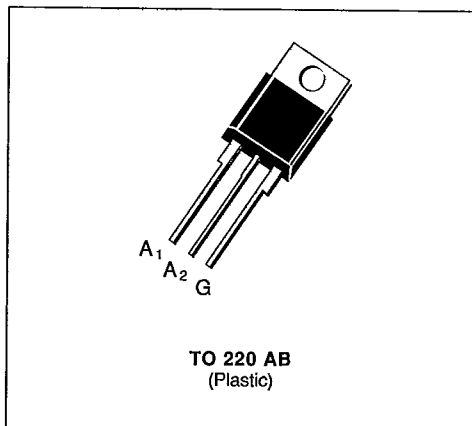


- GLASS PASSIVATED CHIP
- EXCELLENT  $(dv/dt)_c > 10 \text{ V}/\mu\text{s}$
- $I_{GT}$  SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500  $V_{RMS}$ ) OR IN UNINSULATED VERSION → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



## 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)	$T_C = 75^\circ\text{C}$	8	A
$I_{TSM}$	Non Repetitive Surge Peak on-state Current ( $T_J$ initial = $25^\circ\text{C}$ - Half sine wave)	$t = 8.3 \text{ ms}$	84	A
		$t = 10 \text{ ms}$	80	
$I^2t$	$I^2t$ Value for Fusing	$t = 10 \text{ ms}$	32	$\text{A}^2\text{s}$
$di/dt$	Critical Rate of Rise of on-state Current (1)	Repetitive $F = 50 \text{ Hz}$	10	$\text{A}/\mu\text{s}$
		Non Repetitive	50	
$T_{stg}$	Storage and Operating Junction Temperature Range		- 40 to 150	$^\circ\text{C}$
$T_J$			- 40 to 110	$^\circ\text{C}$

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

(1)  $I_G = 1 \text{ A}$   $di/dt = 1 \text{ A}/\mu\text{s}$

(2)  $T_J = 110^\circ\text{C}$ .

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to Ambient	60	$^\circ\text{C}/\text{W}$
$R_{th(j-c)} \text{ DC}$	Junction to Case for DC	4.3	$^\circ\text{C}/\text{W}$
$R_{th(j-c)} \text{ AC}$	Junction to Case for 360° Conduction Angle ( $F = 50 \text{ Hz}$ )	3.2	$^\circ\text{C}/\text{W}$

### 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

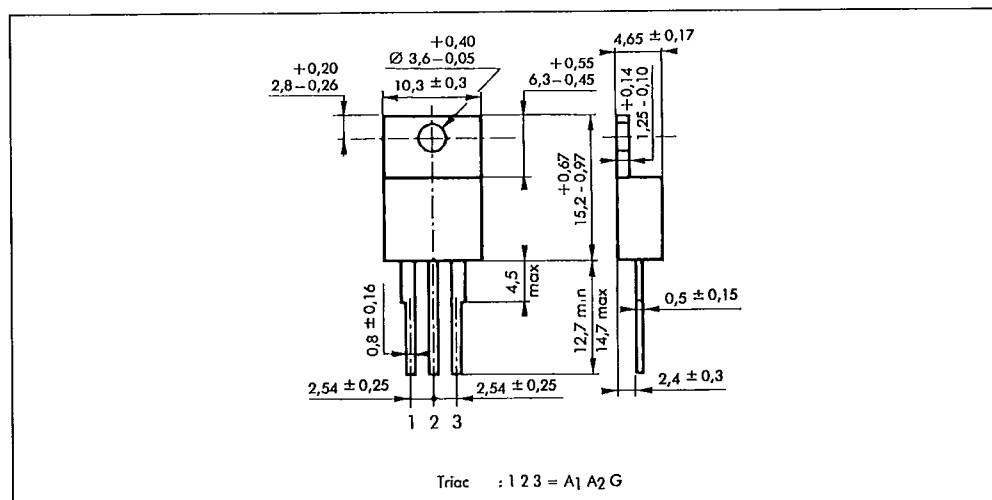
## ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
$I_{GT}$	$T_J = 25^\circ\text{C}$ Pulse Duration > 20 $\mu\text{s}$	$V_D = 12\text{ V}$	$R_L = 33\ \Omega$	I-II-III			50	mA
				IV			100	
$V_{GT}$	$T_J = 25^\circ\text{C}$ Pulse Duration > 20 $\mu\text{s}$	$V_D = 12\text{ V}$	$R_L = 33\ \Omega$	I-II-III-IV			1.5	V
$V_{GD}$	$T_J = 110^\circ\text{C}$	$V_D = V_{DRM}$	$R_L = 3.3\text{ k}\Omega$	I-II-III-IV	0.2			V
$I_{H^*}$	$T_J = 25^\circ\text{C}$	$I_T = 100\text{ mA}$	Gate Open				50	mA
$I_L$	$T_J = 25^\circ\text{C}$ Pulse Duration > 20 $\mu\text{s}$	$V_D = 12\text{ V}$	$I_G = 200\text{ mA}$	I-III-IV		50		
				II		100		
$V_{TM^*}$	$T_J = 25^\circ\text{C}$	$I_{TM} = 11\text{ A}$	$t_p = 10\text{ ms}$				1.75	V
$I_{DRM^*}$	$V_{DRM}$ Specified		$T_J = 25^\circ\text{C}$				0.01	mA
			$T_J = 110^\circ\text{C}$				0.5	
$dv/dt^*$	$T_J = 110^\circ\text{C}$	Gate Open Linear Slope up to $V_D = 67\% V_{DRM}$			250	500		V/ $\mu\text{s}$
$(dv/dt)_c^*$	$T_C = 75^\circ\text{C}$ $(di/dt)_c = 3.5\text{ A/ms}$	$V_D = V_{DRM}$	$I_T = 11\text{ A}$		10			V/ $\mu\text{s}$
$t_{gt}$	$T_J = 25^\circ\text{C}$ $I_G = 80\text{ mA}$	$V_D = V_{DRM}$ $di_G/dt = 1\text{ A}/\mu\text{s}$	$I_T = 11\text{ A}$	I-II-III-IV		2		$\mu\text{s}$

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

## PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)

Marking : type number

Weight : 2 g.

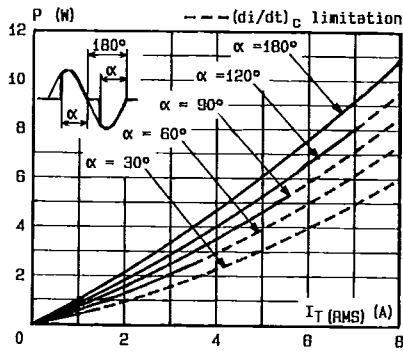


Fig.1 - Maximum mean power dissipation versus RMS on-state current ( $F = 60$  Hz).

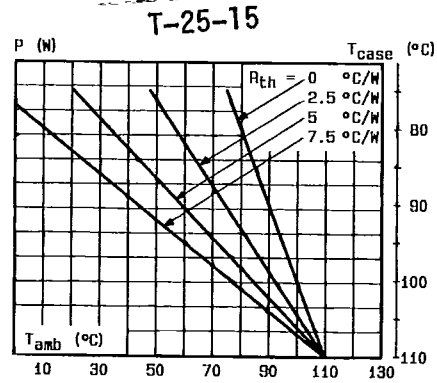


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.

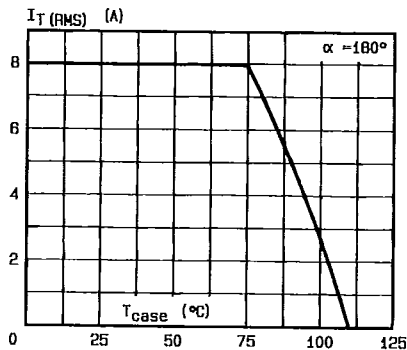


Fig.3 - RMS on-state current versus case temperature.

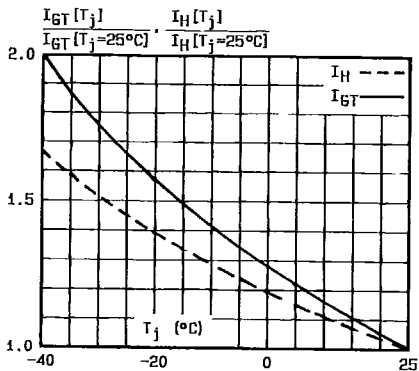


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

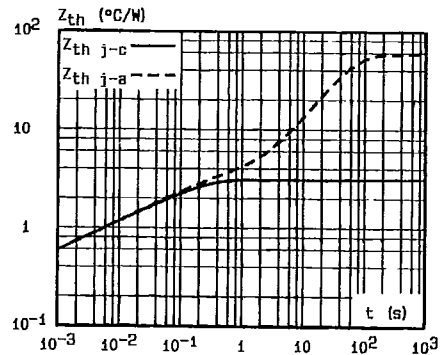


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

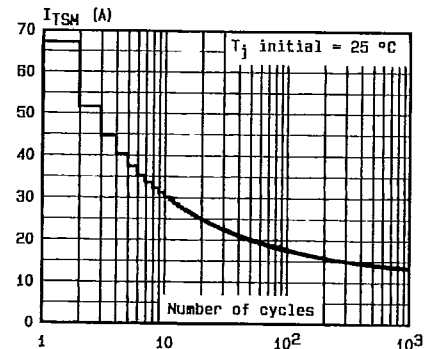


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

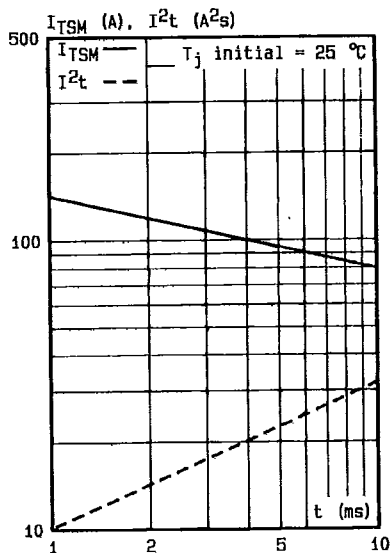


Fig. 7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

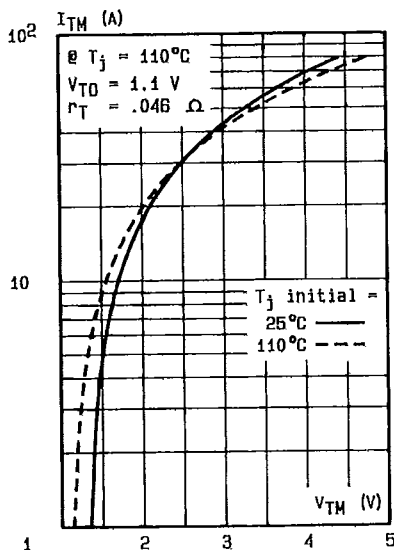


Fig. 8 - On-state characteristics (maximum values).