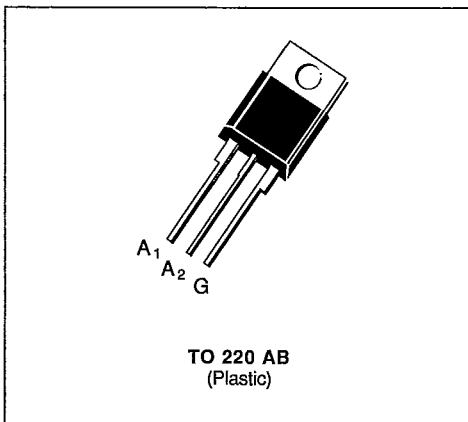



SGS-THOMSON
MICROELECTRONICS

S G S-THOMSON

BTB 15 B**TRIACS**

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS

**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)	$T_C = 90\text{ °C}$	15	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_J initial = 25 °C - Half sine wave)	$t = 8.3\text{ ms}$	157	A
		$t = 10\text{ ms}$	150	
I^2t	I^2t Value for Fusing	$t = 10\text{ ms}$	112.5	A ² s
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) $I_G = 750\text{ mA}$ $di/dt = 1\text{ A/μs}$ (2) $T_J = 125\text{ °C}$.**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th (J-a)}$	Junction to Ambient	60	°C/W
$R_{th (J-c)}\text{ DC}$	Junction to Case for DC	2.66	°C/W
$R_{th (J-c)}\text{ AC}$	Junction to Case for 360° Conduction Angle (F = 50 Hz)	2	°C/W

GATE CHARACTERISTICS (maximum values)

$$P_{GM} = 40 \text{ W } (t_p = 10 \mu s)$$
$$I_{GM} = 4 \text{ A } (t_p = 10 \mu s)$$
$$P_{G(AV)} = 1 \text{ W}$$
$$V_{GM} = 16 \text{ V } (t_p = 10 \mu s)$$

T-25-15

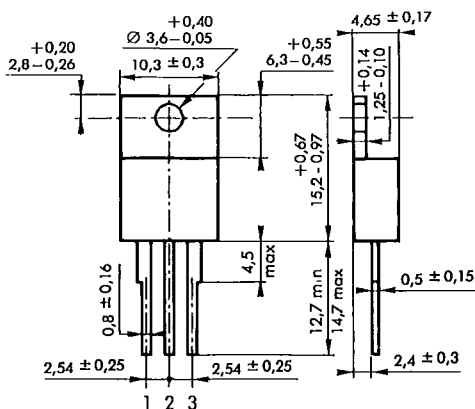
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_J = 25\text{ }^{\circ}\text{C}$ Pulse Duration > 20 μs	$V_D = 12\text{ V}$	$R_L = 33\text{ }\Omega$	I-II-III			50	mA
				IV			75	
V_{GT}	$T_J = 25\text{ }^{\circ}\text{C}$ Pulse Duration > 20 μs	$V_D = 12\text{ V}$	$R_L = 33\text{ }\Omega$	I-II-III-IV			1.5	V
V_{GD}	$T_J = 125\text{ }^{\circ}\text{C}$	$V_D = V_{DRM}$	$R_L = 3.3\text{ k}\Omega$	I-II-III-IV	0.2			V
I_H^*	$T_J = 25\text{ }^{\circ}\text{C}$	$I_T = 100\text{ mA}$	Gate Open				50	mA
I_L	$T_J = 25\text{ }^{\circ}\text{C}$ Pulse Duration > 20 μs	$V_D = 12\text{ V}$	$I_G = 150\text{ mA}$	I-III-IV		50		mA
				II		100		
V_{TM}^*	$T_J = 25\text{ }^{\circ}\text{C}$	$I_{TM} = 21\text{ A}$	$t_p = 10\text{ ms}$				1.5	V
I_{DRM}^*	V_{DRM} Specified		$T_J = 25\text{ }^{\circ}\text{C}$				0.01	mA
			$T_J = 125\text{ }^{\circ}\text{C}$				2	
dv/dt^*	$T_J = 125\text{ }^{\circ}\text{C}$ Linear Slope up to $V_D = 67\text{ }\% V_{DRM}$	Gate Open			250	500		V/ μs
$(dv/dt)_c^*$	$T_C = 90\text{ }^{\circ}\text{C}$ $(di/dt)_c = 6.7\text{ A/ms}$	$V_D = V_{DRM}$	$I_T = 21\text{ A}$		10			V/ μs
t_{gt}	$T_J = 25\text{ }^{\circ}\text{C}$ $I_G = 500\text{ mA}$	$V_D = V_{DRM}$ $di_G/dt = 3.5\text{ A}/\mu\text{s}$	$I_T = 21\text{ A}$	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.

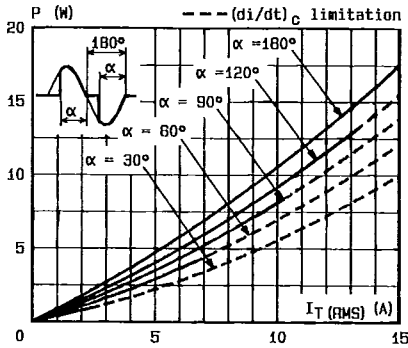


Fig.1 - Maximum mean power dissipation versus RMS on-state current ($F = 60$ Hz).

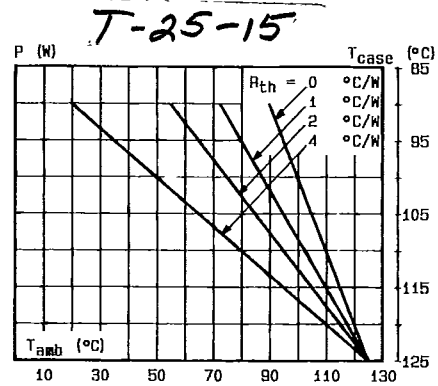


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

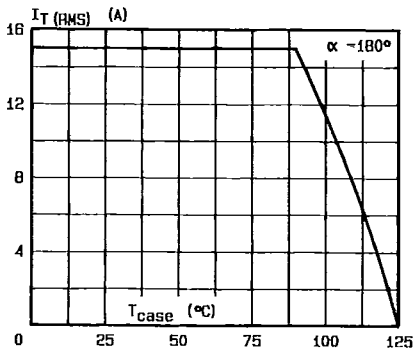


Fig.3 - RMS on-state current versus case temperature.

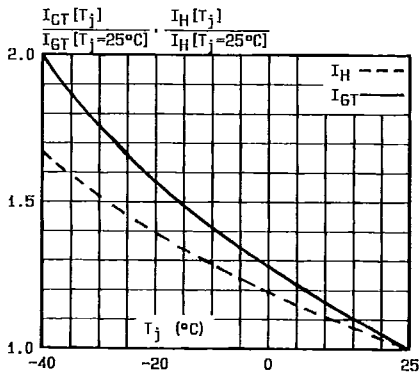


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

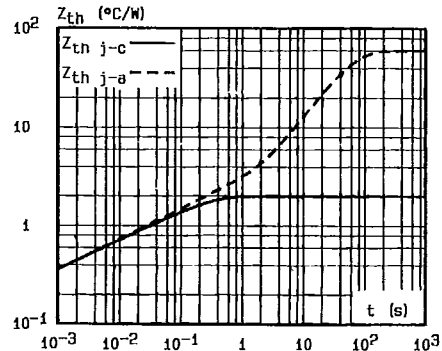


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

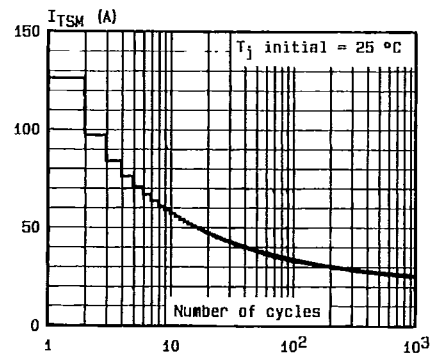


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

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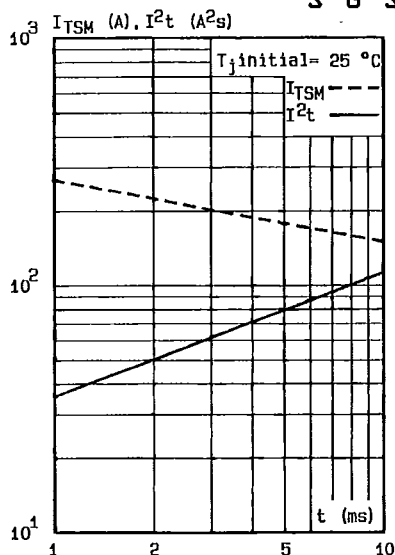


Fig. 7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t \leq 10\text{ms}$, and corresponding value of I^2t .

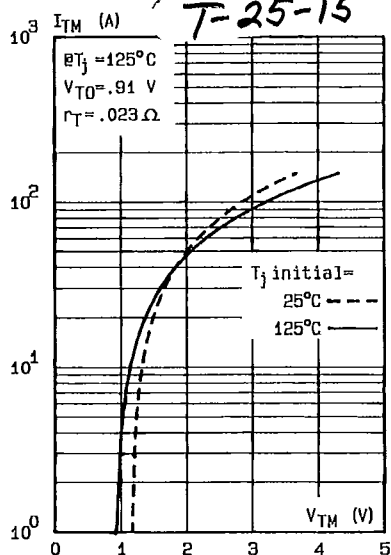


Fig. 8 - On-state characteristic (maximum values).

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