

30E D ■ 7929237 0031640 0 ■ T.2S-15

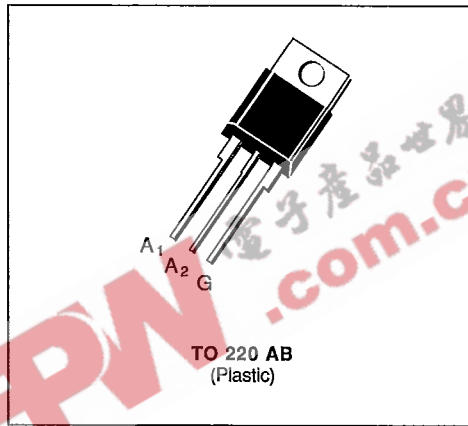


## BTA/BTB 08 A

SGS-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)



#### 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) $T_C = 75\text{ °C}$	8	A
$I_{TSM}$	Non Repetitive Surge Peak on-state Current ( $T_J$ initial = 25 °C - Half sine wave)	$t = 8.3\text{ ms}$	84
		$t = 10\text{ ms}$	80
$I^2t$	$I^2t$ Value for Fusing	$t = 10\text{ ms}$	$A^2s$
$di/dt$	Critical Rate of Rise of on-state Current (1)	Repetitive $F = 50\text{ Hz}$	10
		Non Repetitive	50
$T_{stg}$ $T_J$	Storage and Operating Junction Temperature Range	- 40 to 150	°C
		- 40 to 110	°C

Symbol	Parameter	BTA/BTB 08-					Unit
		200A	400A	600A	700A	800A	
$V_{DRM}$	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1)  $I_G = 250\text{ mA}$   $di/dt = 1\text{ A}/\mu\text{s}$   
 (2)  $T_J = 110\text{ °C}$ .

#### 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	5.1	°C/W
$R_{th(j-c)}\text{ AC}$	Junction to Case for 360 ° Conduction Angle ( $F = 50\text{ Hz}$ )	3.8	°C/W

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**GATE CHARACTERISTICS** (maximum values)

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

T-25-15

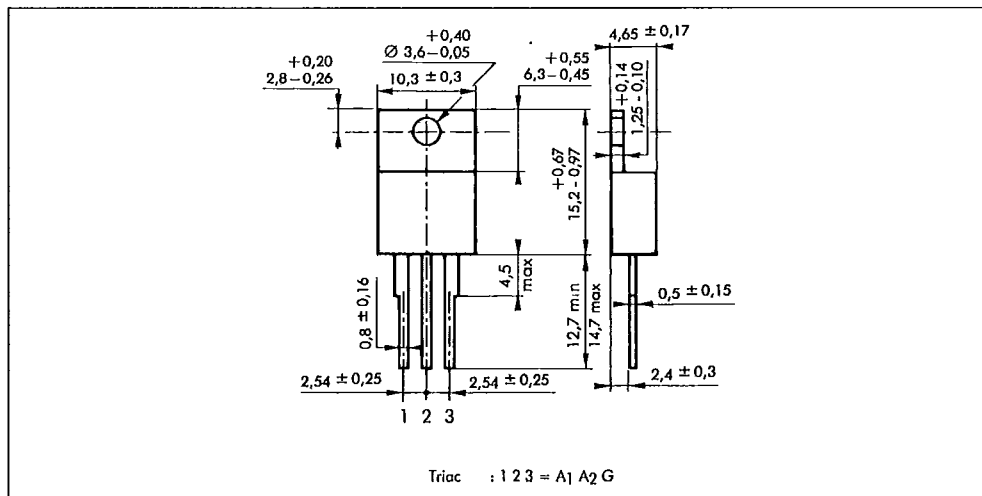
**ELECTRICAL CHARACTERISTICS**

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
$I_{GT}$	$T_J = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ } \Omega$ Pulse Duration > 20 $\mu\text{s}$	I-II-III			10	mA
		IV			25	
$V_{GT}$	$T_J = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ } \Omega$ Pulse Duration > 20 $\mu\text{s}$	I-II-III-IV			1.5	V
$V_{GD}$	$T_J = 110 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	I-II-III-IV	0.2			V
$I_H^*$	$T_J = 25 \text{ }^\circ\text{C}$ $I_T = 100 \text{ mA}$ Gate Open				25	mA
$I_L$	$T_J = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $I_G = 50 \text{ mA}$ Pulse Duration > 20 $\mu\text{s}$	I-III-IV		25		mA
		II		50		
$V_{TM}^*$	$T_J = 25 \text{ }^\circ\text{C}$ $I_{TM} = 11 \text{ A}$ $t_p = 10 \text{ ms}$				1.75	V
$I_{DRM}^*$	$V_{DRM}$ Specified	$T_J = 25 \text{ }^\circ\text{C}$			0.01	mA
		$T_J = 110 \text{ }^\circ\text{C}$			0.5	
$dv/dt^*$	$T_J = 110 \text{ }^\circ\text{C}$ Gate Open Linear Slope up to $V_D = 67\% V_{DRM}$		10			V/ $\mu\text{s}$
$(dv/dt)_c^*$	$T_C = 75 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 11 \text{ A}$ $(di/dt)_c = 3.5 \text{ A/ms}$			5		V/ $\mu\text{s}$
$t_{gt}$	$T_J = 25 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 11 \text{ A}$ $I_G = 40 \text{ mA}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$	I-II-III-IV		2		$\mu\text{s}$

\* 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

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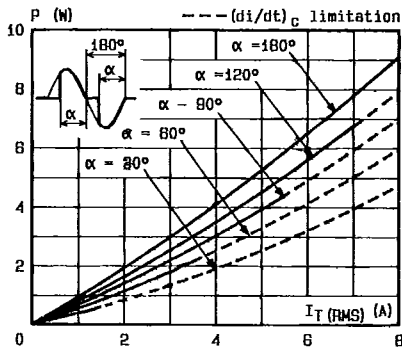


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

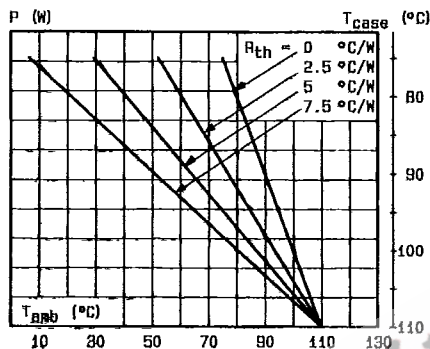


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T<sub>amb</sub> and T<sub>case</sub>) for different thermal resistances (heat sink + contact).

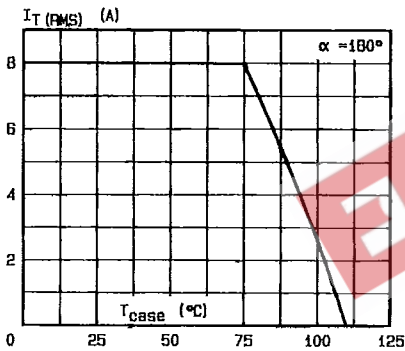


Fig.3 - RMS on-state current versus case temperature.

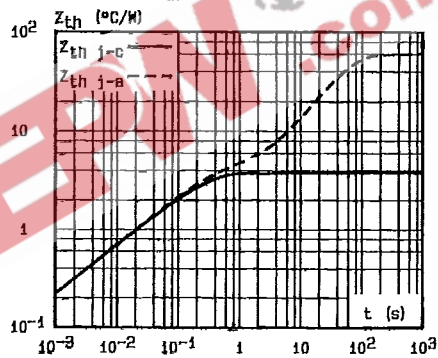


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

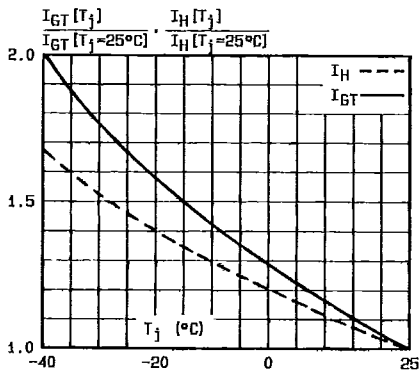


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

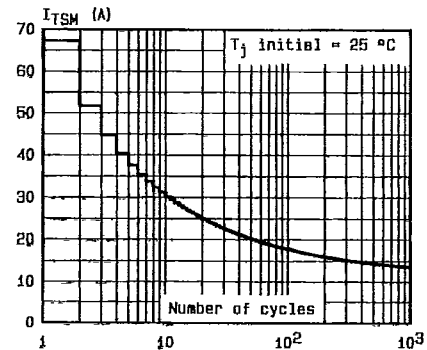


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

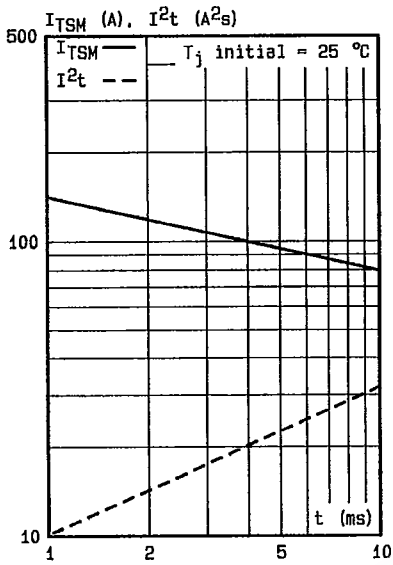


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

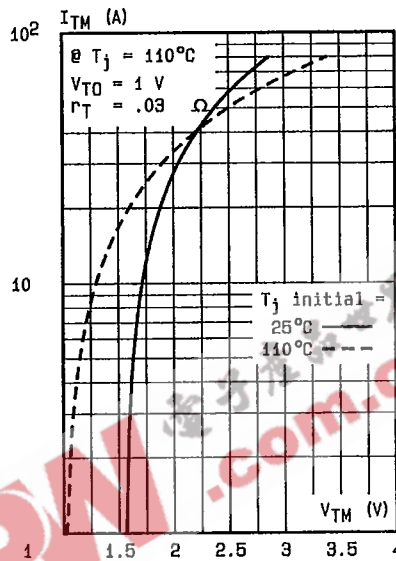


Fig.8 - On-state characteristics (maximum values).