![SGS-THOMSON MICROELECTRONICS logo] **SGS-THOMSON** S G S-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) *T-25-15*

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			75	
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}	$T_j = 125$ °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			I-III-IV		50		mA
	Pulse Duration > 20 μs			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 A2 voltage with reference to electrode A1.

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.

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T-25-15
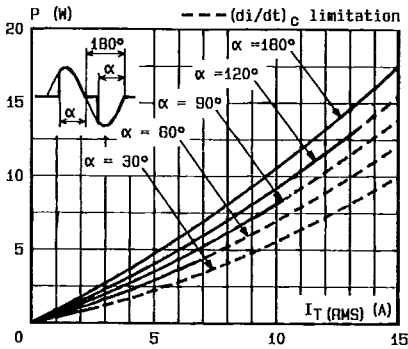

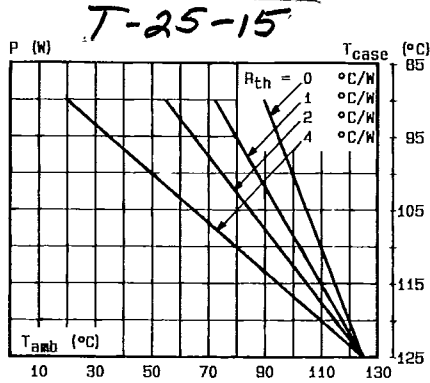Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

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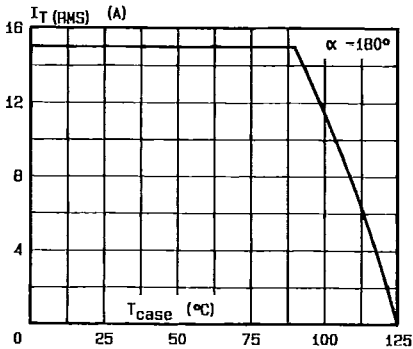

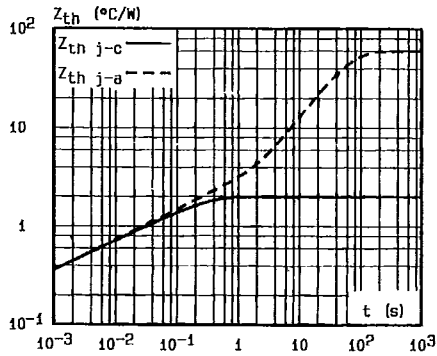Fig.3 - RMS on-state current versus case temperature.

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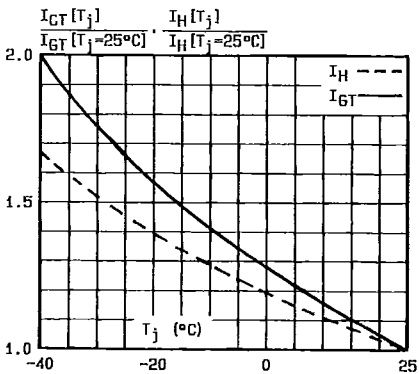

Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.
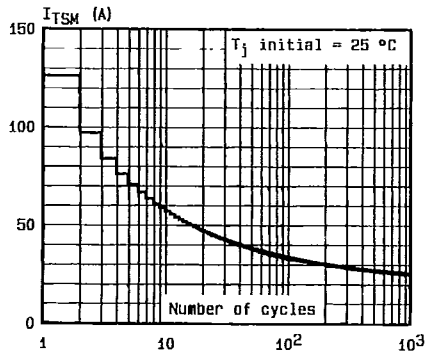

Fig.6 - Non repetitive surge peak on-state current versus number of cycles.
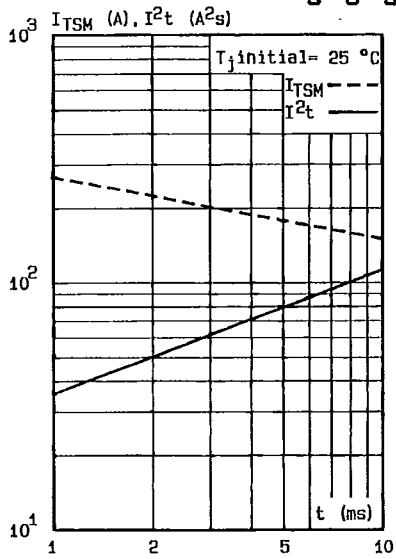
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T-25-15

I_{TSM} (A), I^2t (A²s)

T_j initial= 25 °C

I_{TSM} – – –

I^2t ——

t (ms)

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

I_{TM} (A)

θT_j =125°C

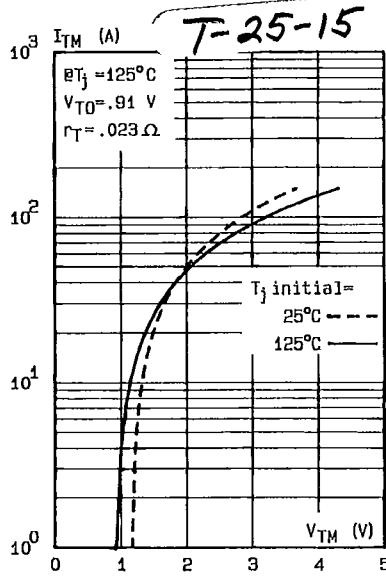V_{TO}=.91 V

r_T = .023 Ω

T_j initial=
25°C – – –
125°C ——

V_{TM} (V)

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