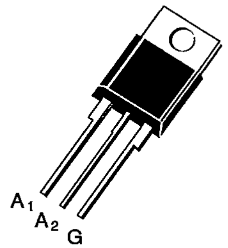
SGS-THOMSON MICROELECTRONICS

BTA/BTB 06 D

S G S-THOMSON

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)

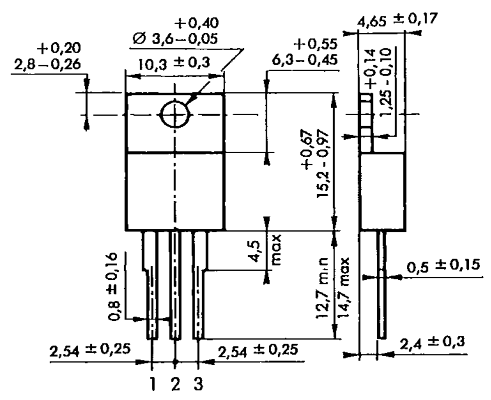
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω	I-II-III			5	mA
				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-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 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			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 = 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.

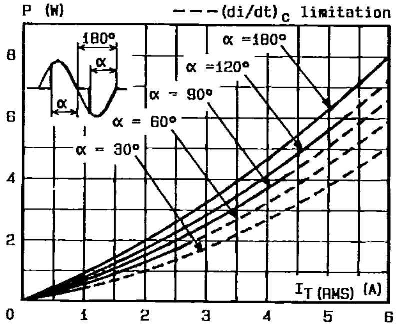


Fig.1 – Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

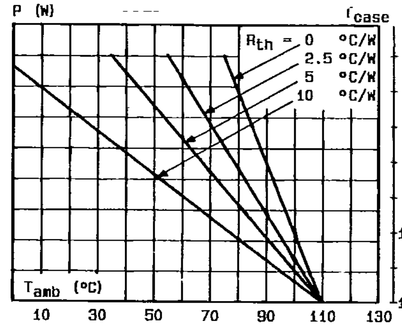


Fig.2 – Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

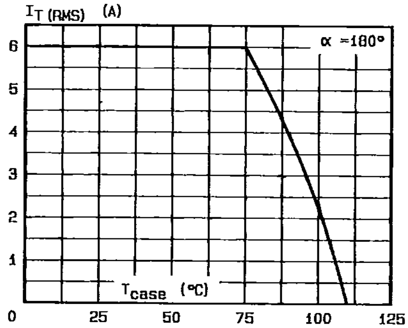


Fig.3 – RMS on-state current versus case temperature.

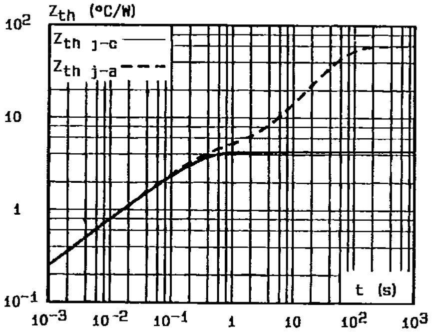


Fig.4 – Thermal transient impedance junction to case and junction to ambient versus pulse duration.

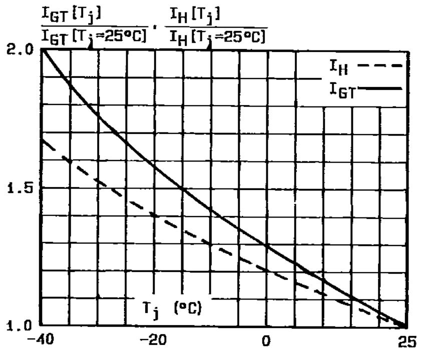


Fig.5 – Relative variation of gate trigger current and holding current versus junction temperature.

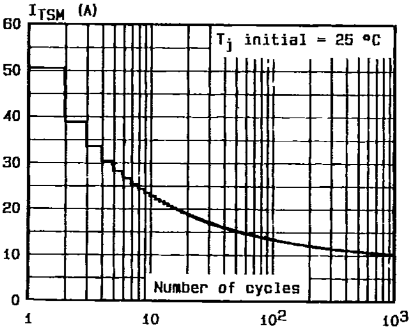


Fig.6 – Non repetitive surge peak on-state current versus number of cycles.

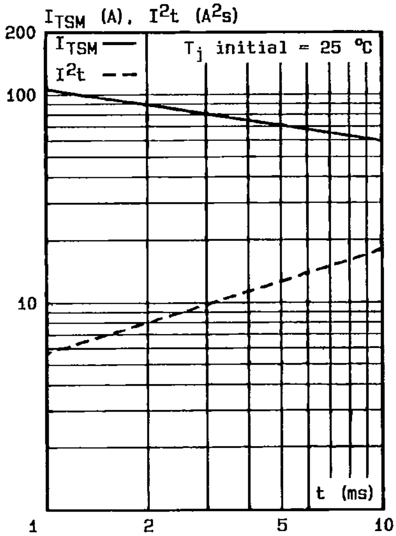


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

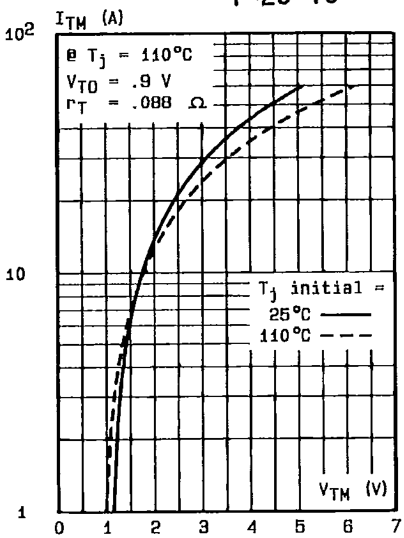


Fig.8 - On-state characteristics (maximum values).