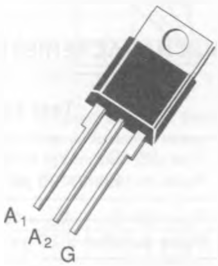
SGS-THOMSON
MICROELECTRONICS

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
$R_{th\ (j-a)}$	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		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.

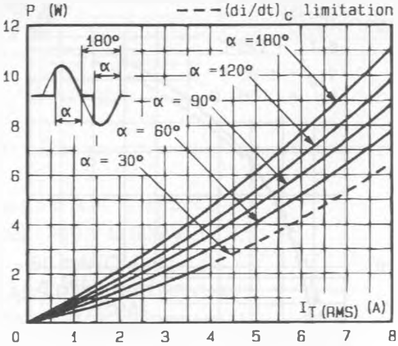


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

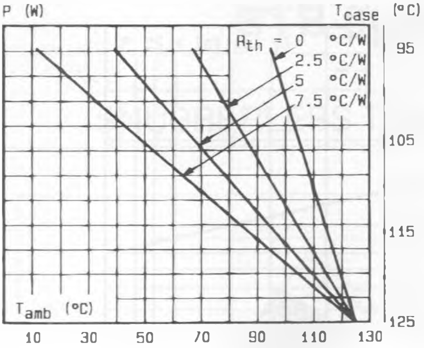


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

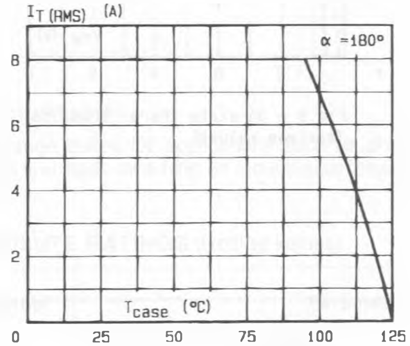


Fig.3 - RMS on-state current versus case temperature.

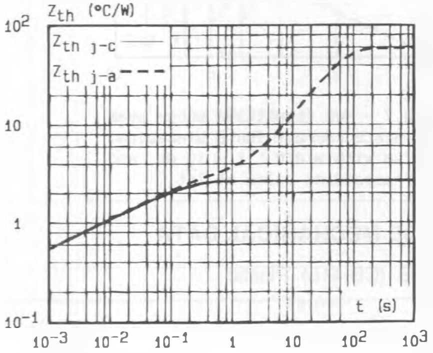


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

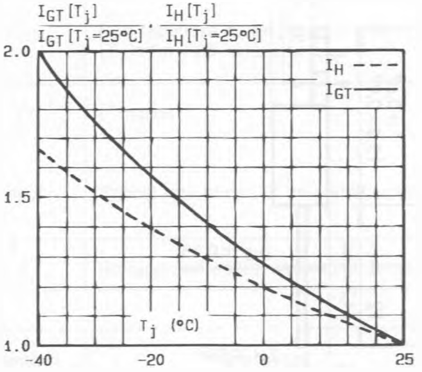


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

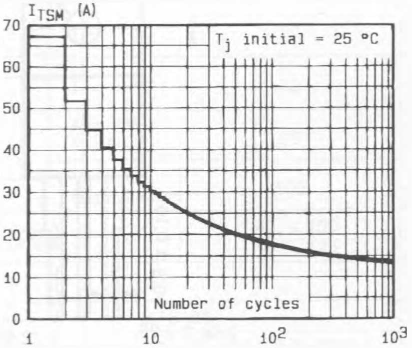


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

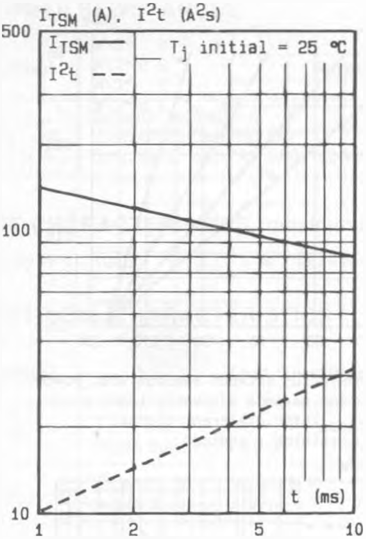


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10 ms, and corresponding value of I^2t.

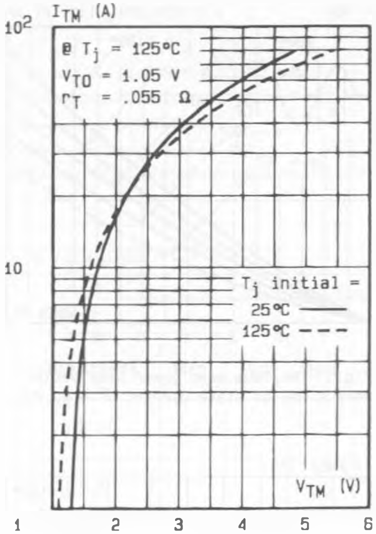
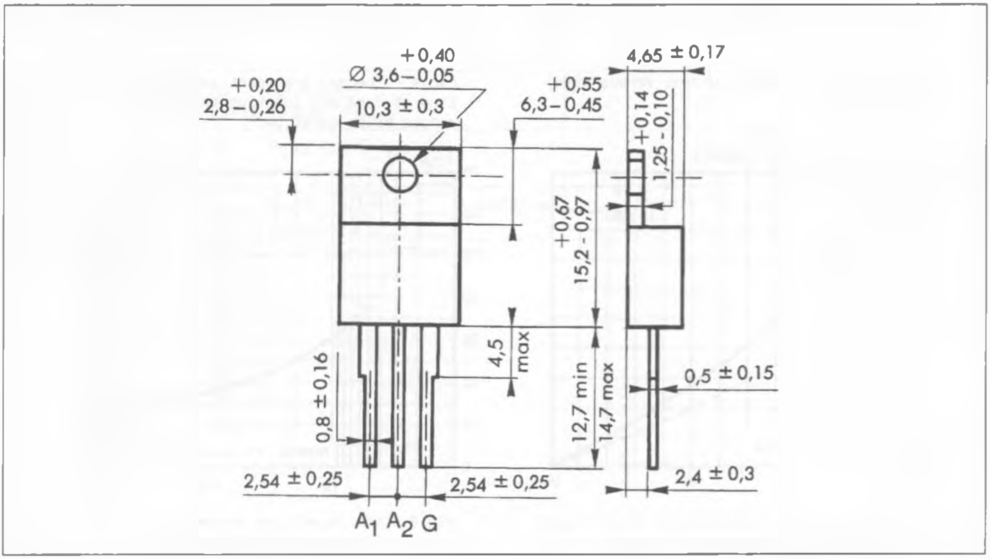


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



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