

**S G S-THOMSON****TRIACS**

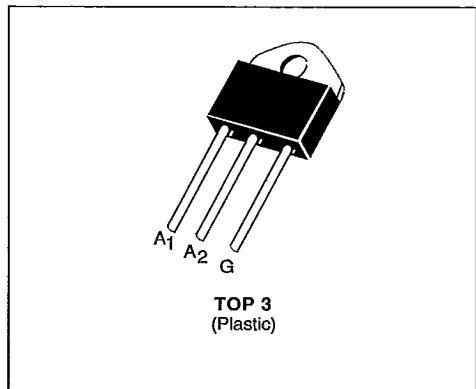
- GLASS PASSIVATED CHIP
- I<sub>G</sub>T SPECIFIED IN FOUR QUADRANTS

**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 <sub>T(RMS)</sub>	RMS on-state Current (360° conduction angle)	45	A
I <sub>TSM</sub>	Non Repetitive Surge Peak on-state Current (T <sub>J</sub> initial = 25 °C - Half sine wave)	t = 8.3 ms	A
		t = 10 ms	A
I <sup>2</sup> t	I <sup>2</sup> t Value for Fusing	450	A <sup>2</sup> s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	A/μs
		Non Repetitive	
T <sub>stg</sub> T <sub>J</sub>	Storage and Operating Junction Temperature Range	10	
		-40 to 125	°C
		-40 to 125	°C

Symbol	Parameter	BTB 41-					Unit
		200A	400A	600A	700A	800A	
V <sub>DRM</sub>	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I<sub>G</sub> = 1.5 A di/dt = 1 A/μs(2) T<sub>J</sub> = 125 °C.**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
R <sub>th</sub> (j-a)	Junction to Ambient	50	°C/W
R <sub>th</sub> (c-h)	Contact (case-heatsink) with Grease	0.2	°C/W
R <sub>th</sub> (j-c) DC	Junction to Case for DC	0.95	°C/W
R <sub>th</sub> (j-c) AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	0.7	°C/W

## GATE CHARACTERISTICS (maximum values)

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

T-25-17

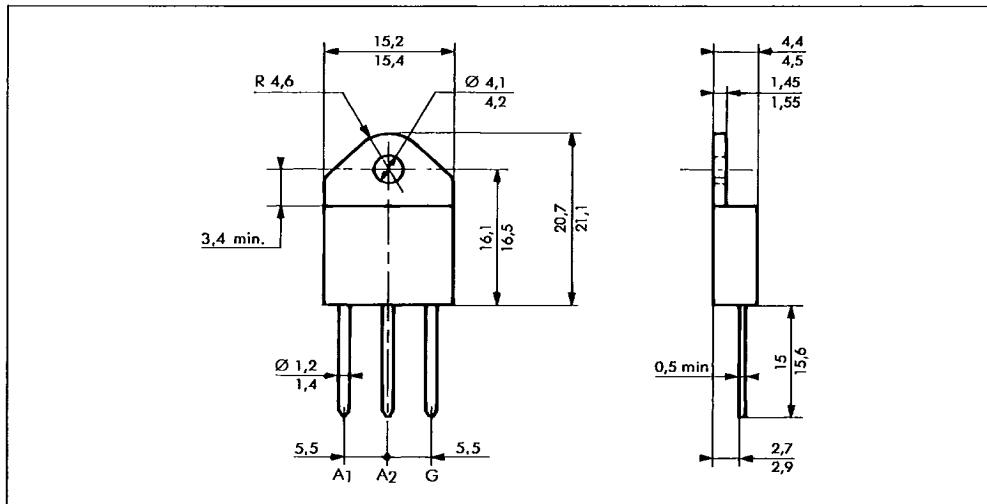
## ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
$I_{GT}$	$T_j = 25^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \Omega$ Pulse Duration > 20 $\mu\text{s}$	I-II-III	1		100	mA
		IV	1		150	
$V_{GT}$	$T_j = 25^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \Omega$ Pulse Duration > 20 $\mu\text{s}$	I-II-III-IV			1.5	V
$V_{GD}$	$T_j = 125^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	I-II-III-IV	0.2			V
$I_H^*$	$T_j = 25^\circ\text{C}$ $I_T = 500 \text{ mA}$ Gate Open			30	100	mA
$I_L$	$T_j = 25^\circ\text{C}$ $V_D = 12 \text{ V}$ $I_G = 300 \text{ mA}$ Pulse Duration > 20 $\mu\text{s}$	I-II-III-IV			150	mA
$V_{TM}^*$	$T_j = 25^\circ\text{C}$ $I_{TM} = 60 \text{ A}$ $t_p = 10 \text{ ms}$				1.8	V
$I_{DRM}^*$	$T_j = 125^\circ\text{C}$ $V_{DRM}$ Specified			1.5	6	mA
$dv/dt^*$	$T_j = 125^\circ\text{C}$ Gate Open Linear Slope up to $V_D = 67\% V_{DRM}$		250			V/ $\mu\text{s}$
$(dv/dt)_c^*$	$T_c = 75^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 60 \text{ A}$ $(di/dt)_c = 20 \text{ A/ms}$		10			V/ $\mu\text{s}$
$t_{gt}$	$T_j = 25^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 60 \text{ A}$ $I_G = 1 \text{ A}$ $di_G/dt = 10 \text{ A}/\mu\text{s}$	I-II-III-IV		2.5		$\mu\text{s}$

\* For either polarity of electrode A<sub>2</sub> voltage with reference to electrode A<sub>1</sub>.

## PACKAGE MECHANICAL DATA

TOP 3 Plastic



Cooling method : by conduction (method C)

Marking : type number

Weight : 5 g

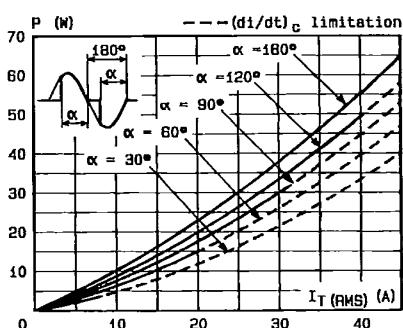


Fig.1 - Maximum mean power dissipation versus RMS on-state current ( $f = 60$  Hz).

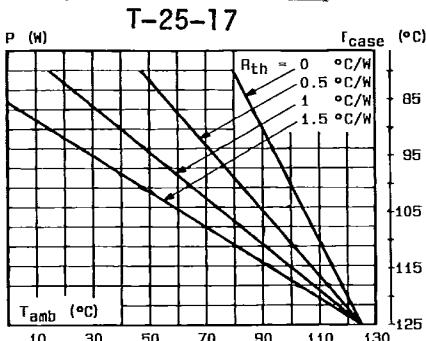


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.

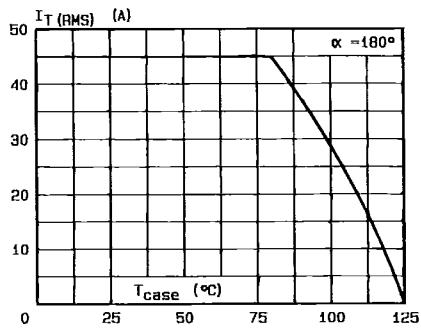


Fig.3 - RMS on-state current versus case temperature.

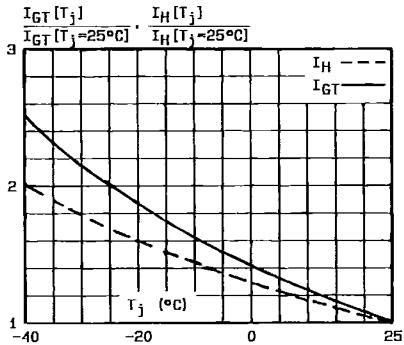


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

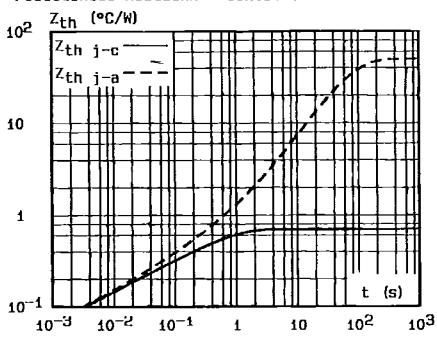


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

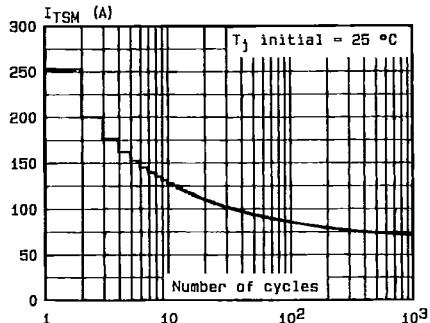


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

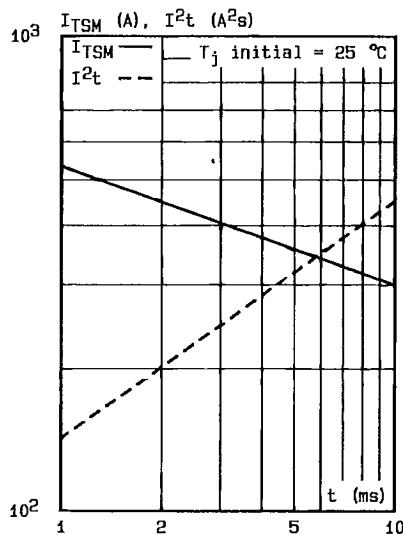


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

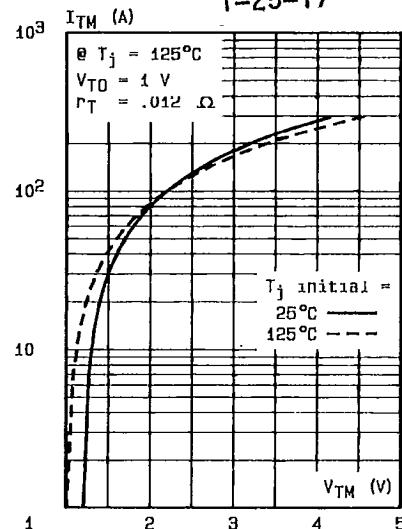


Fig.8 - On-state characteristics (maximum values).