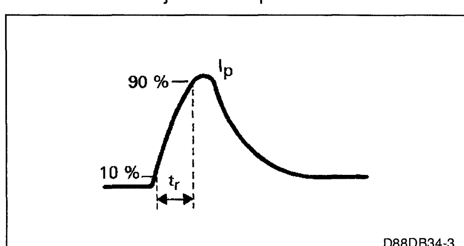


DIAGRAM 3 : Test circuit see diagram 2.
Adjust R for Ip = 0.5A.



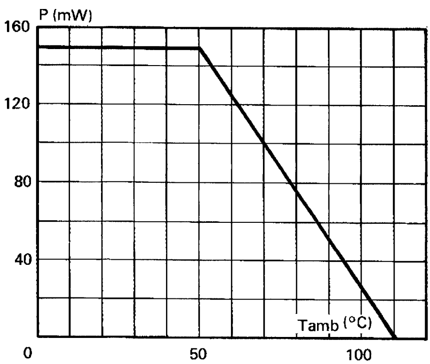


Fig. 1 - Power dissipation versus ambient temperature (maximum values).

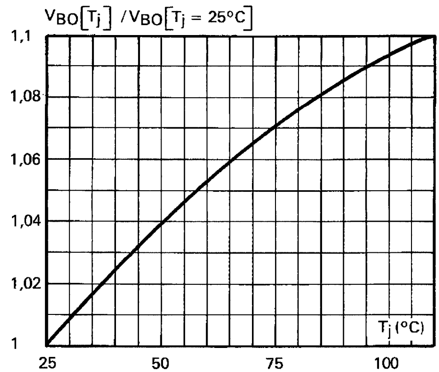


Fig. 2 - Relative variation of V_{BO} versus junction temperature (typical values).

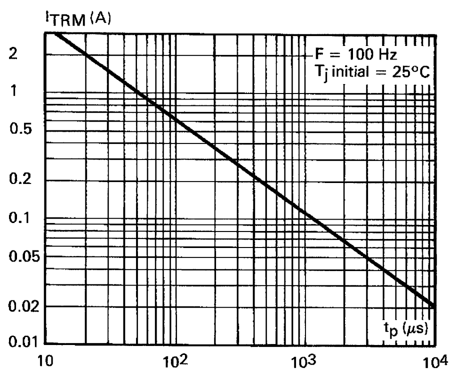
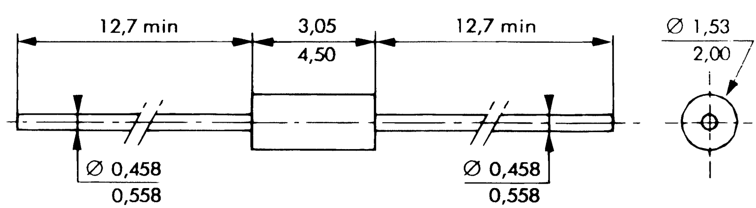


Fig. 3 - Peak pulse current versus pulse duration (maximum values).

PACKAGE MECHANICAL DATA

DO 35 Glass



Weight : 0.15 g.
Marking : clear.

SGS-THOMSON
MICROELECTRONICS

DC 34/DC 38/DC 42

TRIGGER DIODES

APPLICATIONS

Thyristors and triacs triggering.

DO 35
(Glass)

ADVANTAGES

High reliability glass passivation insuring parameter stability and protection against junction contamination

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P	Power Dissipation on Printed Circuit (L = 10 mm)	T_a = 50 °C	150	mW
I_{TRM}	Repetitive Peak on-state Current	t_p = 20 µs F = 100 Hz	2	A
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 110	°C °C

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$ $R_{th\ (j\text{-}l)}$	Junction-ambient Junction-leads	400 150	°C/W °C/W

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

Symbol	Parameter	Test Conditions	Types	Min.	Typ.	Max.	Unit
V_{BO}	Breakover Voltage*	C = 22 nF** See diagram 1	DC34	30	34	38	V
			DC38	35	38	42	
			DC42	39	42	45	
$[\|+V_{BO}\|-\|-V_{BO}\|]$	Breakover Voltage Symmetry	C = 22 nF** See diagram 1				± 3	V
$\|\Delta V\pm\|$	Dynamic Breakback Voltage*	$\Delta I = [I_{BO}$ to $I_F = 10$ mA] See diagram 1		5			V
V_O	Output Voltage*	See diagram 2		5			V
I_{BO}	Breakover Current*	C = 22 nF**				50	µA
t_r	Rise Time*	See diagram 3			1.5		µs
I_B	Leakage Current*	$V_B = 0.5\ V_{BO}$ max See diagram 1				10	µA

* Electrical characteristic applicable in both forward and reverse directions.
** Connected in parallel with the device.

DIAGRAM 1 : Current-voltage characteristics.

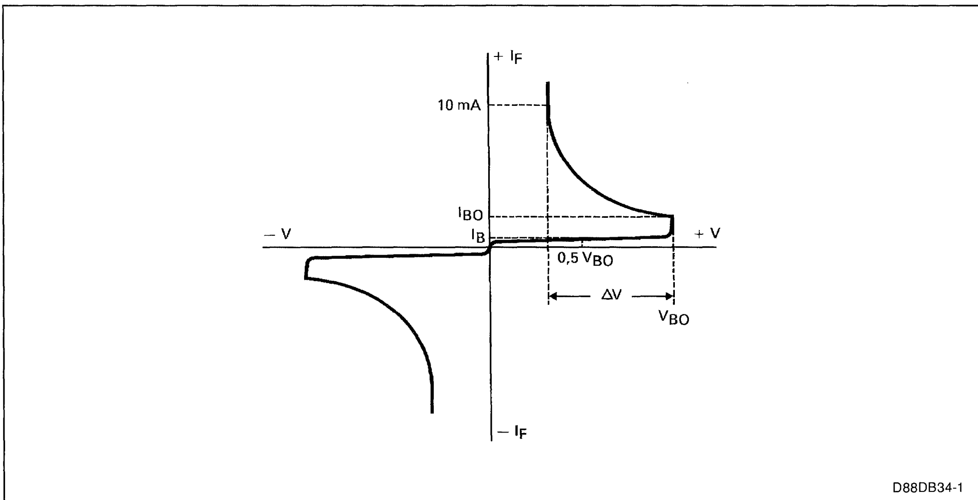


DIAGRAM 2 : Test circuit for output voltage.

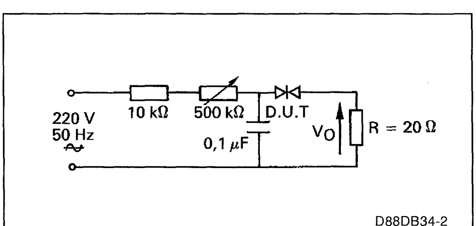
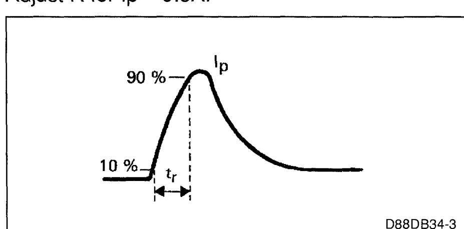


DIAGRAM 3 : Test circuit see diagram 2.
Adjust R for Ip = 0.5A.



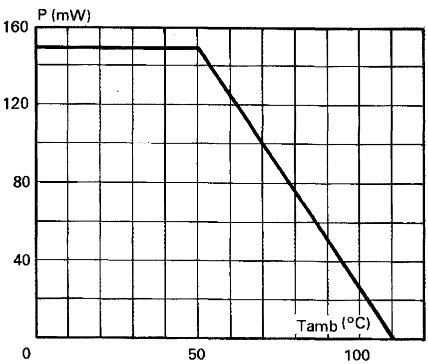


Fig. 1 - Power dissipation versus ambient temperature (maximum values).

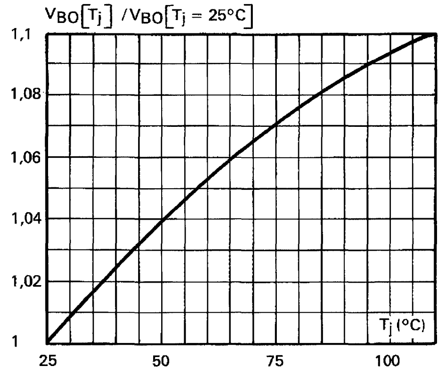


Fig. 2 - Relative variation of V_{BO} versus junction temperature (typical values).

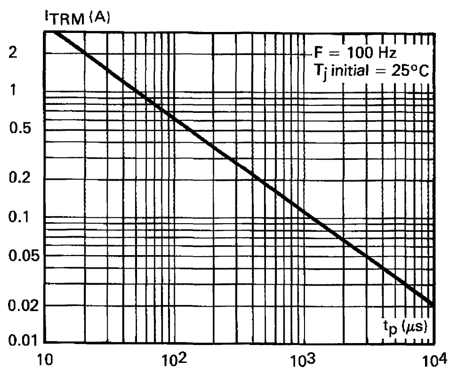
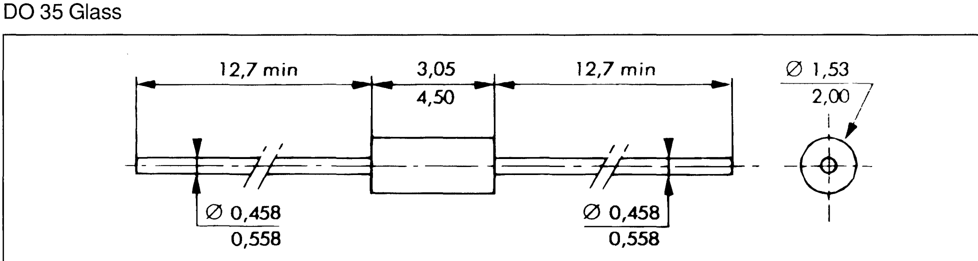


Fig. 3 - Peak pulse current versus pulse duration (maximum values).

PACKAGE MECHANICAL DATA

DO 35 Glass



Weight : 0.15 g.
Marking : clear.

SGS-THOMSON MICROELECTRONICS

TGAL 602 → 610

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS

ADVANTAGES

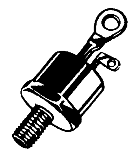
- EXCELLENT $(dv/dt)_C$: > 10 V/µs
- METALLIC ENCAPSULATION GIVES AN EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

APPLICATIONS

- MOTOR CONTROL
- HEATING CONTROL
- LIGHT DIMMER

DESCRIPTION

Power triacs suited for use on 220 V and 380 V main.



TO 65
(Metal)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	60	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	550	A
		t = 10 ms	500	
I^2t	I^2t Value for Fusing	t = 10 ms	1250	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	50	A/µs
		Non Repetitive	300	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	TGAL					Unit
		602	604	606	608	610	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	800	1000	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c\text{-}h)}$	Contact (case-heatsink) for Recommended Stud Torque	0.3	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	0.66	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 6 A (t_p = 10 µs)

$P_{G\,(AV)}$ = 1 V V_{GM} = 16 V (t_p = 10 µs)

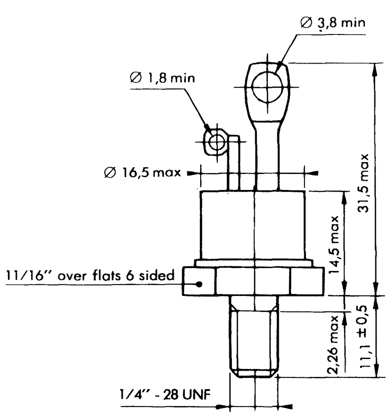
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-III			100	mA
		II-IV			150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 µs	I-III-IV		60		mA
		II		120		
V_{TM}*	T_j = 25 °C I_{TM} = 100 A t_p = 10 ms				2	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified				10	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 100 A $(di/dt)_c$ = 26.7 A/ms		10			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 100 A I_G = 500 mA di_G/dt = 3.5 A/µs	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 65 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 19 g without accessories
Polarity : Electrode A_2 to case
Stud torque : 3.5 mΛN min - 3.8 mΛN max.

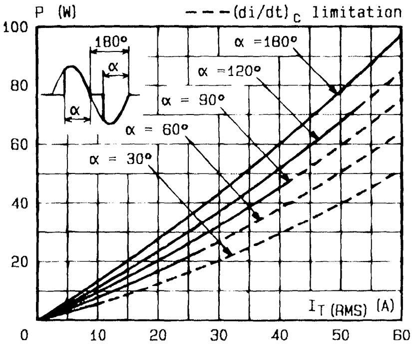


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

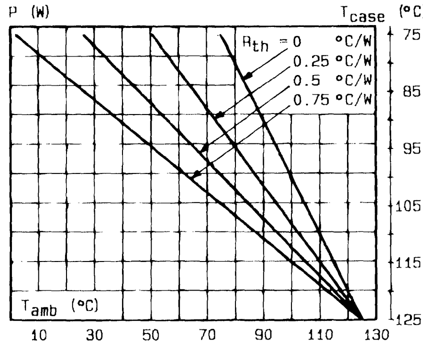


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

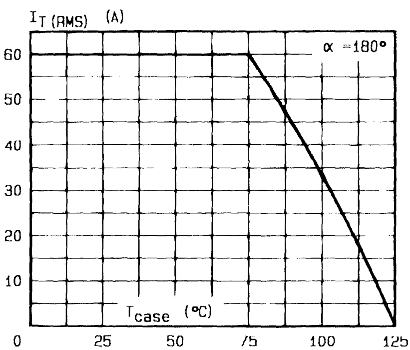


Fig.3 - RMS on-state current versus case temperature.

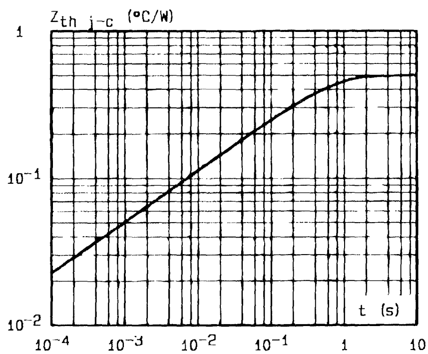


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

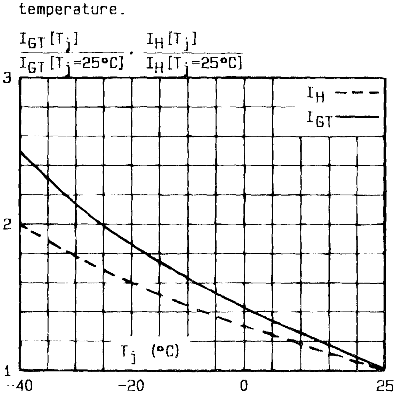


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

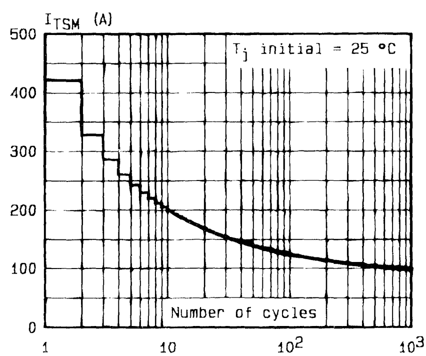


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

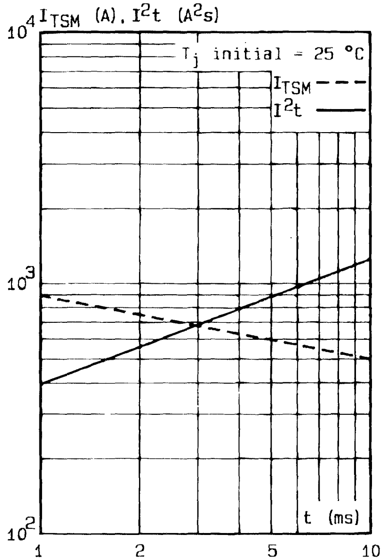


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: t ≤ 10ms, and corresponding value of I^2t.

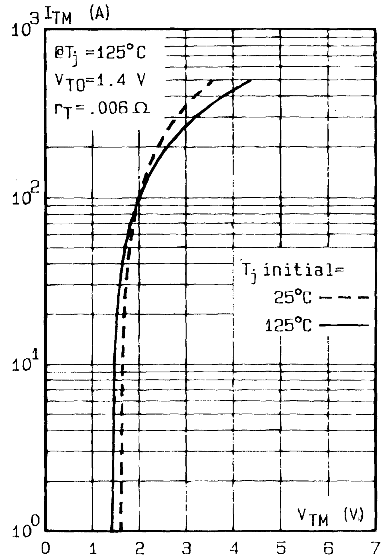


Fig.8 - On-state characteristic (maximum values).

SGS-THOMSON
MICROELECTRONICS

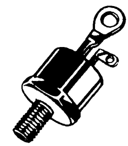
TGDV 601 → 612

ALTERNISTORS

- $(di/dt)_c > 213$ A/ms (400 Hz)

APPLICATIONS

- POWER CONTROL ON INDUCTIVE LOAD (motor, transformer...)
- HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS.



TO 65
(Metal)

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	60	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	t = 10 ms	500	A
		t = 8.3 ms	550	
		t = 2.5 ms	840	
I^2t	I^2t Value for Fusing	t = 10 ms	1250	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 125	°C °C

Symbol	Parameter	TGDV							Unit
		601	602	604	606	608	610	612	
V_{DRM}	Repetitive Peak off-state Voltage (2)	100	200	400	600	800	1000	1200	V

(1) I_G = 1.5 A di_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c-h)}$	Contact (case-heatsink) for Recommended Stud Torque	0.3	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	0.65	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	0.48	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 8 A (t_p = 10 µs)

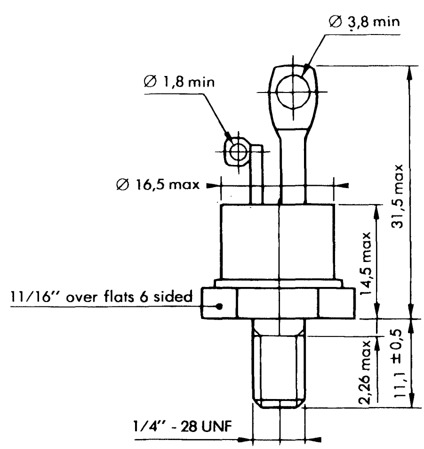
$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III			200	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ		I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				50		mA
I_L	T_j = 25 °C V_D = 12 V I_G = 400 mA Pulse Duration > 20 µs		I-III		50		mA
			II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 85 A t_p = 10 ms					2	V
I_{DRM}*	T_j = 100 °C V_{DRM} Specified					5	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}	V_{DRM} ≤ 800 V		500			V/µs
		V_{DRM} ≥ 1000 V		250			
$(di/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 85 A	$(dv/dt)_c$ = 200 V/µs		50			A/ms
		$(dv/dt)_c$ = 10 V/µs		213			
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 85 A I_G = 0.5 A di_G/dt = 3.5 A/µs		I-II-III		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : TO 65 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 19 g
Polarity : Electrode A_2 to case
Stud torque : 3.5 m∧N min - 3.8 m∧N max

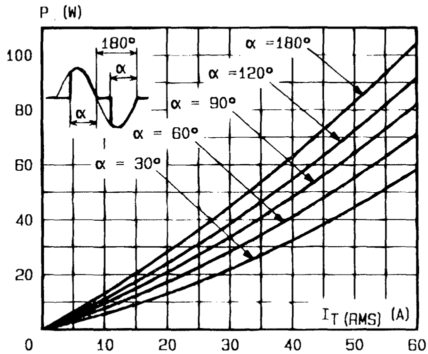


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

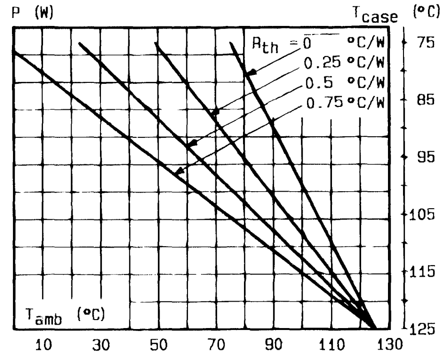


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

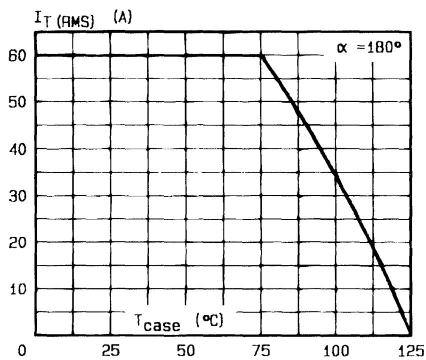


Fig.3 - RMS on-state current versus case temperature.

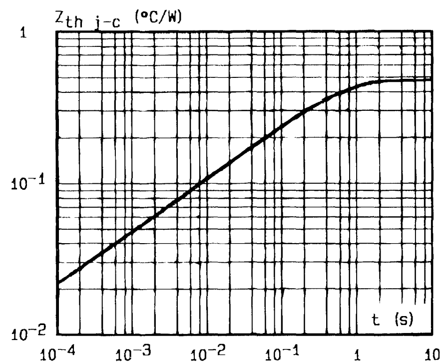


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

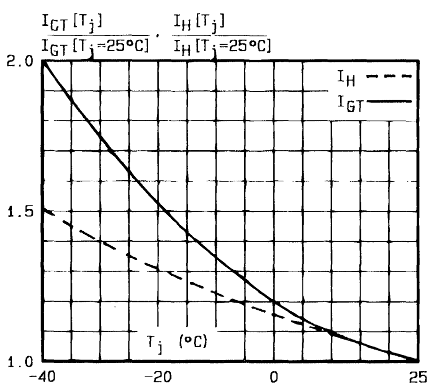


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

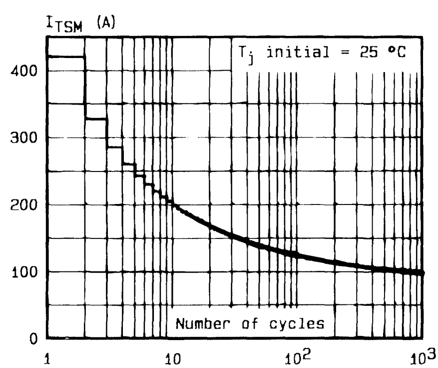


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

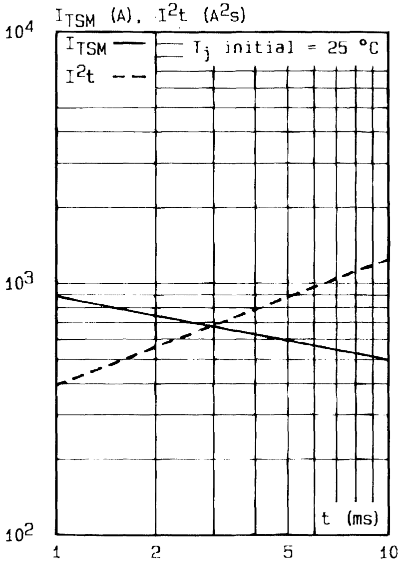


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

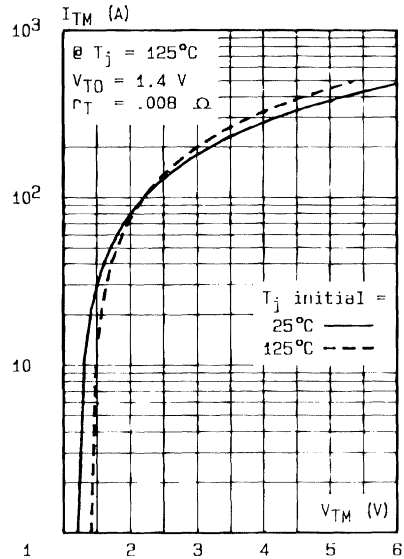


Fig.8 - On-state characteristics (maximum values).

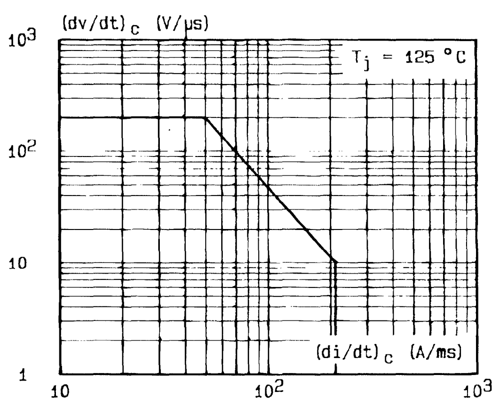


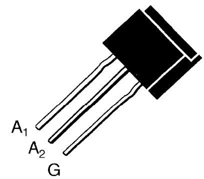
Fig.9 - Safe operating area.

SGS-THOMSON MICROELECTRONICS

TLC 111 A→TLC 381 A

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	1	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	0.77	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	16	A
		t = 10 ms	15	
I^2t	I^2t Value for Fusing	t = 10 ms	1.125	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC111A	TLC221A	TLC331A	TLC381A	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 250 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to Ambient on Printed Circuit	75	°C/W
$R_{th\ (j\text{-}l)}$	Junction-leads for 360° Conduction Angle (F = 50 Hz)	45	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 2 W (t_p = 10 µs) I_{GM} = 1 A (t_p = 10 µs)

$P_{G\,(AV)}$ = 0.1 W V_{GM} = 16 V (t_p = 10 µs)

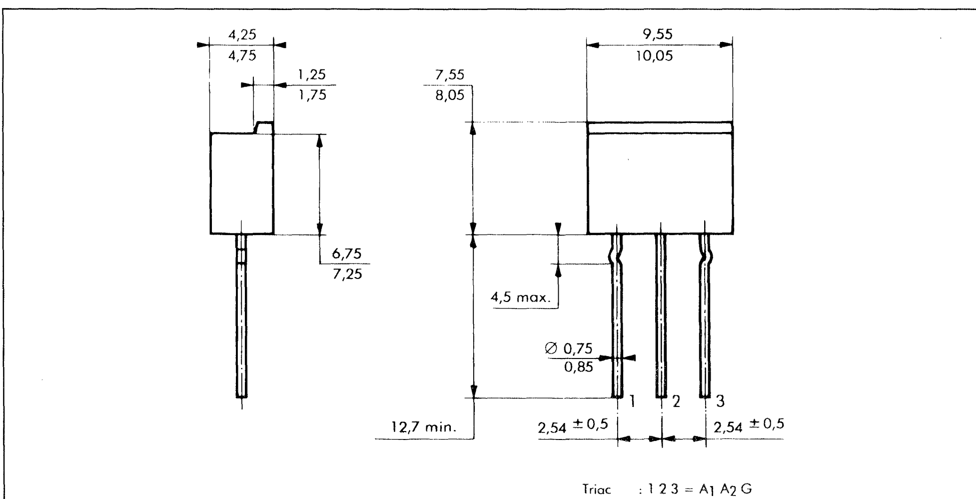
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			10	mA
		IV			25	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 50 mA Pulse Duration > 20 µs	I-II-III-IV			25	mA
V_{TM}*	T_j = 25 °C I_{TM} = 1.4 A t_p = 10 ms				1.8	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}			20		V/µs
$(dv/dt)_c$*	T_l = 40 °C V_D = V_{DRM} I_T = 1.4 A $(di/dt)_c$ = 0.4 A/ms			5		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 1.4 A I_G = 100 mA di_G/dt = 1 A/µs	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

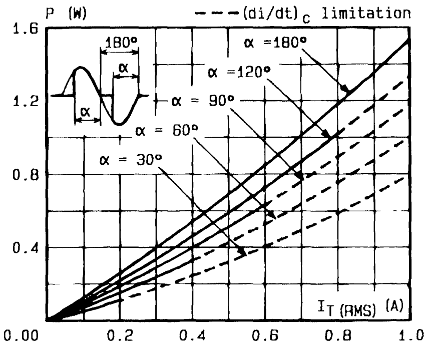


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

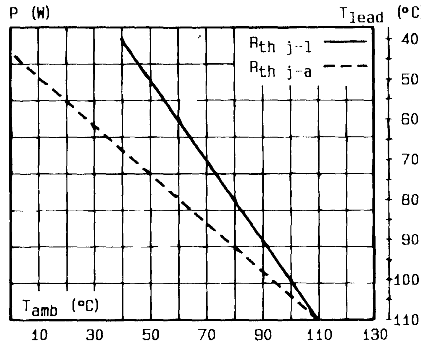


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

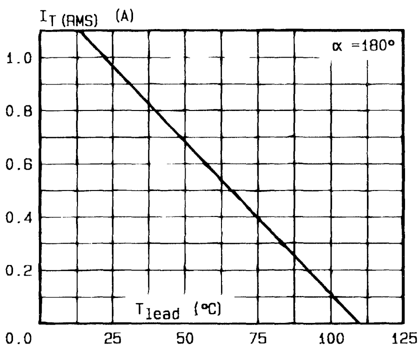


Fig.3 - RMS on-state current versus lead temperature.

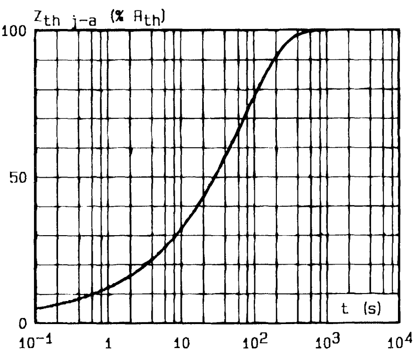


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

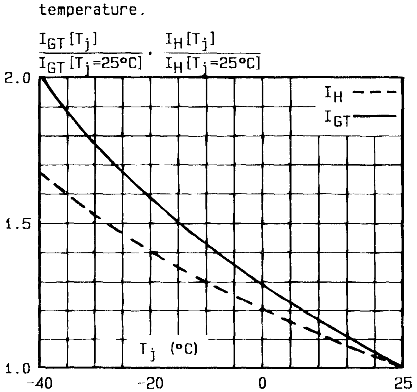


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

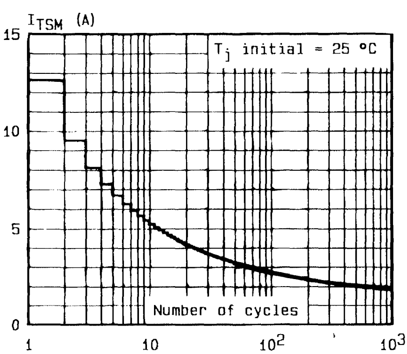


Fig.6 - Non repetitive surge peak on state current versus number of cycles.

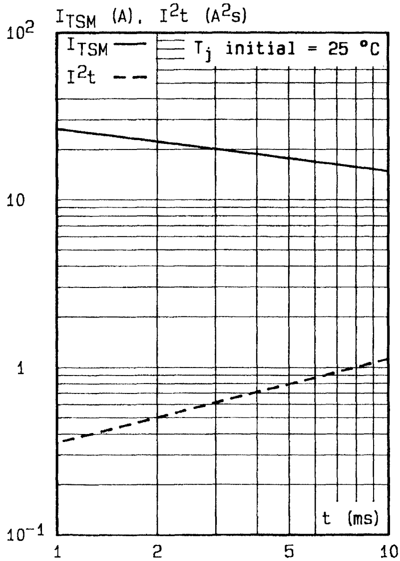


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

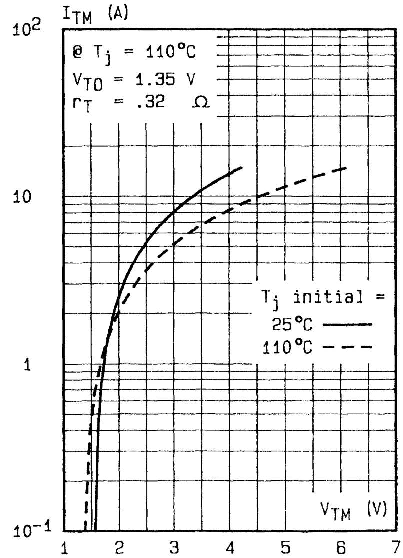


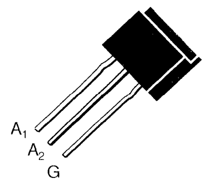
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON MICROELECTRONICS

TLC 111 B→TLC 381 B

TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	1	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	0.77	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	16	A
		t = 10 ms	15	
I^2t	I^2t Value for Fusing	t = 10 ms	1.125	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC111B	TLC221B	TLC331B	TLC381B	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 500 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient on Printed Circuit	75	°C/W
$R_{th\ (j-l)}$	Junction-leads for 360° Conduction Angle (F = 50 Hz)	45	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 2$ W ($t_p = 10$ µs) $I_{GM} = 1$ A ($t_p = 10$ µs)

$P_{G\,(AV)} = 0.1$ W $V_{GM} = 16$ V ($t_p = 10$ µs)

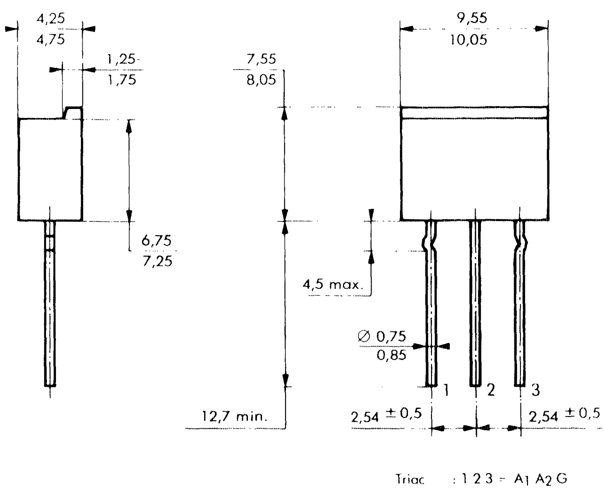
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$R_L = 33\ \Omega$	I-II-III			25	mA
				IV			50	
V_{GT}	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$R_L = 33\ \Omega$	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110$ °C	$V_D = V_{DRM}$	$R_L = 3.3$ kΩ	I-II-III-IV	0.2			V
I_H*	$T_j = 25$ °C	$I_T = 100$ mA	Gate Open			8		mA
I_L	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$I_G = 100$ mA	I-II-III-IV		8		mA
V_{TM}*	$T_j = 25$ °C	$I_{TM} = 1.4$ A	$t_p = 10$ ms				1.8	V
I_{DRM}*	V_{DRM} Specified		$T_j = 25$ °C				0.01	mA
			$T_j = 110$ °C				0.75	
dv/dt*	$T_j = 110$ °C Linear Slope up to $V_D = 67\ \%\ V_{DRM}$	Gate Open			20			V/µs
$(dv/dt)_c$*	$T_j = 40$ °C $(di/dt)_c = 0.4$ A/ms	$V_D = V_{DRM}$	$I_T = 1.4$ A		5			V/µs
t_{gt}	$T_j = 25$ °C $I_G = 100$ mA	$V_D = V_{DRM}$ $di_G/dt = 1$ A/µs	$I_T = 1.4$ A	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

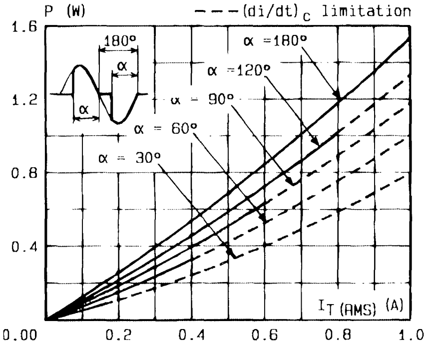


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

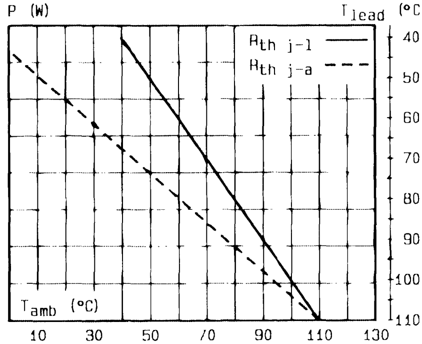


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).

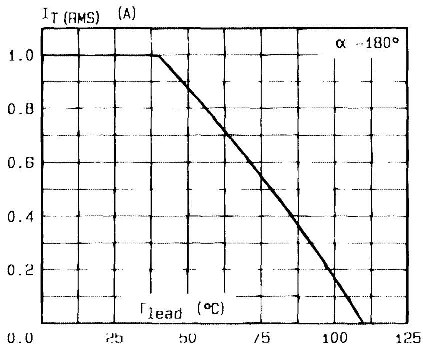


Fig.3 - RMS on-state current versus lead temperature.

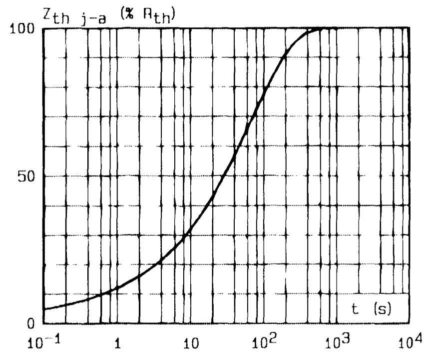


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

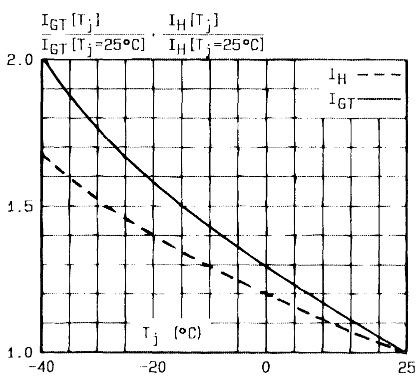


Fig 5 - Relative variation of gate trigger current and holding current versus junction temperature.

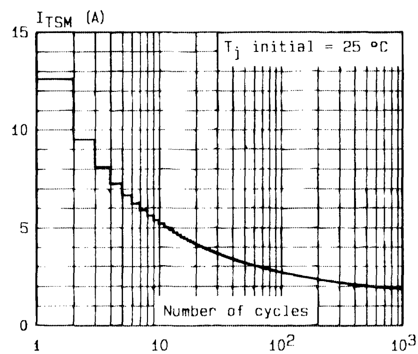


Fig 6 - Non repetitive surge peak on-state current versus number of cycles.

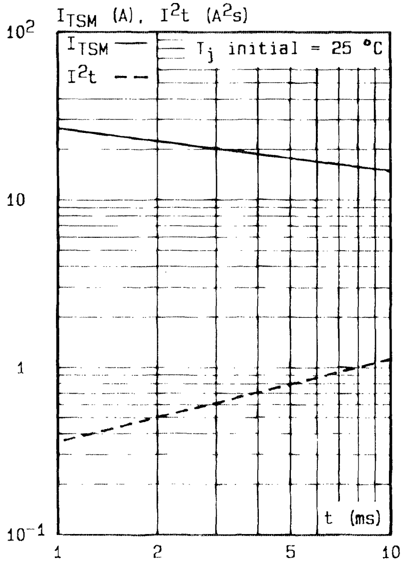


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

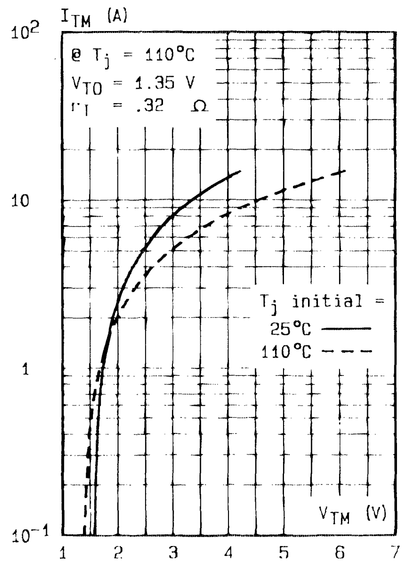


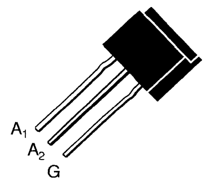
Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

TLC 111 D→TLC 381 D

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	1	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	0.77	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	16	A
		t = 10 ms	15	
I^2t	I^2t Value for Fusing	t = 10 ms	1.125	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC111D	TLC221D	TLC331D	TLC381D	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient on Printed Circuit	75	°C/W
$R_{th\ (j-l)}$	Junction-leads for 360° Conduction Angle (F = 50 Hz)	45	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 2 W (t_p = 10 µs) I_{GM} = 1 A (t_p = 10 µs)
$P_{G(AV)}$ = 0.1 W V_{GM} = 16 V (t_p = 10 µs)

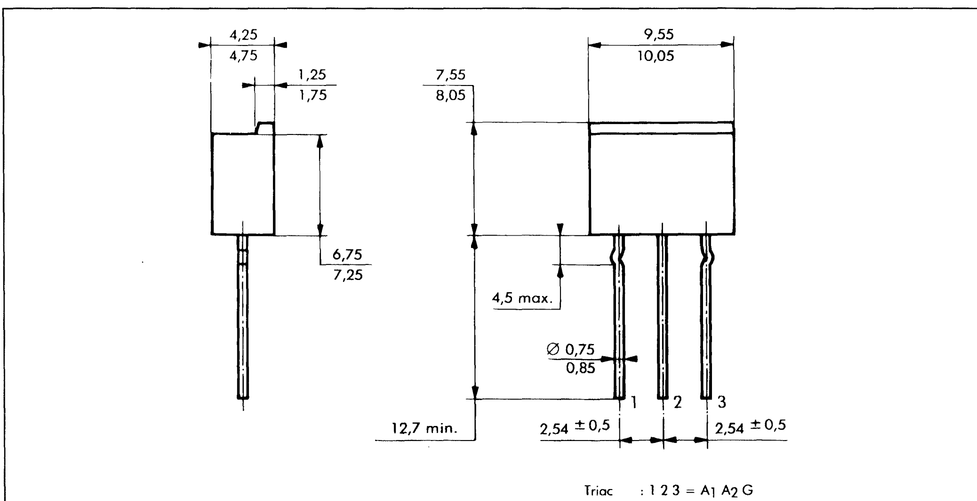
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω	I-II-III			5	mA
	Pulse Duration > 20 µs			IV			10	
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				15	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 20 mA	I-II-III-IV			15	mA
V_{TM}*	T_j = 25 °C	I_{TM} = 1.4 A	t_p = 10 ms				1.8	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open				10		V/µs
$(dv/dt)_c$*	T_j = 40 °C $(di/dt)_c$ = 0.4 A/ms	V_D = V_{DRM}	I_T = 1.4 A			1		V/µs
t_{gt}	T_j = 25 °C I_G = 100 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 1.4 A	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

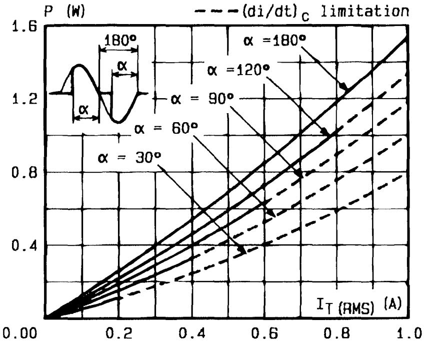


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

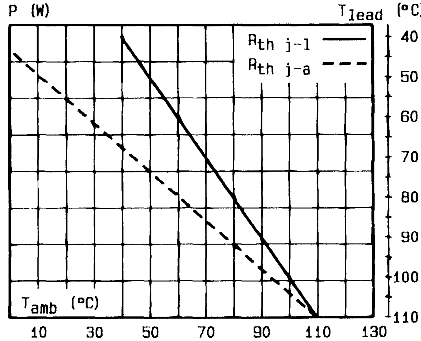


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

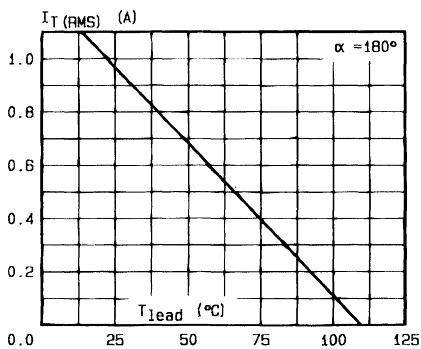


Fig.3 - RMS on-state current versus lead temperature.

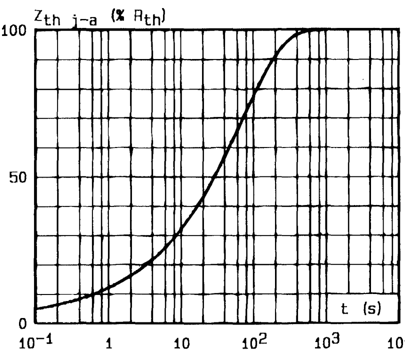


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

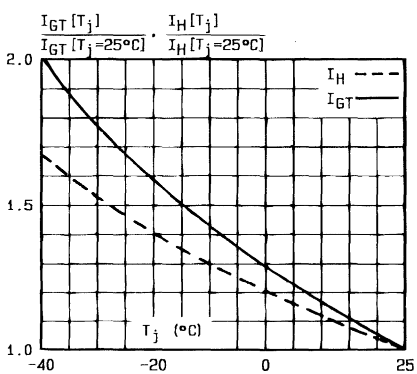


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

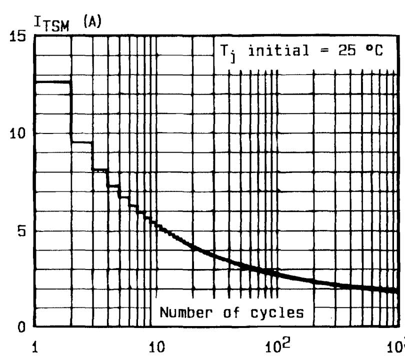


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

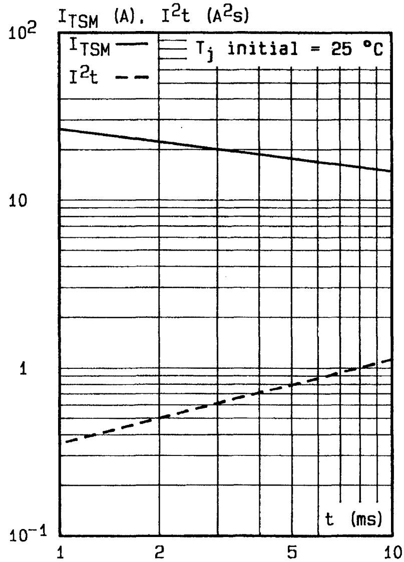


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

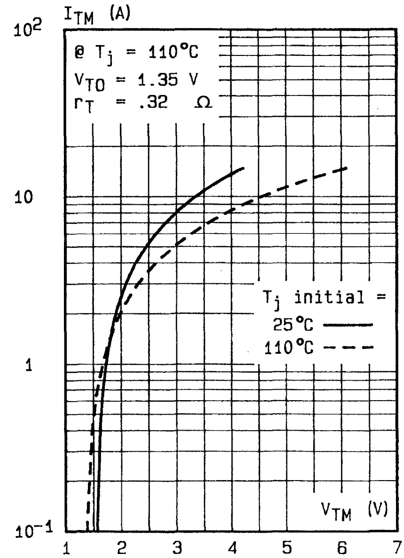
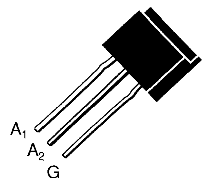


Fig.8 - On-state characteristics (maximum values).

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
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		t = 10 ms	15	
I^2t	I^2t Value for Fusing	t = 10 ms	1.125	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC111S	TLC221S	TLC331S	TLC381S	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$ $R_{th\ (j-l)}$	Junction to Ambient on Printed Circuit Junction-leads for 360° Conduction Angle (F = 50 Hz)	75 45	°C/W °C/W

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 2$ W ($t_p = 10$ µs) $I_{GM} = 1$ A ($t_p = 10$ µs)

$P_{G(AV)} = 0.1$ W $V_{GM} = 16$ V ($t_p = 10$ µs)

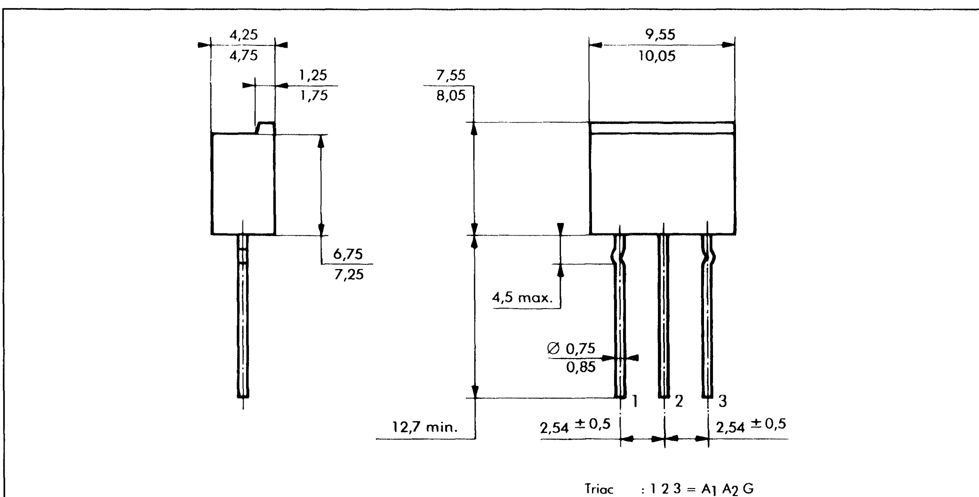
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25$ °C	$V_D = 12$ V	$R_L = 33\ \Omega$ Pulse Duration > 20 µs	I-II-III-IV			10	mA
V_{GT}	$T_j = 25$ °C	$V_D = 12$ V	$R_L = 33\ \Omega$ Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110$ °C	$V_D = V_{DRM}$	$R_L = 3.3$ kΩ	I-II-III-IV	0.2			V
I_H*	$T_j = 25$ °C	$I_T = 100$ mA	Gate Open				25	mA
I_L	$T_j = 25$ °C	$V_D = 12$ V	$I_G = 20$ mA Pulse Duration > 20 µs	I-II-III-IV			25	mA
V_{TM}*	$T_j = 25$ °C	$I_{TM} = 1.4$ A	$t_p = 10$ ms				1.8	V
I_{DRM}*	V_{DRM} Specified		$T_j = 25$ °C				0.01	mA
			$T_j = 110$ °C				0.75	
dv/dt*	$T_j = 110$ °C	Gate Open	Linear Slope up to $V_D = 67\ \%\ V_{DRM}$			20		V/µs
(dv/dt)$_c$*	$T_j = 40$ °C	$V_D = V_{DRM}$	$I_T = 1.4$ A $(di/dt)_c = 0.4$ A/ms			5		V/µs
t_{gt}	$T_j = 25$ °C $I_G = 100$ mA	$V_D = V_{DRM}$ $di_G/dt = 1$ A/µs	$I_T = 1.4$ A	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

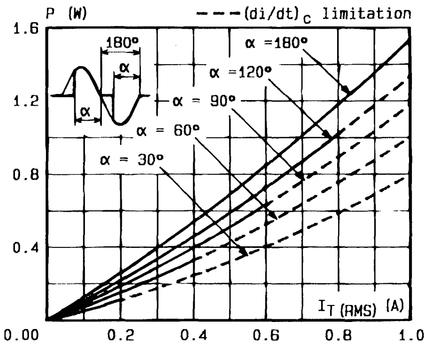


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

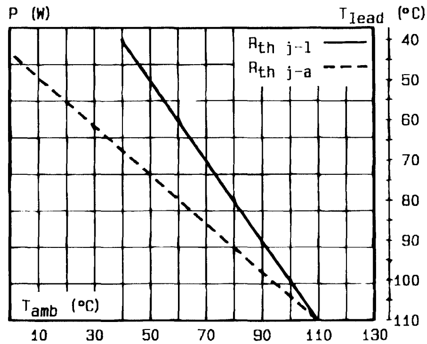


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

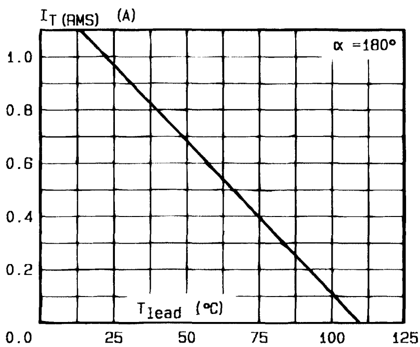


Fig.3 - RMS on-state current versus lead temperature.

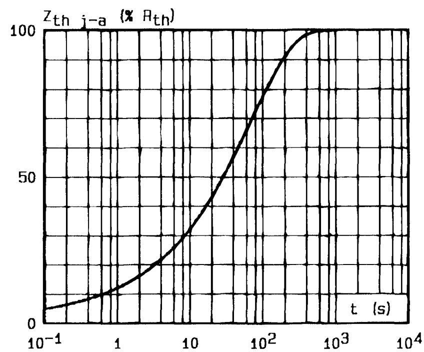


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

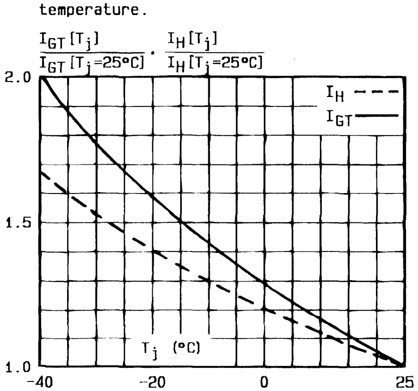


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

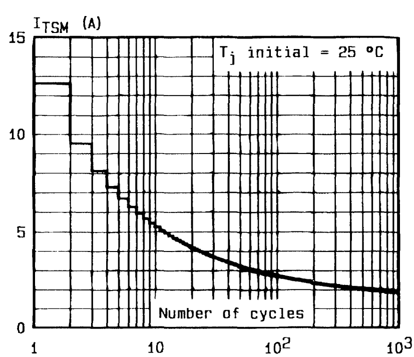


Fig.6 - Non repetitive surge peak on state current versus number of cycles.

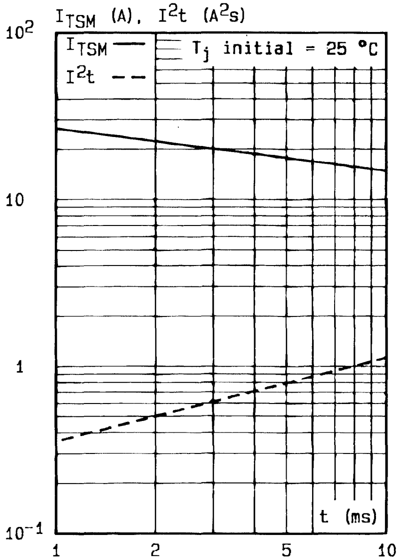


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

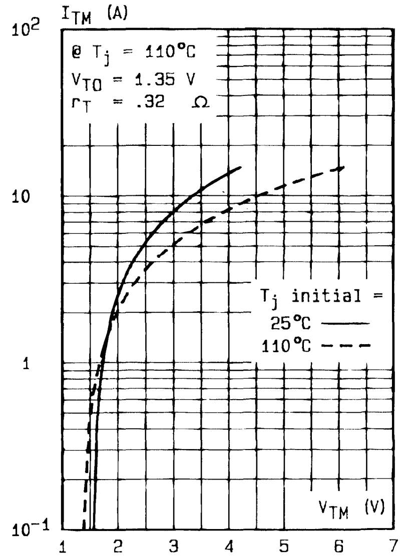
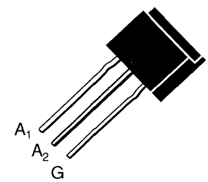


Fig.8 - On-state characteristics (maximum values).

TLC 111 T→TLC 381 T

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	1	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	0.77	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	16	A
		t = 10 ms	15	
I^2t	I^2t Value for Fusing	t = 10 ms	1.125	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC111T	TLC221T	TLC331T	TLC381T	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 50 mA di_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient on Printed Circuit	75	°C/W
$R_{th\ (j-l)}$	Junction-leads for 360° Conduction Angle (F = 50 Hz)	45	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 2 W (t_p = 10 µs) I_{GM} = 1 A (t_p = 10 µs)
$P_{G\,(AV)}$ = 0.1 W V_{GM} = 16 V (t_p = 10 µs)

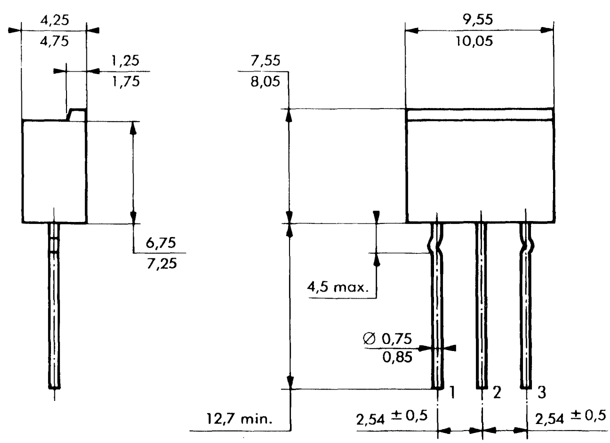
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			5	mA
V_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				15	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 10 mA Pulse Duration > 20 µs	I-II-III-IV			15	mA
V_{TM}*	T_j = 25 °C	I_{TM} = 1.4 A	t_p = 10 ms				1.8	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C	Gate Open Linear Slope up to V_D = 67 % V_{DRM}				10		V/µs
(dv/dt)$_c$*	T_j = 40 °C	V_D = V_{DRM}	I_T = 1.4 A (di/dt)$_c$ = 0.4 A/ms			1		V/µs
t_{gt}	T_j = 25 °C I_G = 100 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 1.4 A	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Triac : 1 2 3 = A_1 A_2 G

Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

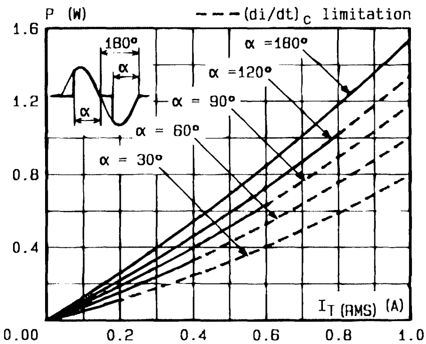


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

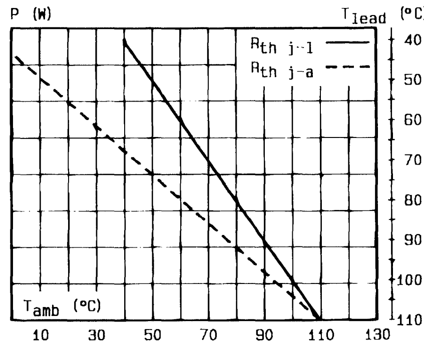


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

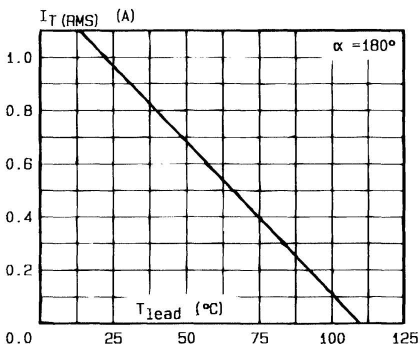


Fig.3 - RMS on-state current versus lead temperature.

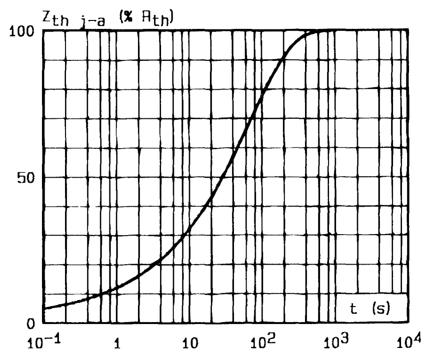


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

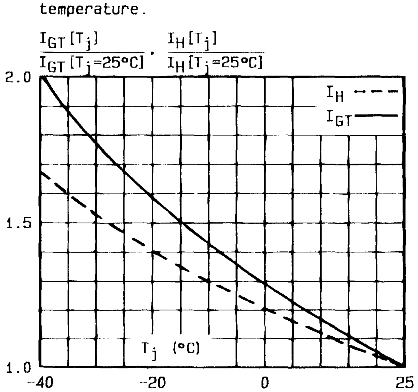


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

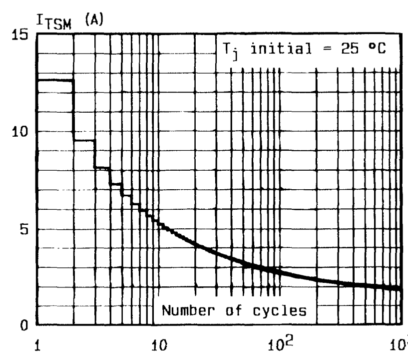


Fig.6 - Non repetitive surge peak on state current versus number of cycles.

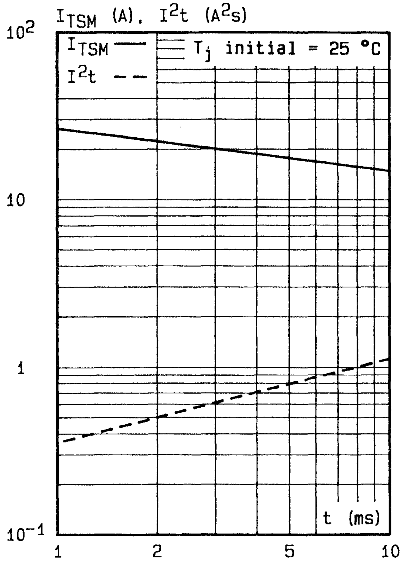


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

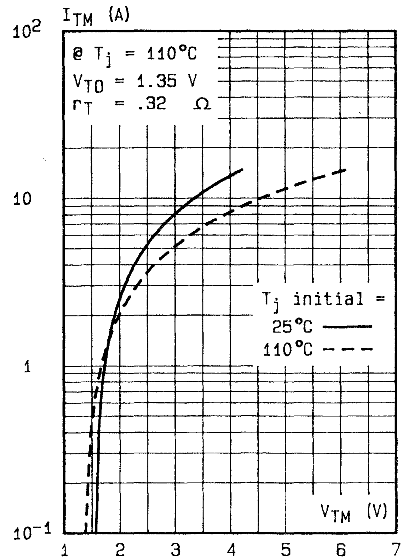
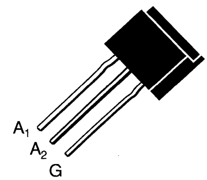


Fig.8 - On-state characteristics (maximum values) .

TLC 116 A→TLC 386 A

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	3	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	1.3 (3)	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	31.5	A
		t = 10 ms	30	
I^2t	I^2t Value for Fusing	t = 10 ms	4.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC116A	TLC226A	TLC336A	TLC386A	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 250 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.
(3) With Cu surface = 1 cm^2.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient on Printed Circuit	50 (1)	°C/W
$R_{th\ (j-l)}$	Junction-leads for 360° Conduction Angle (F = 50 Hz)	15	°C/W

(1) With Cu surface = 1 cm^2.

GATE CHARACTERISTICS (maximum values)

P_{GM} = 2 W (t_p = 10 µs) I_{GM} = 1 A (t_p = 10 µs)
$P_{G(AV)}$ = 0.1 W V_{GM} = 16 V (t_p = 10 µs)

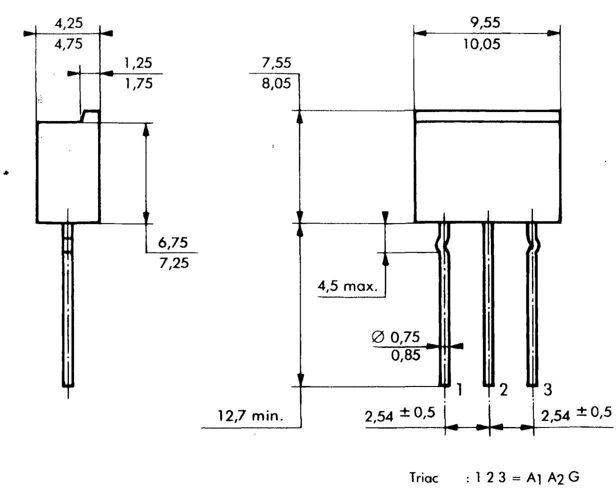
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			10	mA
		IV			25	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 100 mA Gate Open				25	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 50 mA Pulse Duration > 20 µs	I-II-III-IV			25	mA
V_{TM}*	T_j = 25 °C I_{TM} = 4 A t_p = 10 ms				1.85	V
I_{DRM}*	V_{DRM} Specified T_j = 25 °C				0.01	mA
	T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}			20		V/µs
(dv/dt)$_c$*	T_j = 40 °C V_D = V_{DRM} I_T = 4 A (di/dt)$_c$ = 1.3 A/ms			5		V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 4 A I_G = 100 mA dI_G/dt = 1 A/µs	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

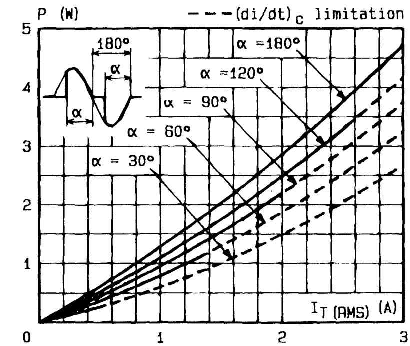


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

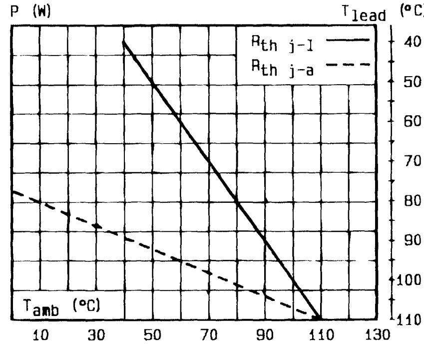


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

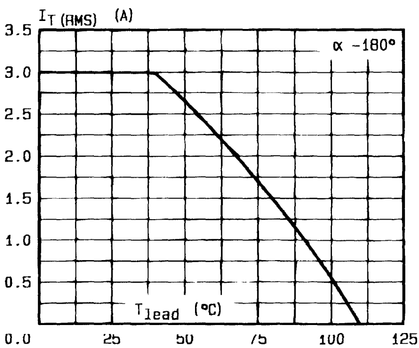


Fig.3 - RMS on-state current versus lead temperature.

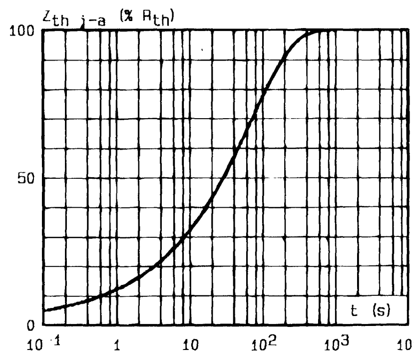


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

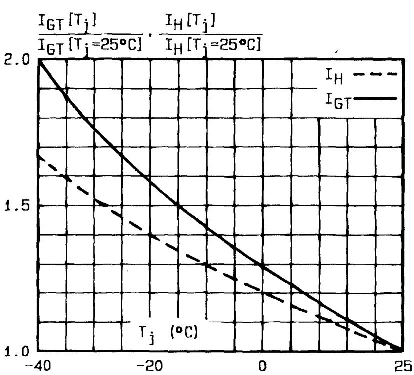


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

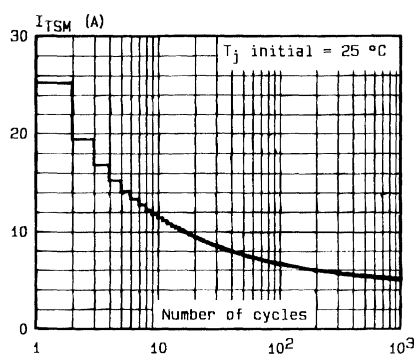


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

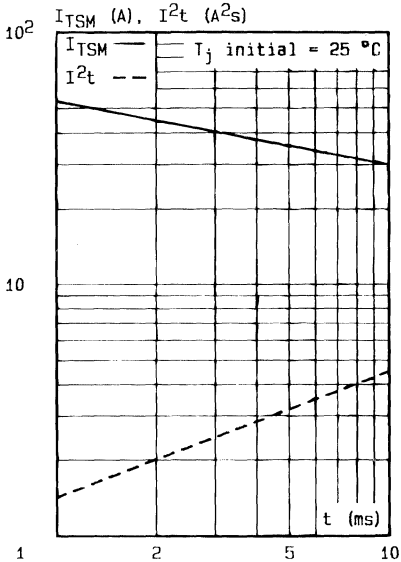


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

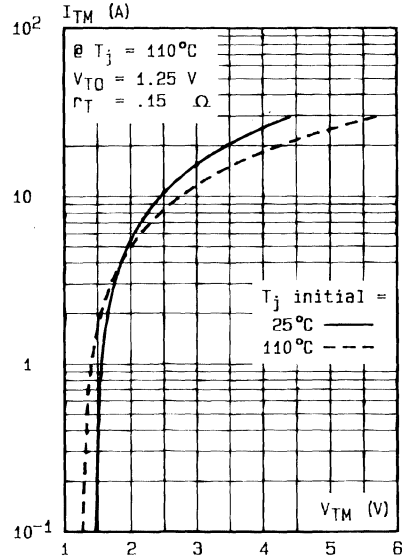
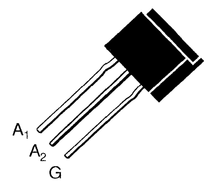


Fig.8 - On-state characteristics (maximum values) .

TLC 116 B→TLC 386 B

TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	3	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	1.3 (3)	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	31.5	A
		t = 10 ms	30	
I^2t	I^2t Value for Fusing	t = 10 ms	4.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC116B	TLC226B	TLC336B	TLC386B	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 500 mA di_G/dt = 1 A/µs
(2) T_j = 110 °C.
(3) With Cu surface = 1 cm^2.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient on Printed Circuit	50 (1)	°C/W
$R_{th\ (j-l)}$	Junction-leads for 360° Conduction Angle (F = 50 Hz)	15	°C/W

(1) With Cu surface = 1 cm^2.

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 2$ W ($t_p = 10$ µs) $I_{GM} = 1$ A ($t_p = 10$ µs)
$P_{G(AV)} = 0.1$ W $V_{GM} = 16$ V ($t_p = 10$ µs)

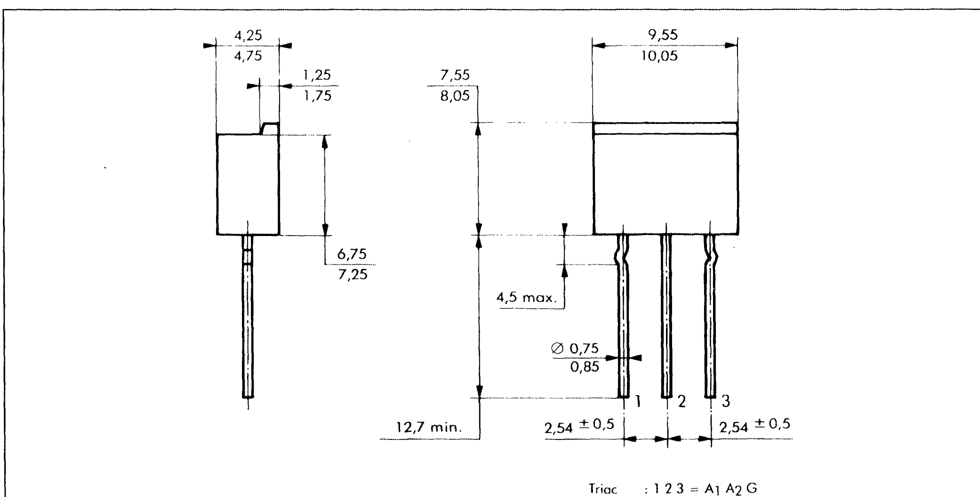
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$R_L = 33$ Ω	I-II-III			25	mA
				IV			50	
V_{GT}	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$R_L = 33$ Ω	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110$ °C	$V_D = V_{DRM}$	$R_L = 3.3$ kΩ	I-II-III-IV	0.2			V
I_H*	$T_j = 25$ °C	$I_T = 100$ mA	Gate Open			8		mA
I_L	$T_j = 25$ °C Pulse Duration > 20 µs	$V_D = 12$ V	$I_G = 100$ mA	I-II-III-IV		8		mA
V_{TM}*	$T_j = 25$ °C	$I_{TM} = 4$ A	$t_p = 10$ ms				1.85	V
I_{DRM}*	V_{DRM} Specified		$T_j = 25$ °C				0.01	mA
			$T_j = 110$ °C				0.75	
dv/dt*	$T_j = 110$ °C Linear Slope up to $V_D = 67$ % V_{DRM}	Gate Open			20			V/µs
(dv/dt)$_c$*	$T_j = 40$ °C $(di/dt)_c = 1.3$ A/ms	$V_D = V_{DRM}$	$I_T = 4$ A		5			V/µs
t_{gt}	$T_j = 25$ °C $I_G = 100$ mA	$V_D = V_{DRM}$ $di_G/dt = 1$ A/µs	$I_T = 4$ A	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

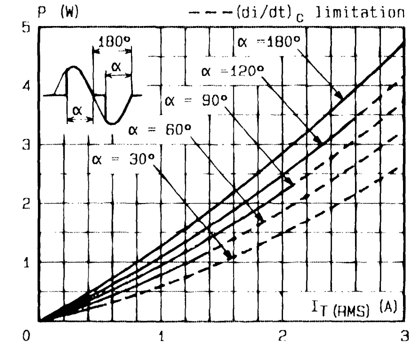


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

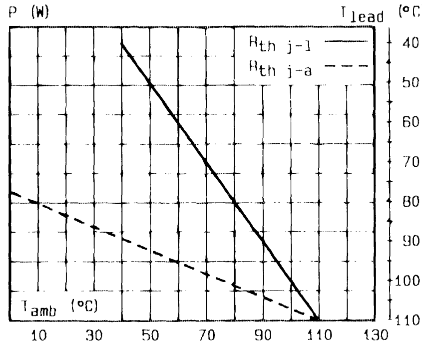


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).

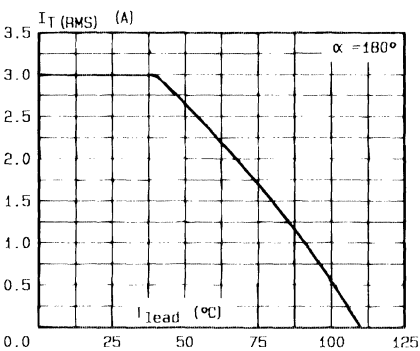


Fig.3 - RMS on-state current versus lead temperature.

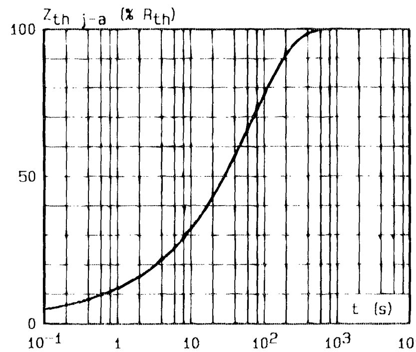


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

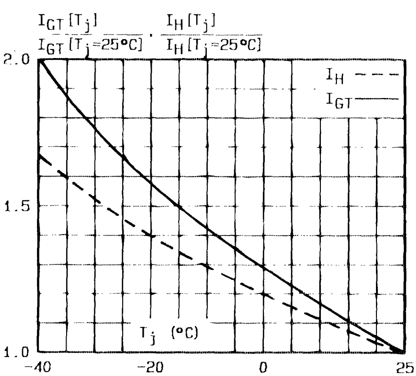


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

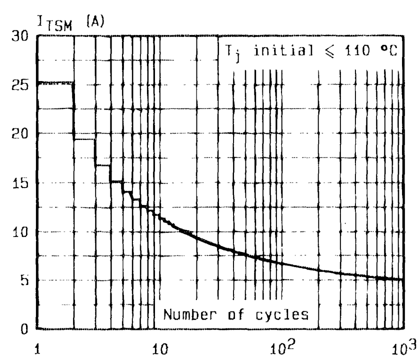


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

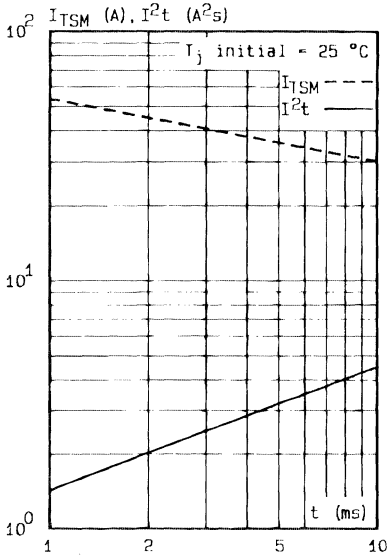


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: t ≤ 10ms, and corresponding value of I^2t.

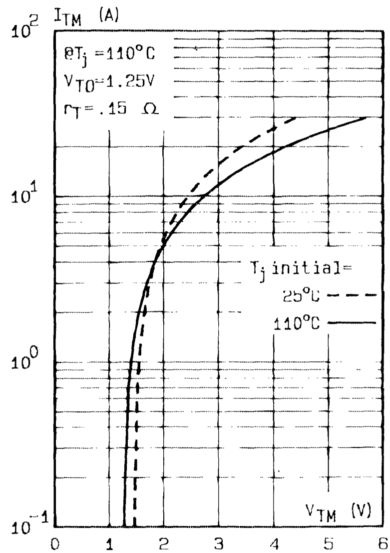


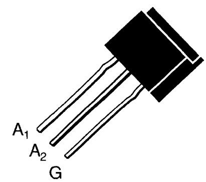
Fig.8 - On-state characteristic (maximum values).

SGS-THOMSON
MICROELECTRONICS

TLC 116 D→TLC 386 D

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	3	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	1.3 (3)	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	31.5	A
		t = 10 ms	30	
I^2t	I^2t Value for Fusing	t = 10 ms	4.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/μs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC116D	TLC226D	TLC336D	TLC386D	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 100 mA di_G/dt = 1 A/μs
(2) T_j = 110 °C.
(3) With Cu surface = 1 cm^2.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to Ambient on Printed Circuit	50 (1)	°C/W
$R_{th\ (j\text{-}l)}$	Junction-leads for 360° Conduction Angle (F = 50 Hz)	15	°C/W

(1) With Cu surface = 1 cm^2.

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 2$ W ($t_p = 10$ µs) $I_{GM} = 1$ A ($t_p = 10$ µs)

$P_{G\,(AV)} = 0.1$ W $V_{GM} = 16$ V ($t_p = 10$ µs)

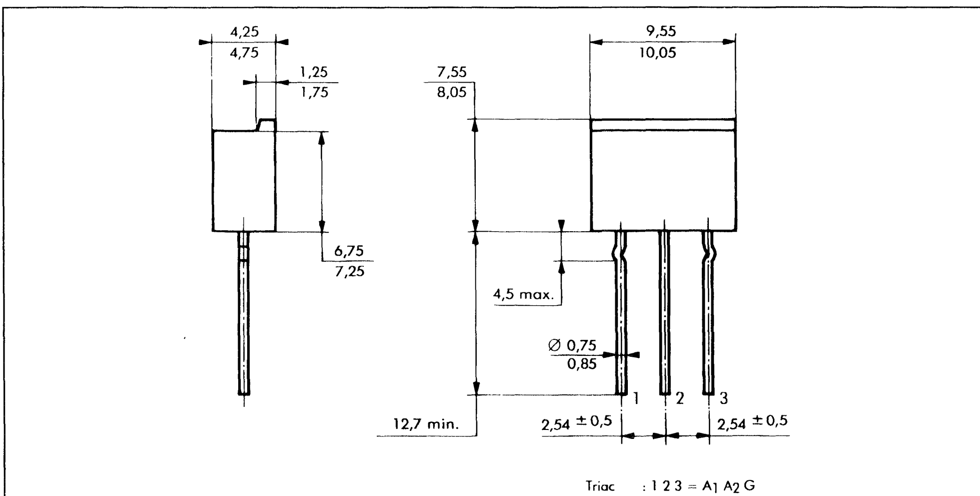
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25$ °C $V_D = 12$ V $R_L = 33\ \Omega$ Pulse Duration > 20 µs	I-II-III			5	mA
		IV			10	
V_{GT}	$T_j = 25$ °C $V_D = 12$ V $R_L = 33\ \Omega$ Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110$ °C $V_D = V_{DRM}$ $R_L = 3.3$ kΩ	I-II-III-IV	0.2			V
I_H*	$T_j = 25$ °C $I_T = 100$ mA Gate Open				15	mA
I_L	$T_j = 25$ °C $V_D = 12$ V $I_G = 20$ mA Pulse Duration > 20 µs	I-II-III-IV			15	mA
V_{TM}*	$T_j = 25$ °C $I_{TM} = 4$ A $t_p = 10$ ms				1.85	V
I_{DRM}*	V_{DRM} Specified $T_j = 25$ °C				0.01	mA
	$T_j = 110$ °C				0.75	
dv/dt*	$T_j = 110$ °C Gate Open Linear Slope up to $V_D = 67\ \%\ V_{DRM}$			10		V/µs
(dv/dt)$_c$*	$T_j = 40$ °C $V_D = V_{DRM}$ $I_T = 4$ A $(di/dt)_c = 1.3$ A/ms			1		V/µs
t_{gt}	$T_j = 25$ °C $V_D = V_{DRM}$ $I_T = 4$ A $I_G = 100$ mA $di_G/dt = 1$ A/µs	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

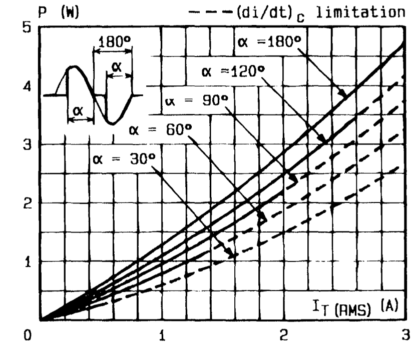


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

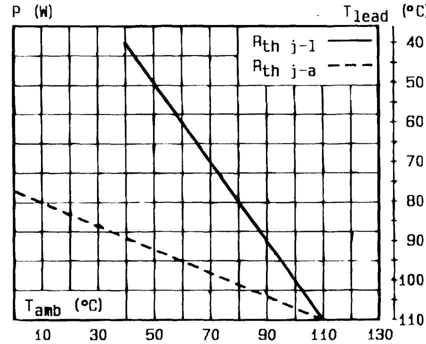


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

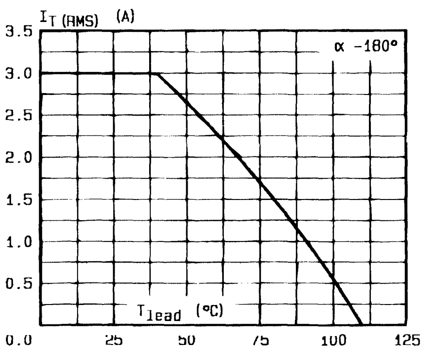


Fig.3 - RMS on-state current versus lead temperature.

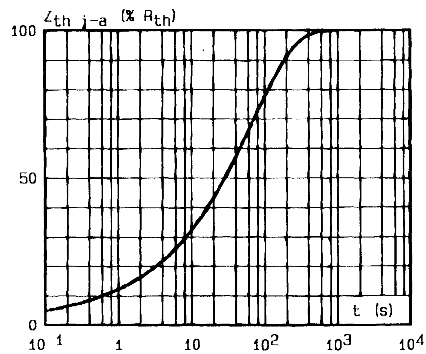


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

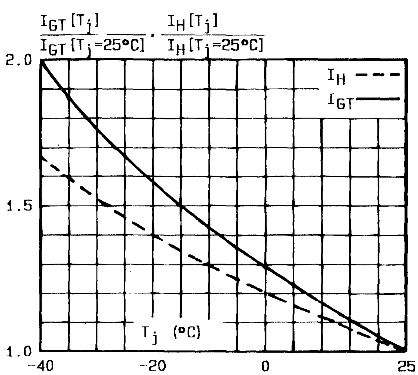


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

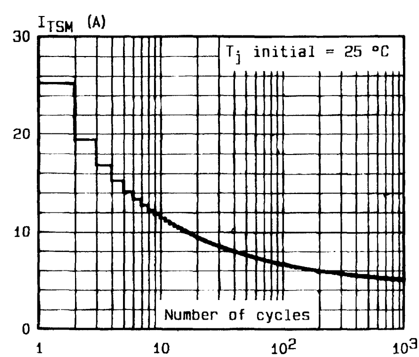


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

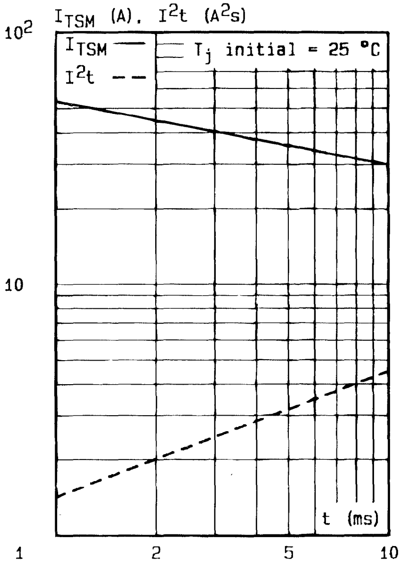


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

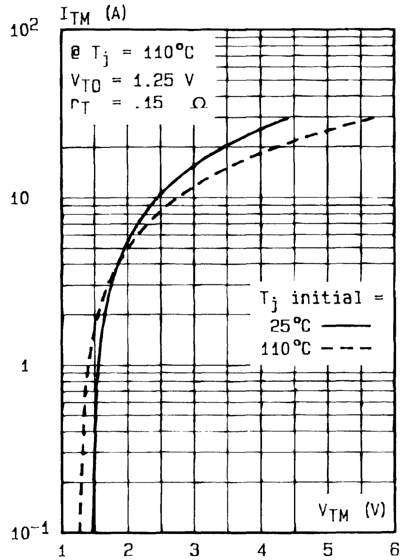
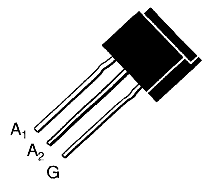


Fig.8 - On-state characteristics (maximum values).

TLC 116 S→TLC 386 S

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_l = 40 °C	3	A
$I_{T(RMS)}$	RMS on-state Current on Printed Circuit (360° conduction angle)	T_a = 25 °C	1.3 (3)	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	31.5	A
		t = 10 ms	30	
I^2t	I^2t Value for Fusing	t = 10 ms	4.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC116S	TLC226S	TLC336S	TLC386S	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 100 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.
(3) With Cu surface = 1 cm^2.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$ $R_{th\ (j\text{-}l)}$	Junction to Ambient on Printed Circuit Junction-leads for 360° Conduction Angle (F = 50 Hz)	50 (1) 15	°C/W °C/W

(1) With Cu surface = 1 cm^2.

GATE CHARACTERISTICS (maximum values)

P_{GM} = 2 W (t_p = 10 µs) I_{GM} = 1 A (t_p = 10 µs)

$P_{G\,(AV)}$ = 0.1 W V_{GM} = 16 V (t_p = 10 µs)

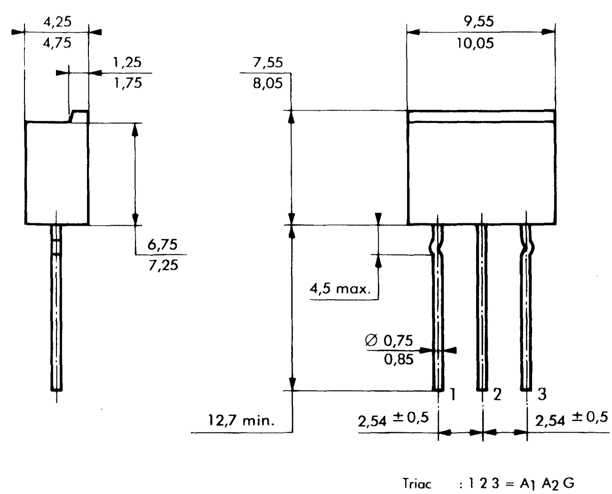
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			10	mA
V_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				25	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 20 mA Pulse Duration > 20 µs	I-II-III-IV			25	mA
V_{TM}*	T_j = 25 °C	I_{TM} = 4 A	t_p = 10 ms				1.85	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C	Gate Open Linear Slope up to V_D = 67 % V_{DRM}				20		V/µs
(dv/dt)$_c$*	T_l = 40 °C	V_D = V_{DRM}	I_T = 4 A (di/dt)$_c$ = 1.3 A/ms			5		V/µs
t_{gt}	T_j = 25 °C I_G = 100 mA	V_D = V_{DRM} di_G/dt = 1 A/µs	I_T = 4 A	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

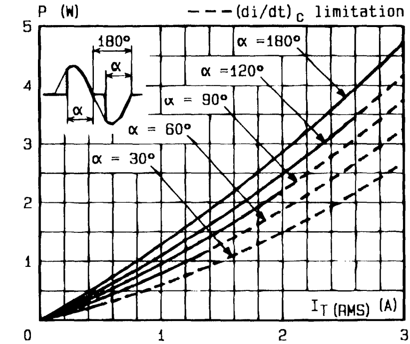


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

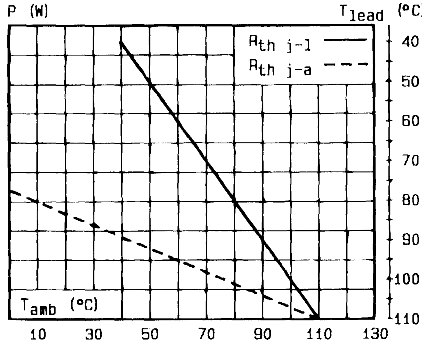


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

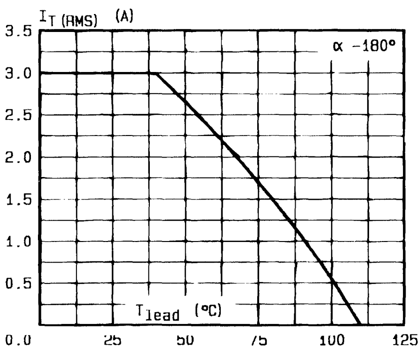


Fig.3 - RMS on-state current versus lead temperature.

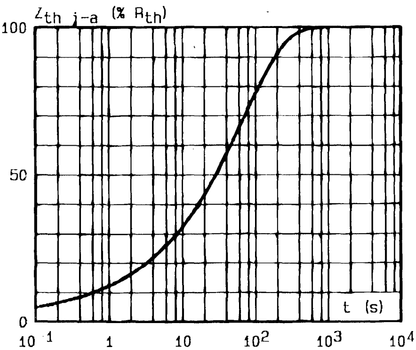


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

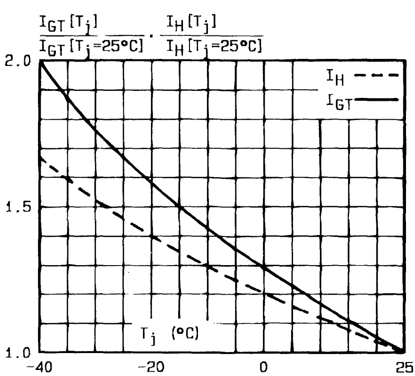


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

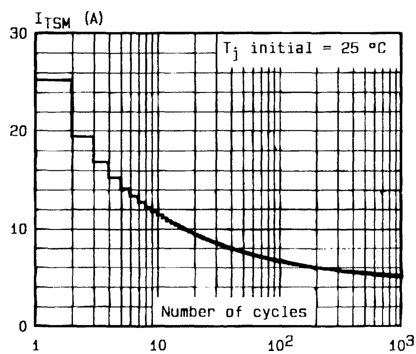


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

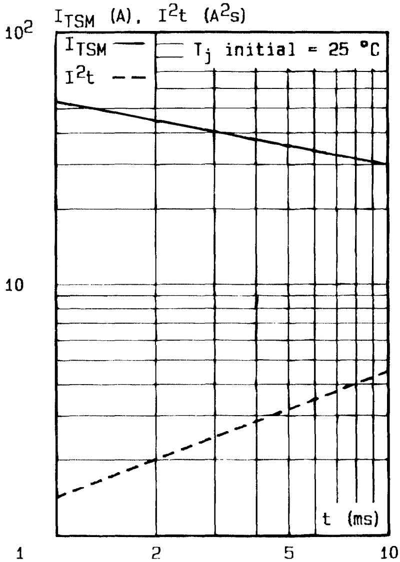


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

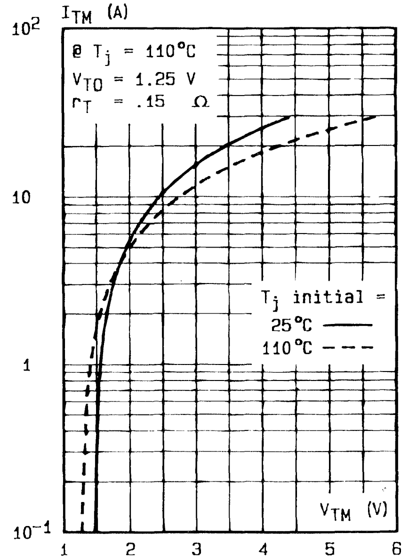
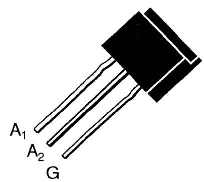


Fig.8 - On-state characteristics (maximum values).

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT



TL
(Plastic)

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
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		t = 10 ms	30	
I^2t	I^2t Value for Fusing	t = 10 ms	4.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive	10	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TLC116T	TLC226T	TLC336T	TLC386T	Unit
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 50 mA dI_G/dt = 1 A/µs
(2) T_j = 110 °C.
(3) With Cu surface = 1 cm^2.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$ $R_{th\ (j-l)}$	Junction to Ambient on Printed Circuit Junction-leads for 360° Conduction Angle (F = 50 Hz)	50 (1) 15	°C/W °C/W

(1) With Cu surface = 1 cm^2.

GATE CHARACTERISTICS (maximum values)

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$P_{G (AV)}$ = 0.1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
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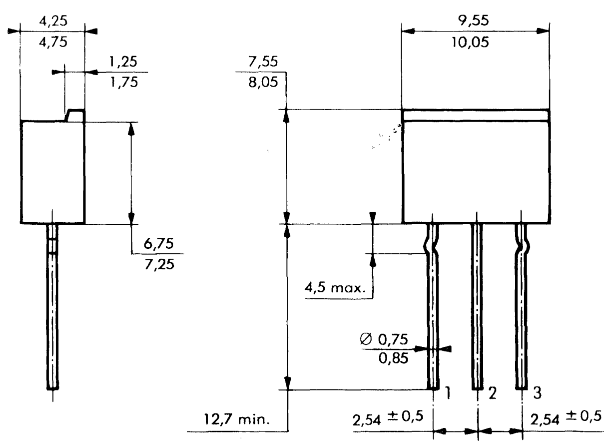
V_{GT}	T_j = 25 °C	V_D = 12 V	R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C	V_D = V_{DRM}	R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C	I_T = 100 mA	Gate Open				15	mA
I_L	T_j = 25 °C	V_D = 12 V	I_G = 10 mA Pulse Duration > 20 µs	I-II-III-IV			15	mA
V_{TM}*	T_j = 25 °C	I_{TM} = 4 A	t_p = 10 ms				1.85	V
I_{DRM}*	V_{DRM} Specified		T_j = 25 °C				0.01	mA
			T_j = 110 °C				0.75	
dv/dt*	T_j = 110 °C	Gate Open	Linear Slope up to V_D = 67 % V_{DRM}			10		V/µs
(dv/dt)$_c$*	T_j = 40 °C	V_D = V_{DRM}	I_T = 4 A (di/dt)$_c$ = 1.3 A/ms			1		V/µs
t_{gt}	T_j = 25 °C	V_D = V_{DRM}	I_T = 4 A I_G = 100 mA, di_G/dt = 1 A/µs	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

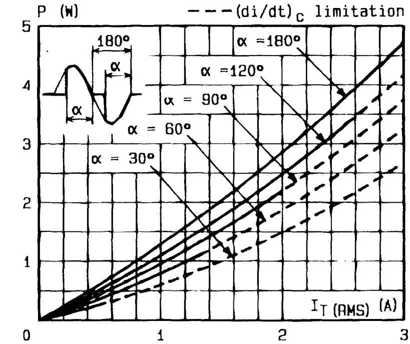
PACKAGE MECHANICAL DATA

TL Plastic



Triac : 1 2 3 = A1 A2 G

Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.



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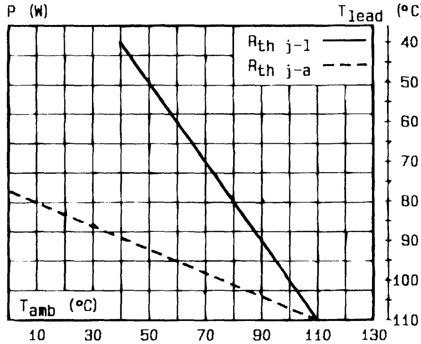


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).
resistances heatsink + contact.

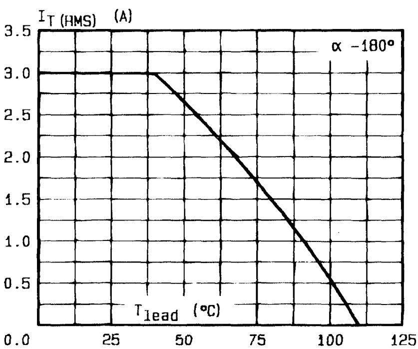


Fig.3 - RMS on-state current versus lead temperature.

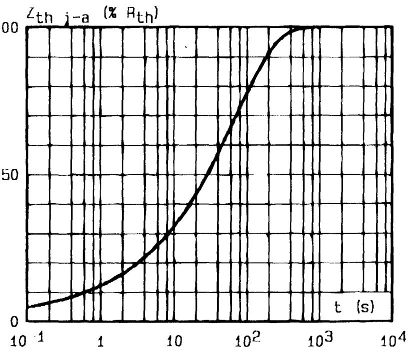


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

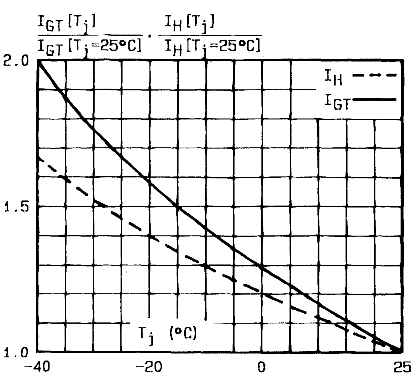


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

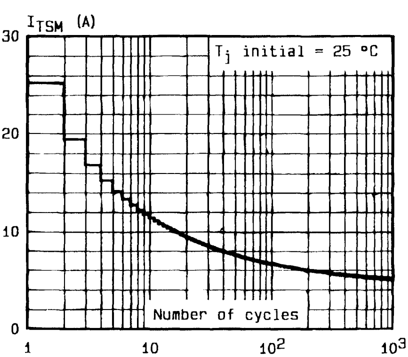


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

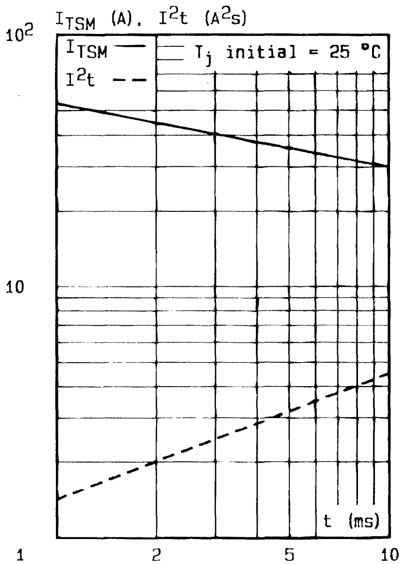


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms, and corresponding value of I^2t.

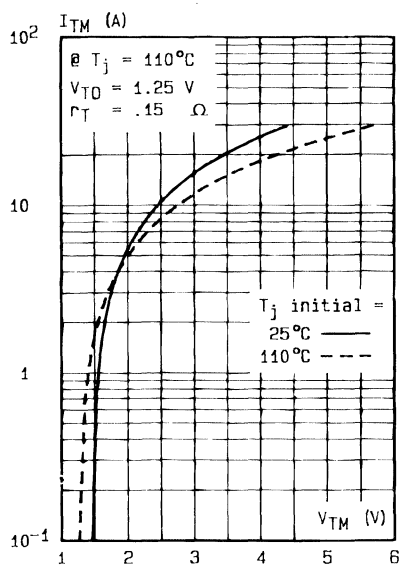


Fig.8 - On-state characteristics (maximum values).

SGS-THOMSON
MICROELECTRONICS

TMMDB3

TRIGGER DIODES

DELIVERY

Antistatic film : 2500 devices per reel.

APPLICATIONS

Thyristors and triacs triggering.

MINIMELF
(Glass)

ADVANTAGES

High reliability glass passivation insuring parameter stability and protection against junction contamination

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P	Power Dissipation (1)	T_a = 50 °C	150	mW
I_{TRM}	Repetitive Peak on-state Current	t_p = 20 µs F = 100 Hz	2	A
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 110	°C °C

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$ $R_{th\ (j\text{-}l)}$	Junction-ambient (1) Junction Tie-point	400 300	°C/W °C/W

(1) Mounted ceramic substrate of 10 mm x 10 mm x 0.6 mm.

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

Symbol	Parameter	Test Conditions	Types	Min.	Typ.	Max.	Unit
V_{BO}	Breakover Voltage*	C = 22 nF** See diagram 1	TMMDB3	28	32	36	V
$[\lvert+V_{BO}\rvert-\lvert-V_{BO}\rvert]$	Breakover Voltage Symmetry	C = 22 nF** See diagram 1				± 3	V
$\lvert\Delta V\pm\rvert$	Dynamic Breakback Voltage*	$\Delta I = [I_{BO}$ to $I_F = 10$ mA] See diagram 1		5			V
V_O	Output Voltage*	See diagram 2		5			V
I_{BO}	Breakover Current*	C = 22 nF**				100	µA
t_r	Rise Time*	See diagram 3			1.5		µs
I_B	Leakage Current*	$V_B = 0.5\ V_{BO}$ max See diagram 1				10	µA

* Electrical characteristic applicable in both forward and reverse directions.
** Connected in parallel with the device.

DIAGRAM 1 : Current-voltage characteristics.

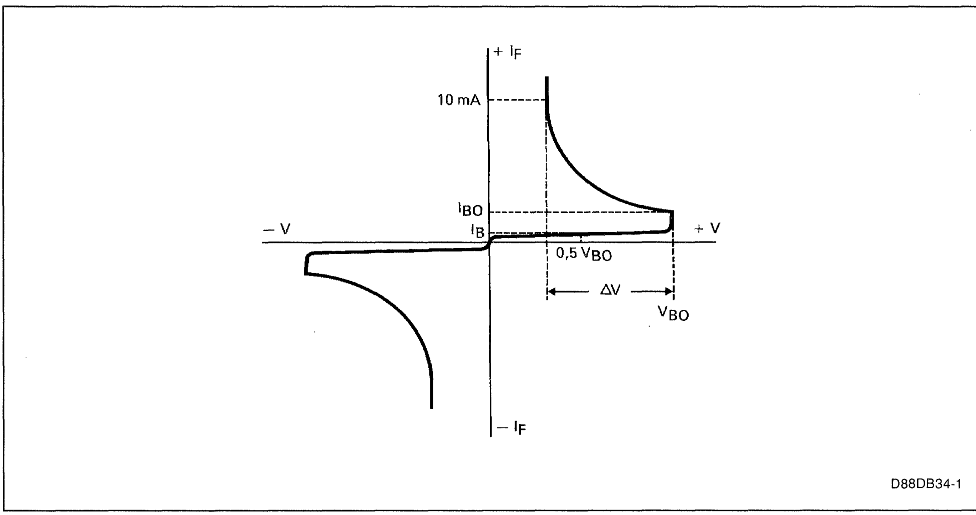


DIAGRAM 2 : Test circuit for output voltage.

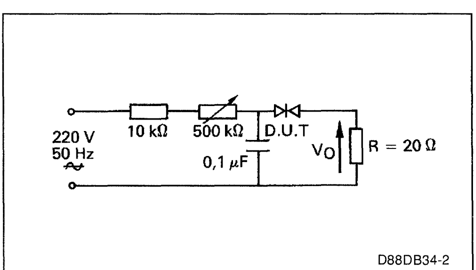
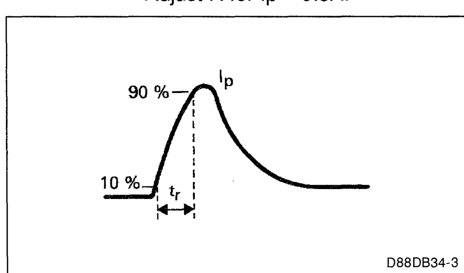


DIAGRAM 3 : Test circuit see diagram 2.
Adjust R for Ip = 0.5A.



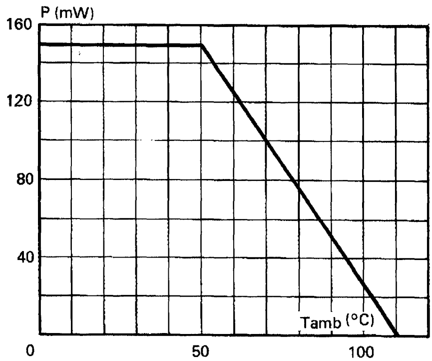


Fig. 1 - Power dissipation versus ambient temperature (maximum values).

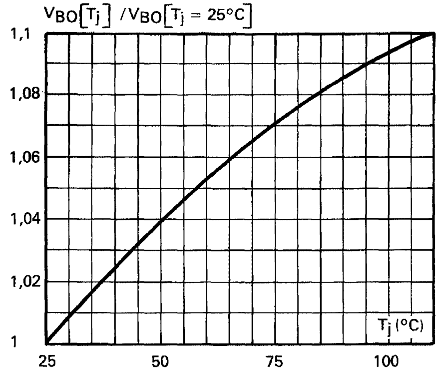


Fig. 2 - Relative variation of V_{BO} versus junction temperature (typical values).

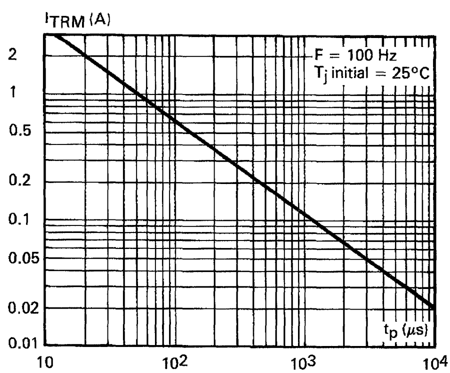
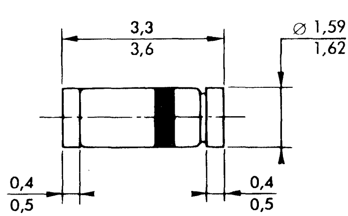


Fig. 3 - Peak pulse current versus pulse duration (maximum values).

PACKAGE MECHANICAL DATA

MINIMELF

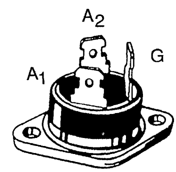


SGS-THOMSON MICROELECTRONICS

TODV 125 → 1225

ALTERNISTORS

- $(di/dt)_c$ > 88 A/ms (400 Hz)
- INSULATING VOLTAGE : 2500 V_{RMS} ($t \leq 1$ mn - F = 50 Hz)
- UL RECOGNIZED (EB1734)



RD 91
(Plastic)

APPLICATIONS

- POWER CONTROL ON INDUCTIVE LOAD (motor, transformer...)
- HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 80 °C	25	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	t = 10 ms	230	A
		t = 8.3 ms	250	
		t = 2.5 ms	390	
I^2t	I^2t Value for Fusing	t = 10 ms	265	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TODV							Unit
		125	225	425	625	825	1025	1225	
V_{DRM}	Repetitive Peak off-state Voltage (2)	100	200	400	600	800	1000	1200	V

(1) I_G = 1.5 A di_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.1	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.6	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	1.2	°C/W

GATE CHARACTERISTICS (maximum values)

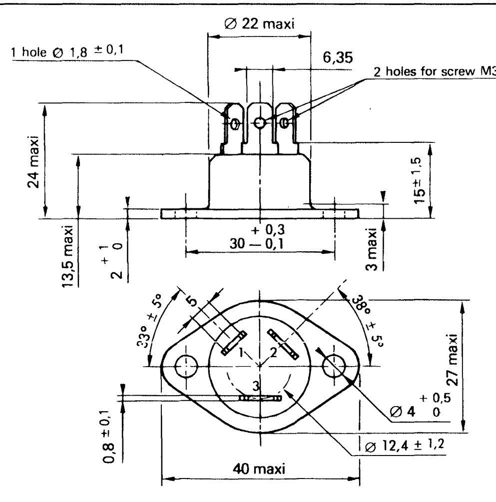
P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 8 A (t_p = 10 µs)
$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			150	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			50		mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 µs	I-III		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 35 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified				8	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM} — V_{DRM} ≤ 800 V		500			V/µs
	V_{DRM} ≥ 1000 V		250			
(di/dt)$_c$*	T_C = 80 °C V_D = V_{DRM} I_T = 35 A — (dv/dt)$_c$ = 200 V/µs		20			A/ms
	(dv/dt)$_c$ = 10 V/µs		88			
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 35 A I_G = 0.5 A di_G/dt = 3.5 A/µs	I-II-III		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Triac 1 2 3 = G A_1 A_2

Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g

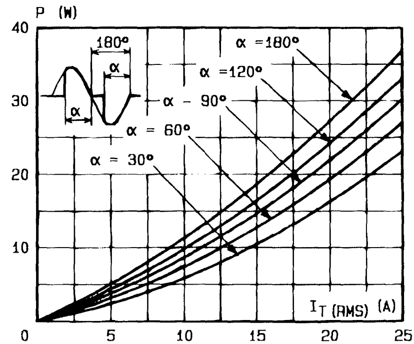


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

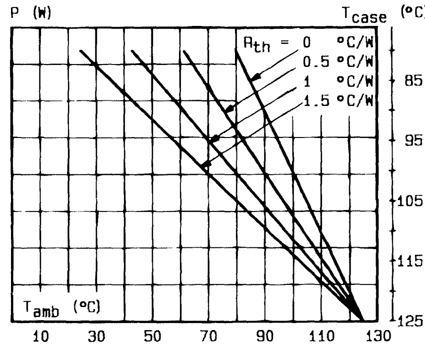


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

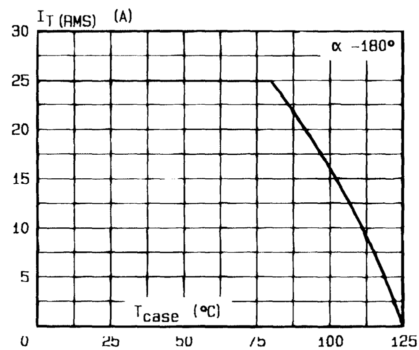


Fig.3 - RMS on-state current versus case temperature.

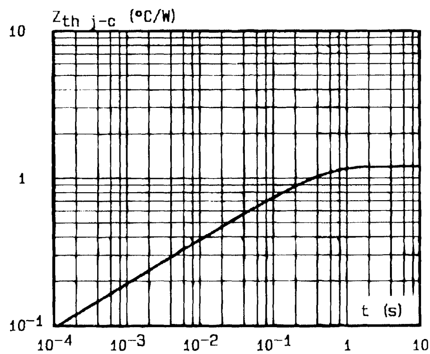


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

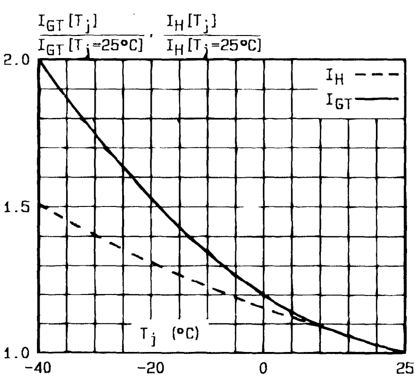


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

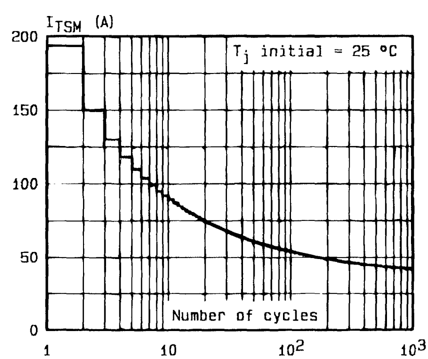


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

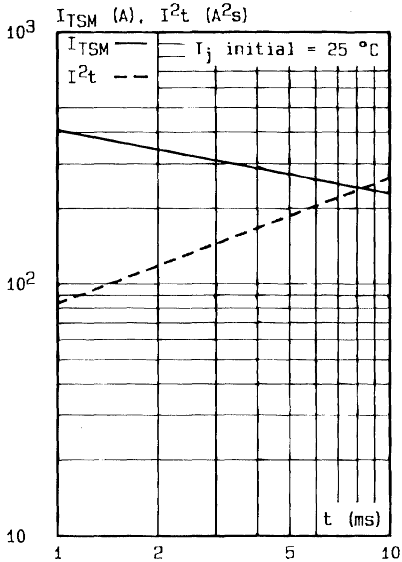


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

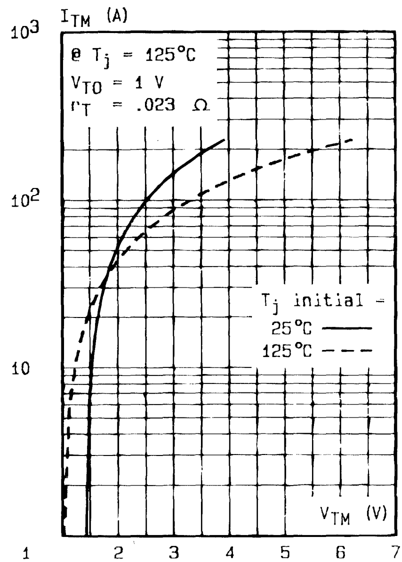


Fig.8 - On-state characteristics (maximum values).

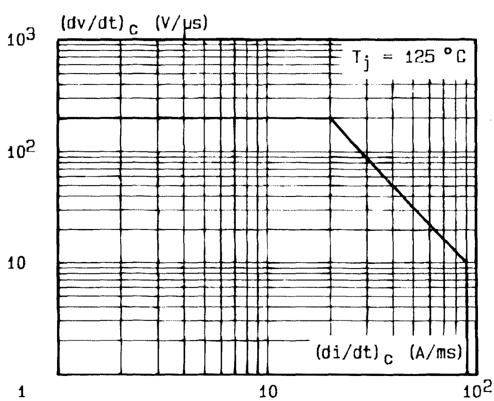


Fig.9 - Safe operating area.

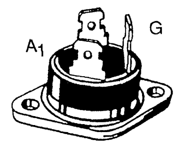
TODV 140 → 1240

ALTERNISTORS

- $(di/dt)_c$ < 142 A/ms (400 Hz)
- INSULATING VOLTAGE : 2500 V_{RMS} (t ≤ 1 mn - F = 50 Hz)
- UL RECOGNIZED (EB1734)

APPLICATIONS

- POWER CONTROL ON INDUCTIVE LOAD (motor, transformer...)
- HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS



RD 91
(Plastic)

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	t = 10 ms	350	A
		t = 8.3 ms	370	
		t = 2.5 ms	590	
I^2t	I^2t Value for Fusing	t = 10 ms	610	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TODV							Unit
		140	240	440	640	840	1040	1240	
V_{DRM}	Repetitive Peak off-state Voltage (2)	100	200	400	600	800	1000	1200	V

(1) I_G = 1.5 A di_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c\text{-}h)}$	Contact (case-heatsink) with Grease	0.1	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 8 A (t_p = 10 µs)

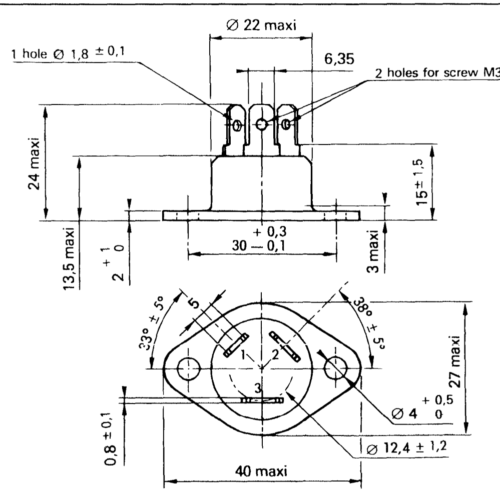
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III			200	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ		I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				50		mA
I_L	T_j = 25 °C V_D = 12 V I_G = 400 mA Pulse Duration > 20 µs		I-III		50		mA
			II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms					1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified					8	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}	V_{DRM} ≤ 800 V		500			V/µs
		V_{DRM} ≥ 1000 V		250			
$(di/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A	$(dv/dt)_c$ = 200 V/µs		35			A/ms
		$(dv/dt)_c$ = 10 V/µs		142			
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 0.5 A di_G/dt = 3.5 A/µs		I-II-III		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : RD 91 Plastic



Triac 1 2 3 = G A_1 A_2

Cooling method : by conduction (method C)
Marking : type number
Weight : 15 g

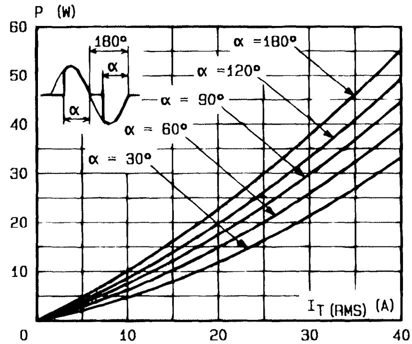


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

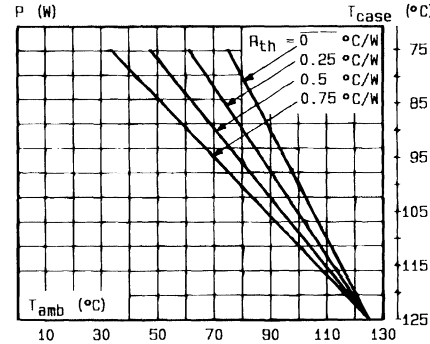


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

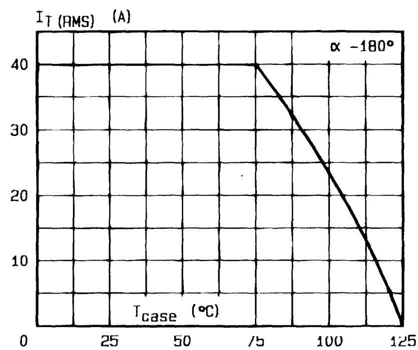


Fig.3 - RMS on-state current versus case temperature.

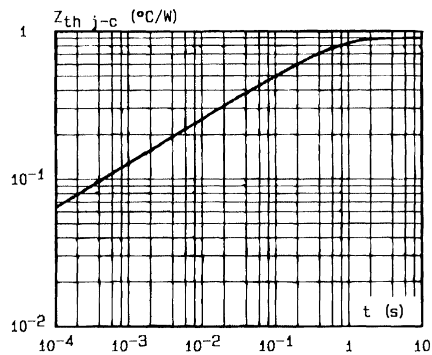


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

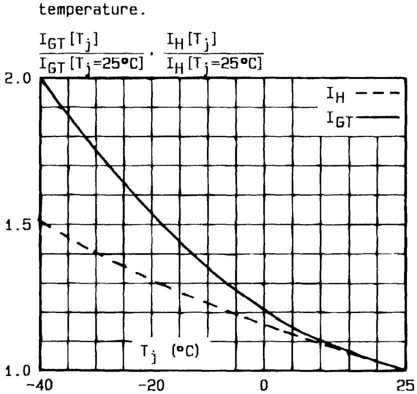


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

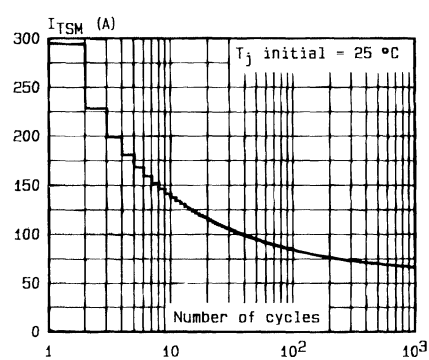


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

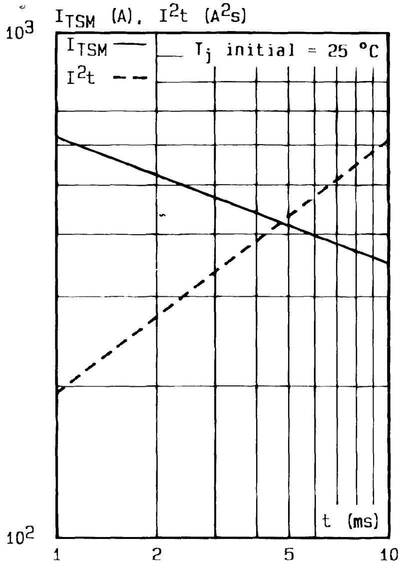


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

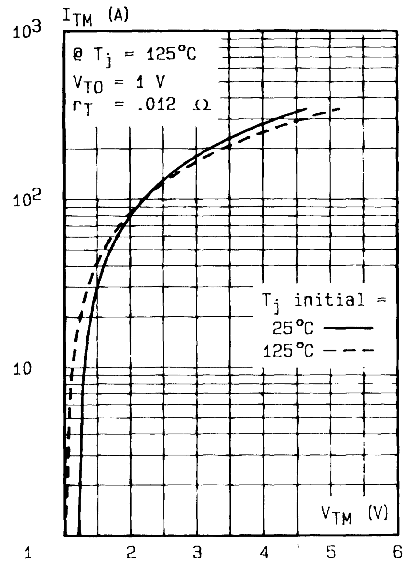


Fig.8 - On-state characteristics (maximum values).

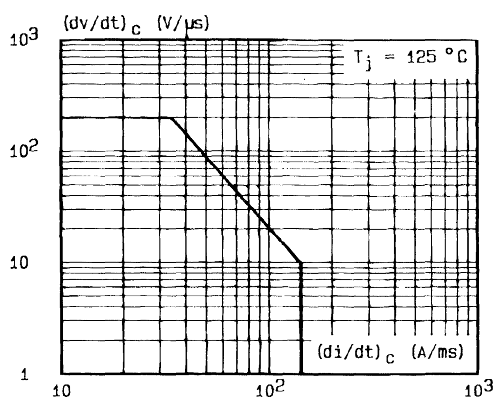


Fig.9 - Safe operating area.

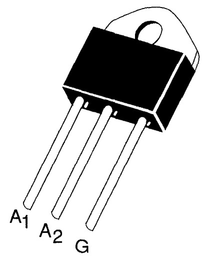
SGS-THOMSON MICROELECTRONICS

ALTERNISTORS

- $(di/dt)_c$ > 88 A/ms (400 Hz)
- INSULATING VOLTAGE : 2500 V_{RMS} (t ≤ 1 mn - F = 50 Hz)
- UL RECOGNIZED (EB81734)

APPLICATIONS

- POWER CONTROL ON INDUCTIVE LOAD (motor, transformer...)
- HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS



TOP 3
(Plastic)

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	25	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	t = 10 ms	230	A
		t = 8.3 ms	250	
		t = 2.5 ms	390	
I^2t	I^2t Value for Fusing	t = 10 ms	265	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TPDV							Unit
		125	225	425	625	825	1025	1225	
V_{DRM}	Repetitive Peak off-state Voltage (2)	100	200	400	600	800	1000	1200	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.15	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	2.09	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	1.56	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 8 A (t_p = 10 µs)

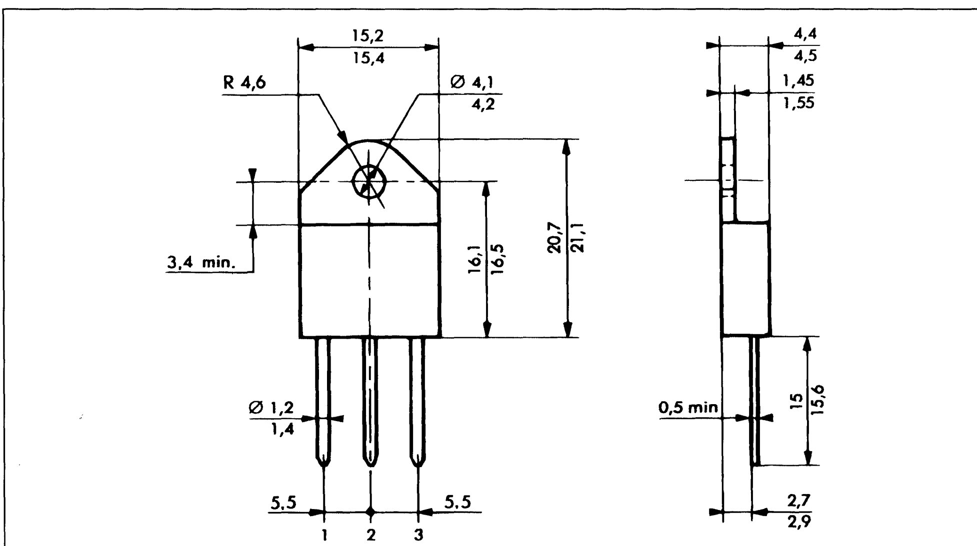
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			150	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open			50		mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 µs	I-III		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 35 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified				8	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope upto V_D = 67 % V_{DRM} — V_{DRM} ≤ 800 V		500			V/µs
	V_{DRM} ≥ 1000 V		250			
$(di/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 35 A — $(dv/dt)_c$ = 200 V/µs		20			A/ms
	$(dv/dt)_c$ = 10 V/µs		88			
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 35 A I_G = 0.5 A di_G/dt = 3.5 A/µs	I-II-III		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

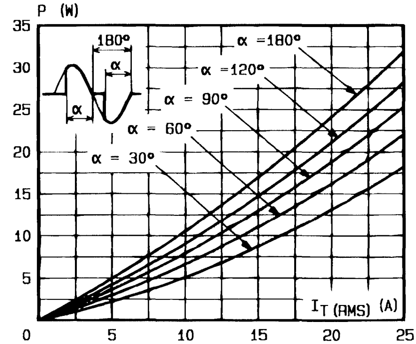


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

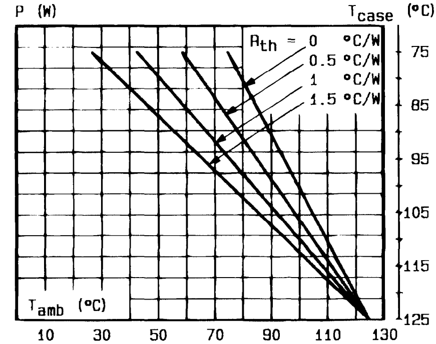


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

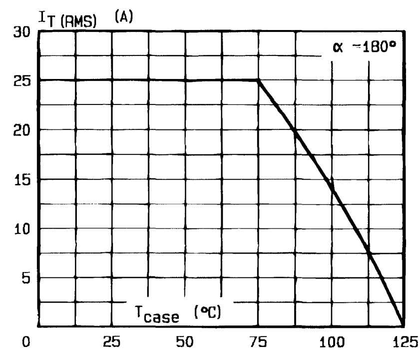


Fig.3 - RMS on-state current versus case temperature.

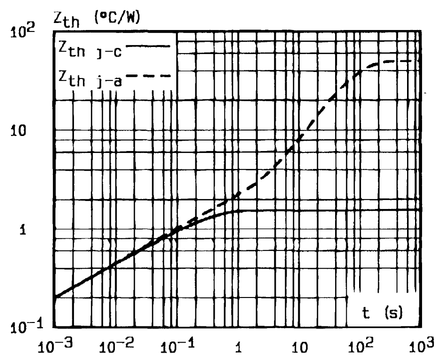


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

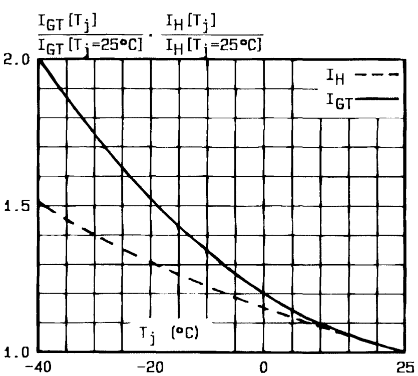


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

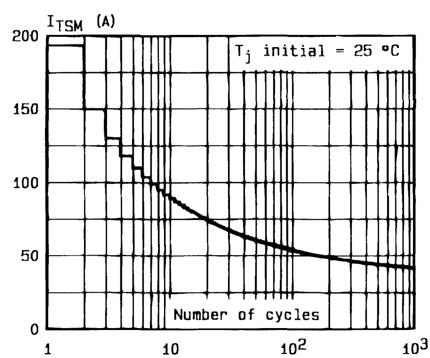


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

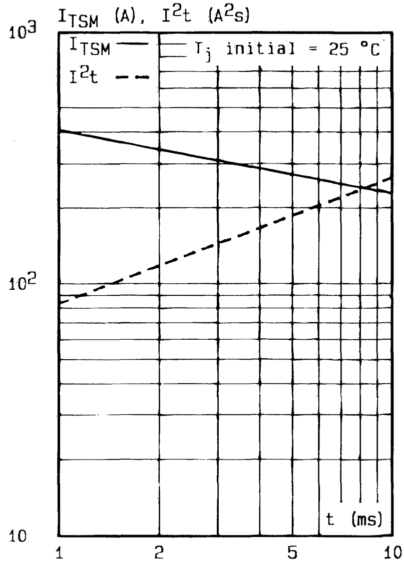


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

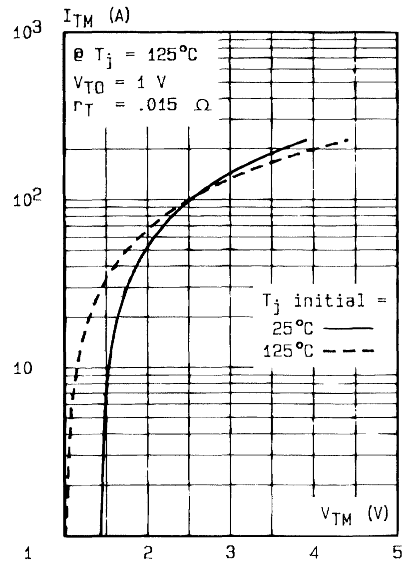


Fig.8 - On-state characteristics (maximum values).

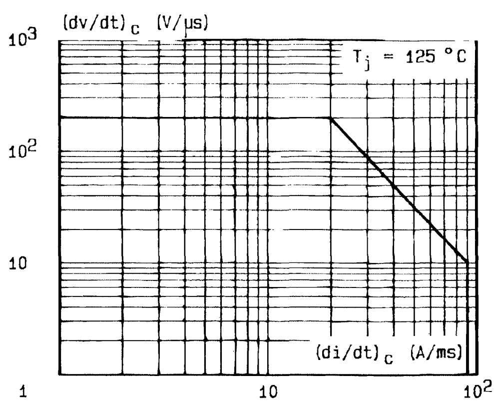


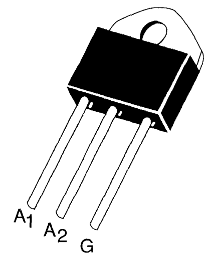
Fig.9 - Safe operating area.

SGS-THOMSON MICROELECTRONICS

TPDV 140 → 1240

ALTERNISTORS

- $(di/dt)_c$ > 142 A/ms (400 Hz)
- INSULATING VOLTAGE : 2500 V_{RMS} (t ≤ 1 mn - F = 50 Hz)
- UL RECOGNIZED (E81734)



TOP 3
(Plastic)

APPLICATIONS

- POWER CONTROL ON INDUCTIVE LOAD (motor, transformer...)
- HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	40	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	t = 10 ms	350	A
		t = 8.3 ms	370	
		t = 2.5 ms	590	
I^2t	I^2t Value for Fusing	t = 10 ms	610	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 125 – 40 to 125	°C °C

Symbol	Parameter	TPDV							Unit
		140	240	440	640	840	1040	1240	
V_{DRM}	Repetitive Peak off-state Voltage (2)	100	200	400	600	800	1000	1200	V

(1) I_G = 1.5 A di_G/dt = 1 A/µs
(2) T_j = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	50	°C/W
$R_{th\ (c-h)}$	Contact (case-heatsink) with Grease	0.15	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.2	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	0.9	°C/W

GATE CHARACTERISTICS (maximum values)

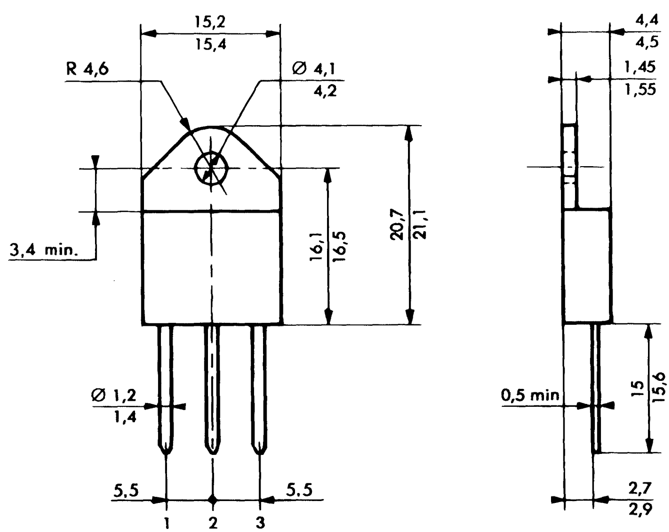
P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 8 A (t_p = 10 µs)
$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III			200	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs		I-II-III			1.5	V
V_{GD}	T_j = 125 °C V_D = V_{DRM} R_L = 3.3 kΩ		I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				50		mA
I_L	T_j = 25 °C V_D = 12 V I_G = 400 mA Pulse Duration > 20 µs		I-III		50		mA
			II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 60 A t_p = 10 ms					1.8	V
I_{DRM}*	T_j = 125 °C V_{DRM} Specified					8	mA
dv/dt*	T_j = 125 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}	V_{DRM} ≤ 800 V		500			V/µs
		V_{DRM} ≥ 1000 V		250			
$(di/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 60 A	$(dv/dt)_c$ = 200 V/µs		35			A/ms
		$(dv/dt)_c$ = 10 V/µs		142			
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 60 A I_G = 0.5 A di_G/dt = 3.5 A/µs		I-II-III		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : TOP 3 Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 5 g

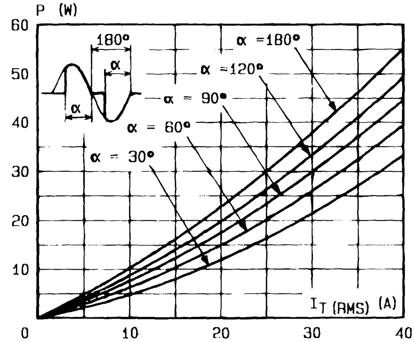


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

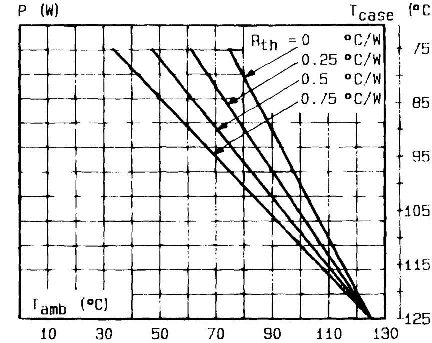


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

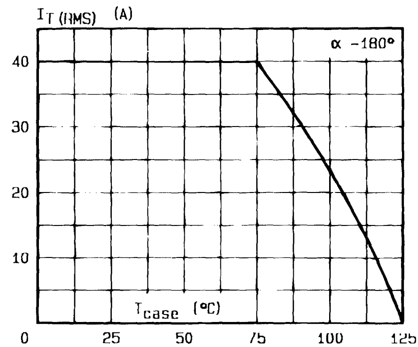


Fig.3 - RMS on-state current versus case temperature.

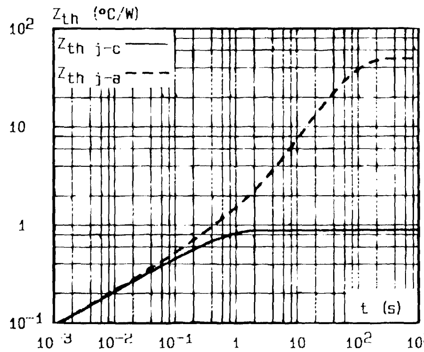


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

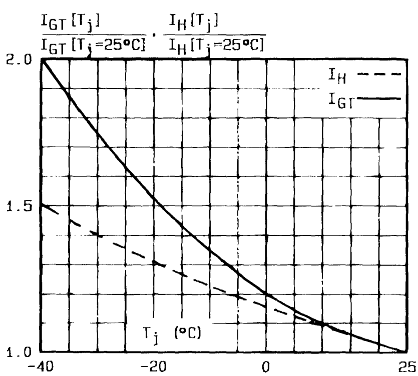


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

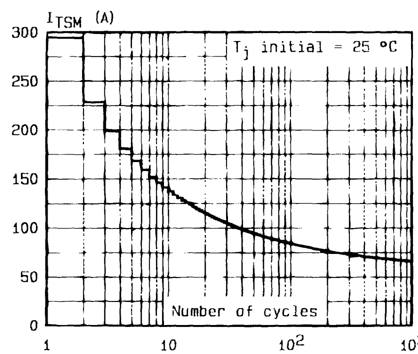


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

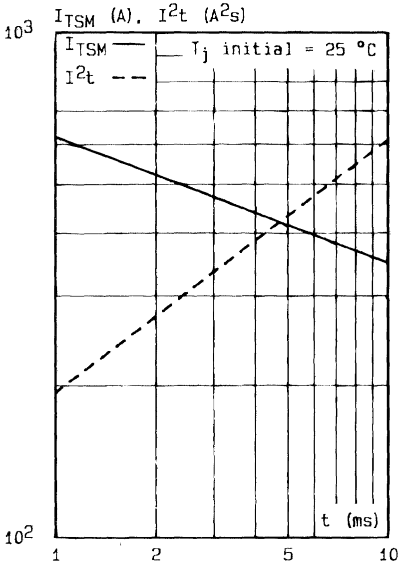


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

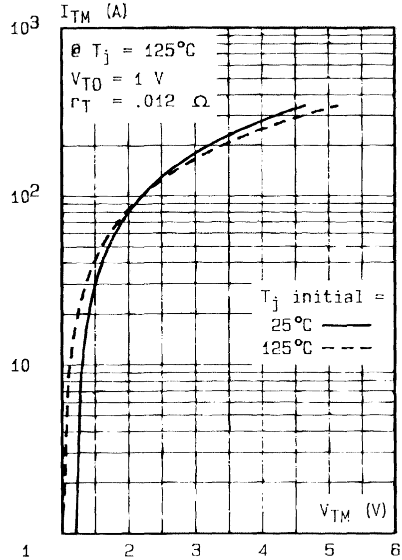


Fig.8 - On-state characteristics (maximum values).

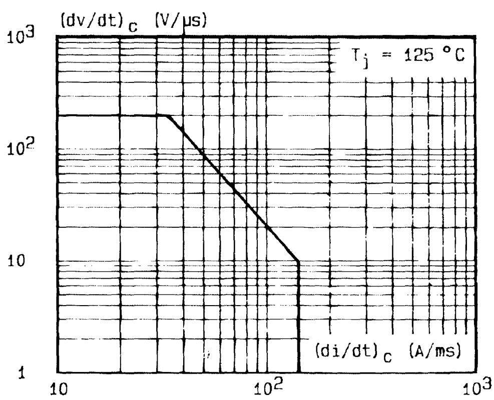


Fig.9 - Safe operating area.

SGS-THOMSON
MICROELECTRONICS

TRAL 1125 D→3825 D

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS

ADVANTAGES

- EXCELLENT $(dv/dt)_C$: > 10 V/µs
- METALLIC ENCAPSULATION GIVES AN EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

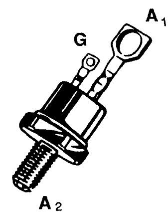
APPLICATIONS

- MOTOR CONTROL
- HEATING CONTROL
- LIGHT DIMMER

DESCRIPTION

Power triacs suited for use on 220 V and 380 V main.

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 60 °C	25	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	262	A
		t = 10 ms	250	
I^2t	I^2t Value for Fusing	t = 10 ms	312.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 100	°C °C

Symbol	Parameter	TRAL				Unit
		1125D	2225D	3325D	3825D	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 1.5 A dI_G/dt = 1 A/µs
(2) T_j = 100 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c-h)}$	Contact (case-heatsink) for Recommended Stud Torque	0.4	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	1.24	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.93	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 μs) I_{GM} = 6 A (t_p = 10 μs)

$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 μs)

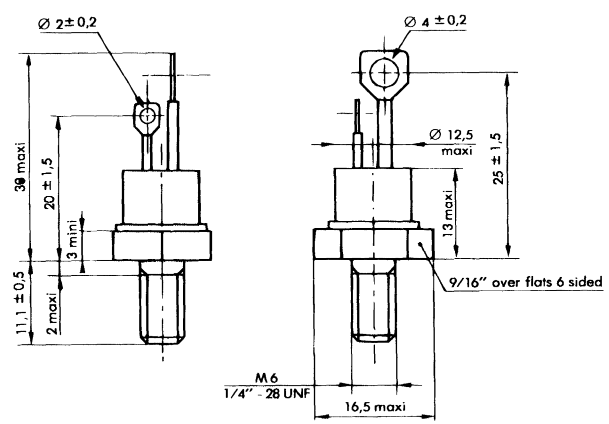
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III			100	mA
		IV			150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 μs	I-II-III-IV			1.5	V
V_{GD}	T_j = 100 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 μs	I-III-IV		50		mA
		II		100		
V_{TM}*	T_j = 25 °C I_{TM} = 35 A t_p = 10 ms				2	V
I_{DRM}*	T_j = 100 °C V_{DRM} Specified				3	mA
dv/dt*	T_j = 100 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/μs
$(dv/dt)_c$*	T_C = 60 °C V_D = V_{DRM} I_T = 35 A $(di/dt)_c$ = 11.2 A/ms		10			V/μs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 35 A I_G = 200 mA di_G/dt = 2 A/μs	I-II-III-IV		3		μs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1 g
Polarity : anode to case
Stud torque : 3.5 m∧N min - 3.8 m∧N max.

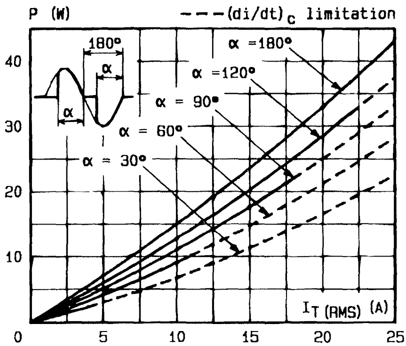


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

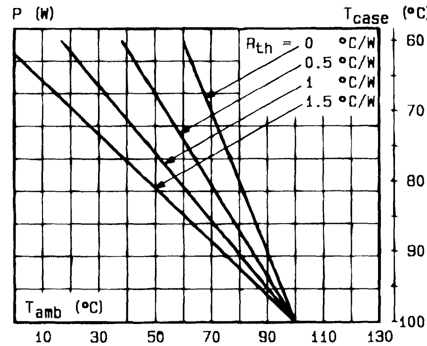


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

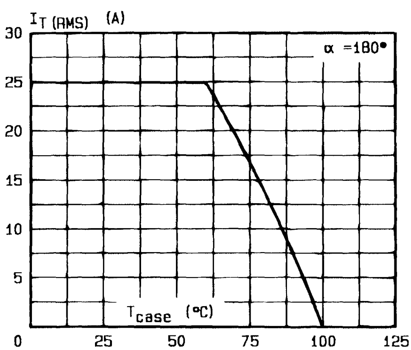


Fig.3 - RMS on-state current versus case temperature.

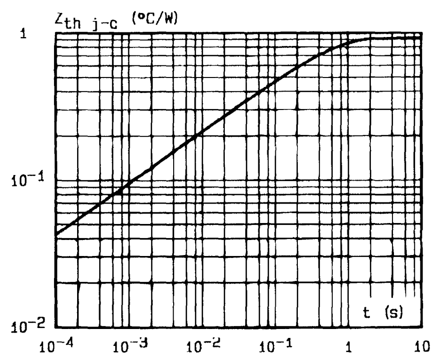


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

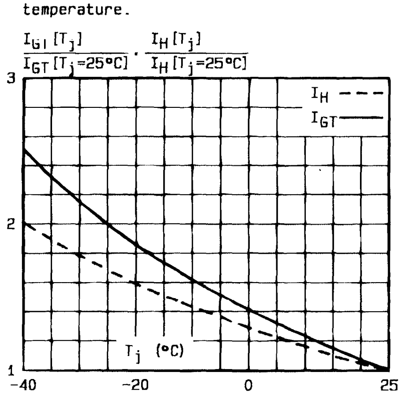


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

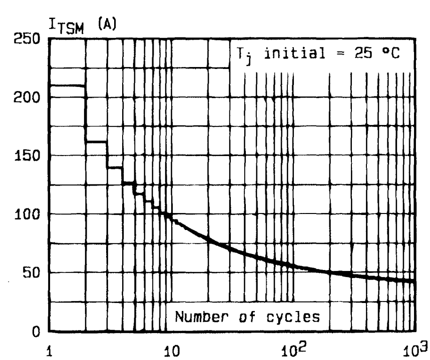


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

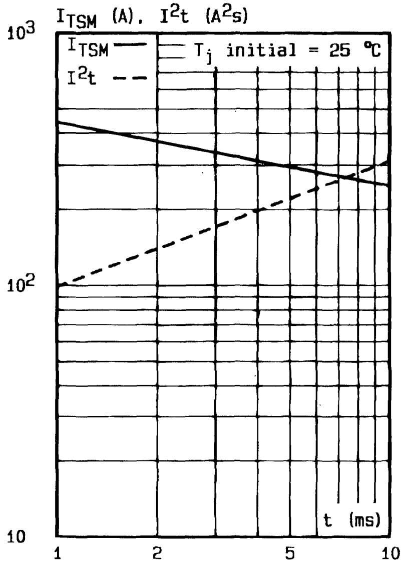


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t $\leqslant$ 10 ms. and corresponding value of I^2t.

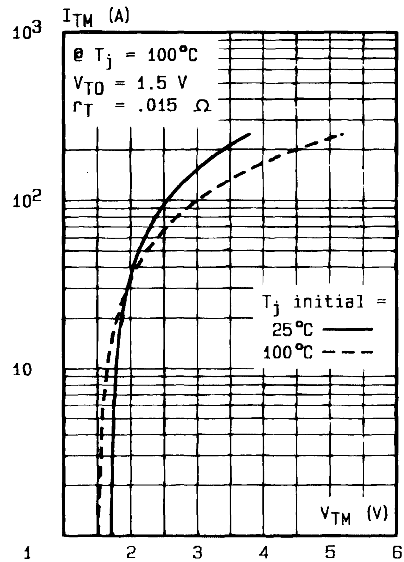


Fig.8 - On-state characteristics (maximum values).

TRAL 1135 D→3835 D

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS

ADVANTAGES

- EXCELLENT $(dv/dt)_C$: > 10 V/µs
- METALLIC ENCAPSULATION GIVES AN EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

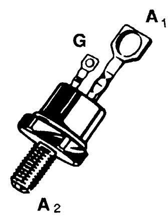
APPLICATIONS

- MOTOR CONTROL
- HEATING CONTROL
- LIGHT DIMMER

DESCRIPTION

Power triacs suited for use on 220 V and 380 V main.

Thread : 1/4" -28 UNF : type N°
M6 on request : type N° + suffix M



TO 48
(Metal)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 60 °C	35	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	330	A
		t = 10 ms	300	
I^2t	I^2t Value for Fusing	t = 10 ms	450	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	20	A/µs
		Non Repetitive	100	
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TRAL				Unit
		1135D	2235D	3335D	3835D	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 1.5 A di_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (c\text{-}h)}$	Contact (case-heatsink) for Recommended Stud Torque	0.4	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	1.12	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.84	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 6 A (t_p = 10 µs)
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

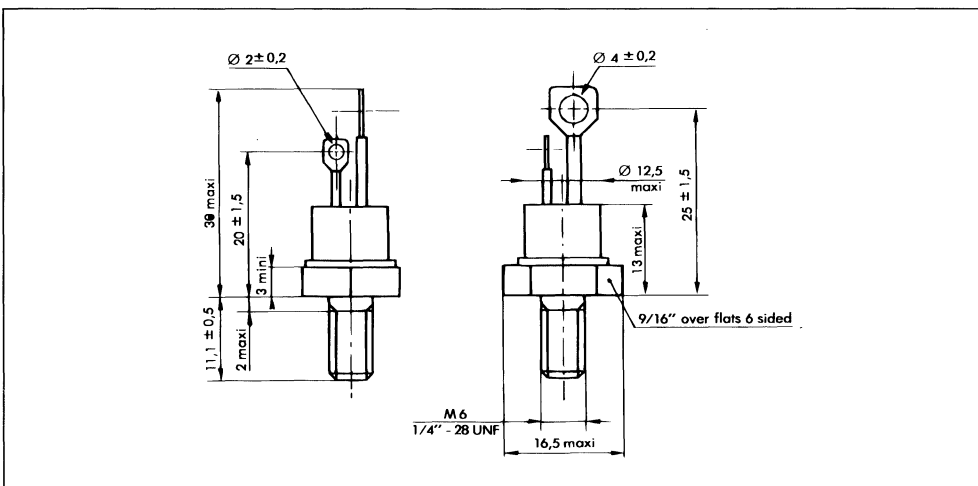
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			100	mA
		IV			150	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III-IV			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III-IV	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 300 mA Pulse Duration > 20 µs	I-III-IV		60		mA
		II		120		
V_{TM}*	T_j = 25 °C I_{TM} = 53 A t_p = 10 ms				2	V
I_{DRM}*	T_j = 110 °C V_{DRM} Specified				4	mA
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		250			V/µs
$(dv/dt)_c$*	T_C = 60 °C V_D = V_{DRM} I_T = 53 A $(di/dt)_c$ = 15.5 A/ms		10			V/µs
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 53 A I_G = 200 mA di_G/dt = 2 A/µs	I-II-III-IV		3		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA

TO 48 Metal



Cooling method : by conduction (method C)
Marking : type number
Weight : 13.5 ± 1 g
Polarity : anode to case
Stud torque : 3.5 m∧N min - 3.8 m∧N max.

SGS-THOMSON MICROELECTRONICS

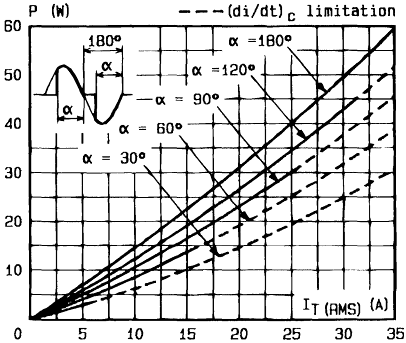


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

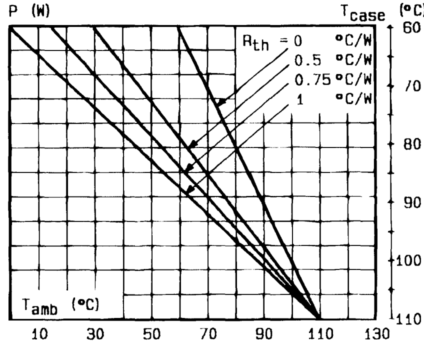


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

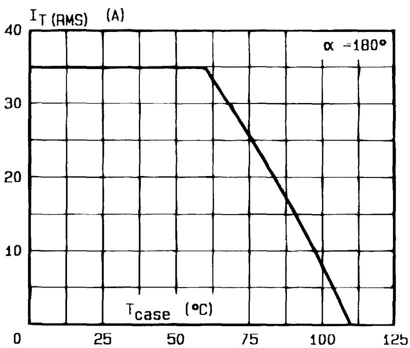


Fig.3 - RMS on-state current versus case temperature.

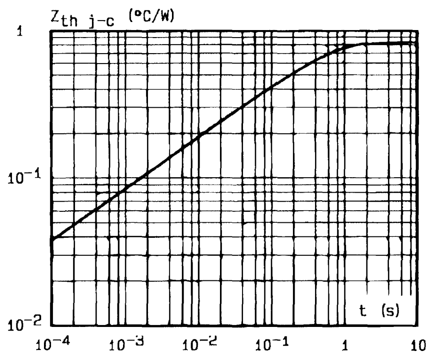


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

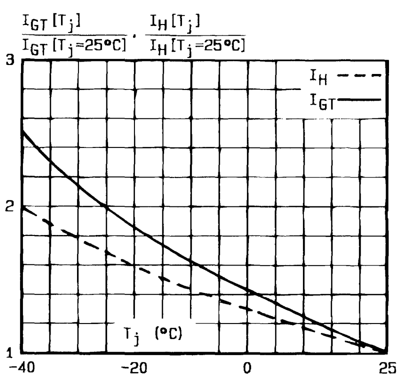


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

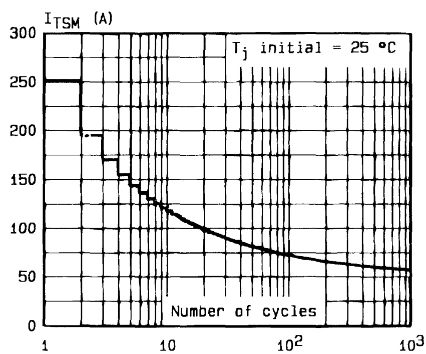


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

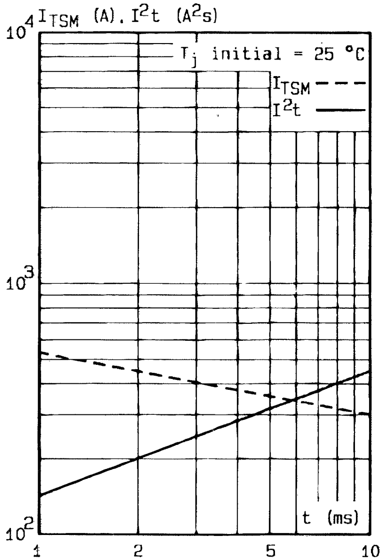


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: t ≤ 10ms, and corresponding value of I^2t.

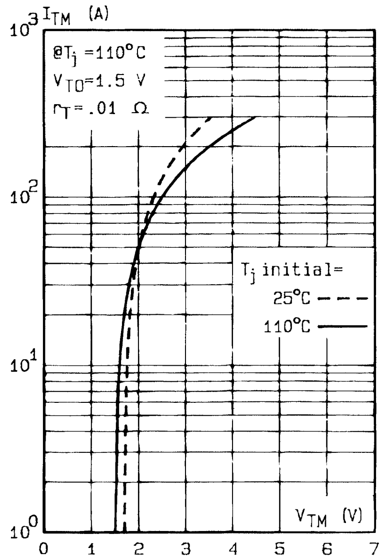


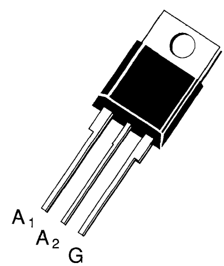
Fig.8 - On-state characteristic (maximum values).

SGS-THOMSON
MICROELECTRONICS

TXDV 208 → 808

ALTERNISTORS

- $(di/dt)_c > 28$ A/ms (400 Hz)
- INSULATING VOLTAGE : 2500 V_{RMS} ($t \leq 1$ mn - F = 50 Hz)
- UL RECOGNIZED (E81734)



TO 220 AB
(Plastic)

APPLICATIONS

- POWER CONTROL ON INDUCTIVE LOAD (motor, transformer...)
- HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	$T_C = 75$ °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	t = 10 ms	80	A
		t = 8.3 ms	85	
		t = 2.5 ms	115	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TXDV				Unit
		208	408	608	808	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	800	V

(1) $I_G = 1$ A $\quad dI_G/dt = 1$ A/µs
(2) $T_j = 110$ °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j\text{-}c)}$ DC	Junction to Case for DC	4	°C/W
$R_{th\ (j\text{-}c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	3	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

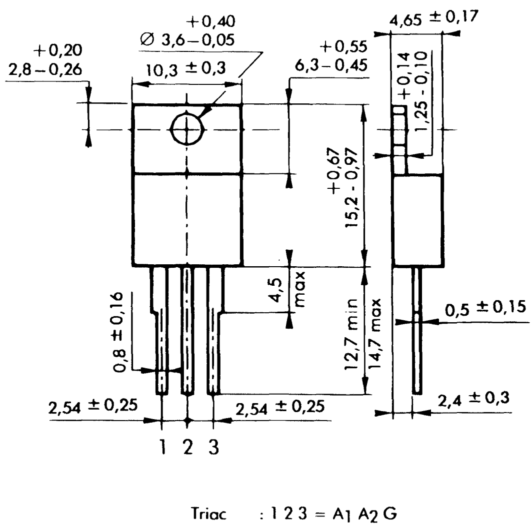
$P_{G\,(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			100	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-III		100		mA
		II		200		
V_{TM}*	T_j = 25 °C I_{TM} = 11 A t_p = 10 ms				1.8	V
I_{DRM}*	T_j = 110 °C V_{DRM} Specified				2	mA
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		500			V/µs
$(di/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 11 A $(dv/dt)_c$ = 200 V/µs		7			A/ms
	$(dv/dt)_c$ = 10 V/µs		28			
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 11 A I_G = 0.5 A di_G/dt = 3.5 A/µs	I-II-III		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

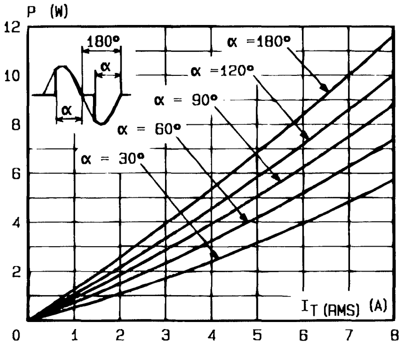


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

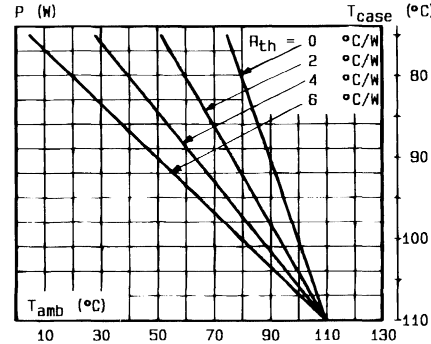


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

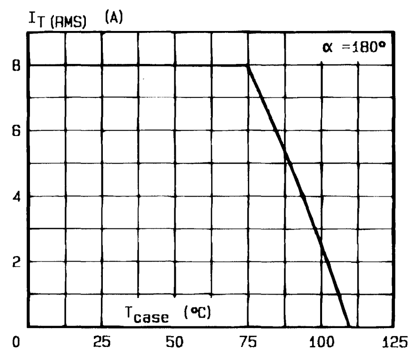


Fig.3 - RMS on-state current versus case temperature.

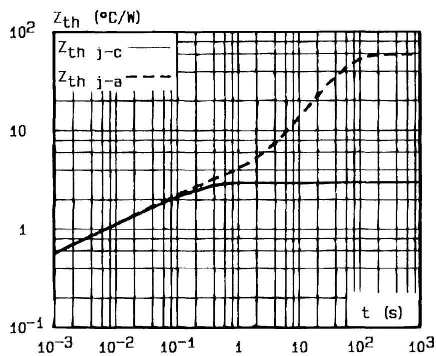


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

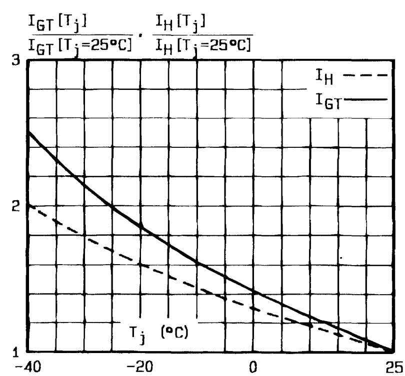


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

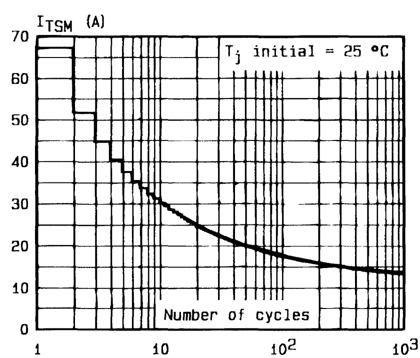


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

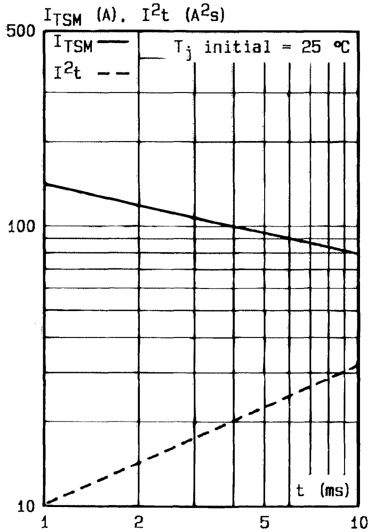


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

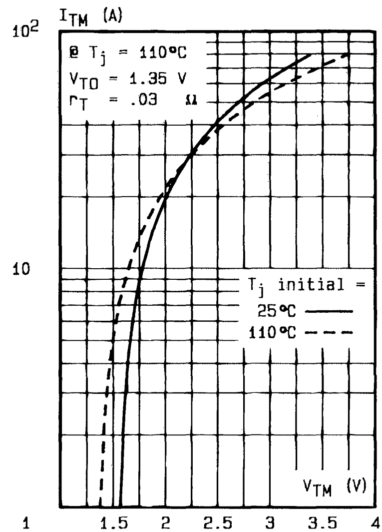


Fig.8 - On-state characteristics (maximum values).

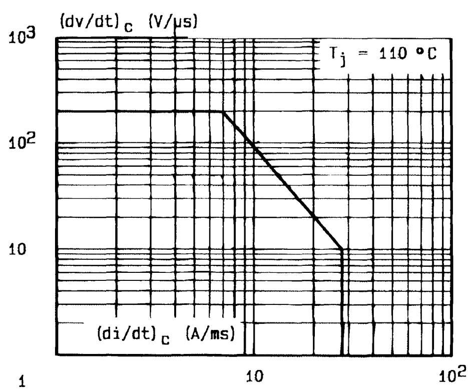


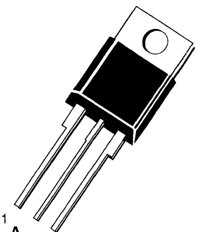
Fig.9 - Safe operating area.

SGS-THOMSON
MICROELECTRONICS

TXDV 212 → 812

ALTERNISTORS

- $(di/dt)_c$ > 42.5 A/ms (400 Hz)
- INSULATING VOLTAGE : 2500 V_{RMS} (t ≤ 1 mn - F = 50 Hz)
- UL RECOGNIZED (E81734)



TO 220 AB
(Plastic)

APPLICATIONS

- POWER CONTROL ON INDUCTIVE LOAD (motor, transformer...)
- HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	T_C = 75 °C	12	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	t = 10 ms	120	A
		t = 8.3 ms	125	
		t = 2.5 ms	170	
I^2t	I^2t Value for Fusing	t = 10 ms	72	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 150 – 40 to 110	°C °C

Symbol	Parameter	TXDV				Unit
		212	412	612	812	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	800	V

(1) I_G = 1 A dI_G/dt = 1 A/µs
(2) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-a)}$	Junction to Ambient	60	°C/W
$R_{th\ (j-c)}$ DC	Junction to Case for DC	2.5	°C/W
$R_{th\ (j-c)}$ AC	Junction to Case for 360° Conduction Angle (F = 50 Hz)	1.85	°C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 40 W (t_p = 10 µs) I_{GM} = 4 A (t_p = 10 µs)

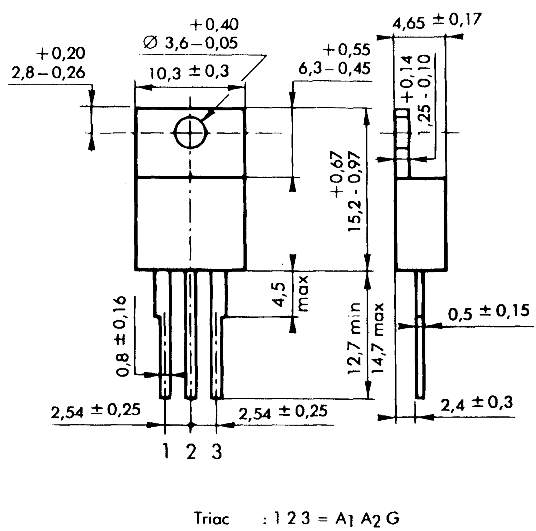
$P_{G(AV)}$ = 1 W V_{GM} = 16 V (t_p = 10 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			100	mA
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	I-II-III			1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ	I-II-III	0.2			V
I_H*	T_j = 25 °C I_T = 500 mA Gate Open				100	mA
I_L	T_j = 25 °C V_D = 12 V I_G = 200 mA Pulse Duration > 20 µs	I-III		100		mA
		II		200		
V_{TM}*	T_j = 25 °C I_{TM} = 17 A t_p = 10 ms				1.95	V
I_{DRM}*	T_j = 110 °C V_{DRM} Specified				2	mA
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}		500			V/µs
$(di/dt)_c$*	T_C = 75 °C V_D = V_{DRM} I_T = 17 A $(dv/dt)_c$ = 200 V/µs		10			A/ms
	$(dv/dt)_c$ = 10 V/µs		42.5			
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 17 A I_G = 0.5 A di_G/dt = 3.5 A/µs	I-II-III		2.5		µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g

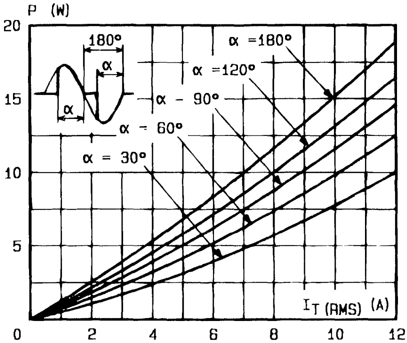


Fig.1 - Maximum mean power dissipation versus RMS on-state current

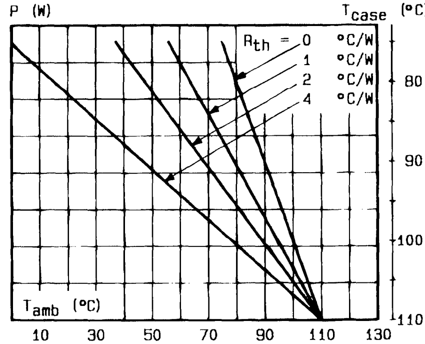


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

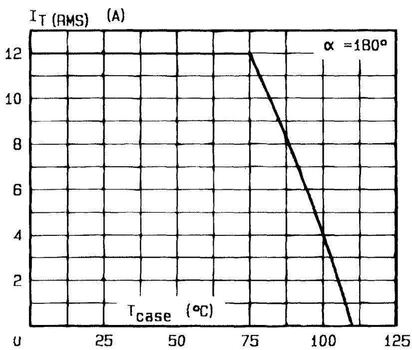


Fig.3 - RMS on-state current versus case temperature.

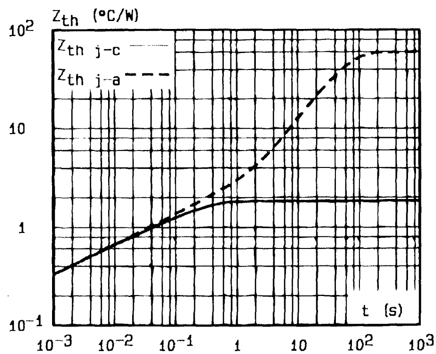


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

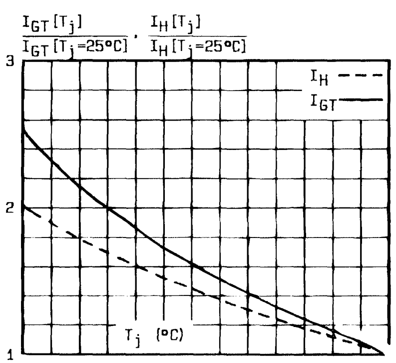


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

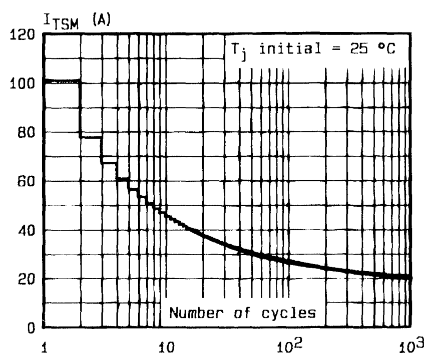


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

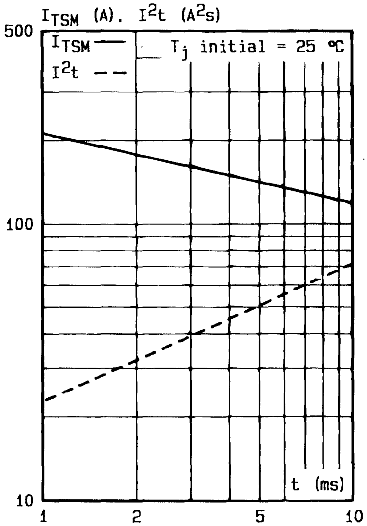


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

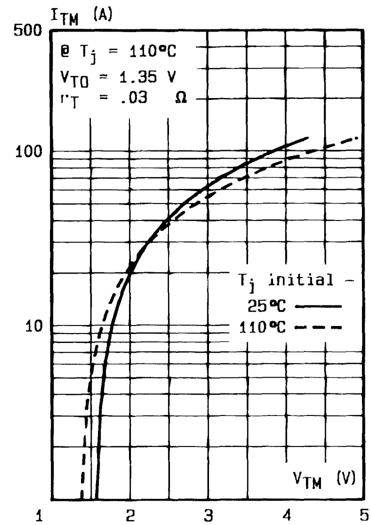


Fig.8 - On-state characteristics (maximum values).

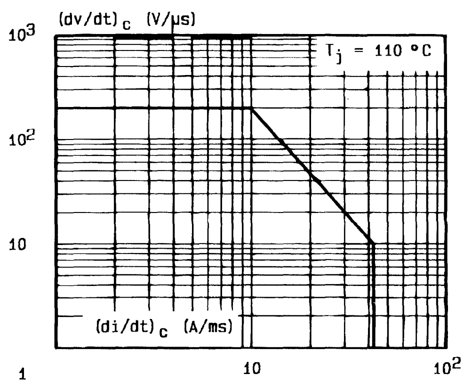


Fig.9 - Safe operating area.

SGS-THOMSON MICROELECTRONICS

NOTES

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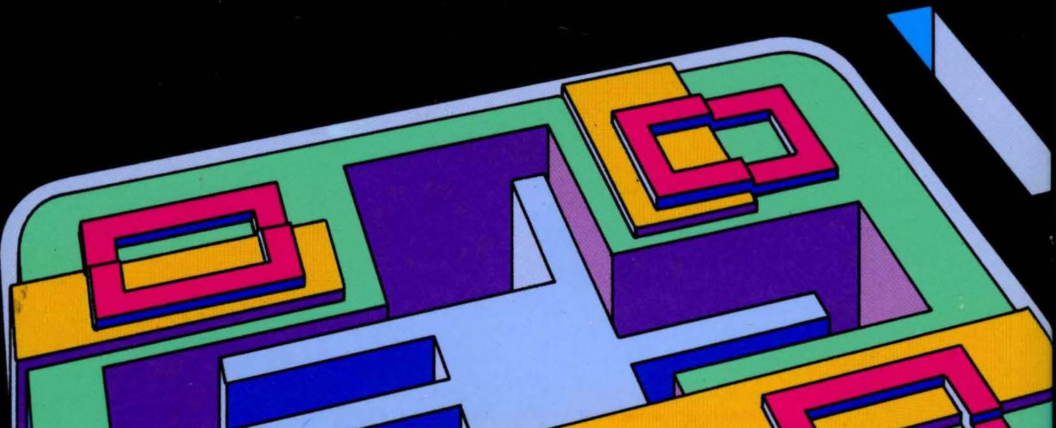

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