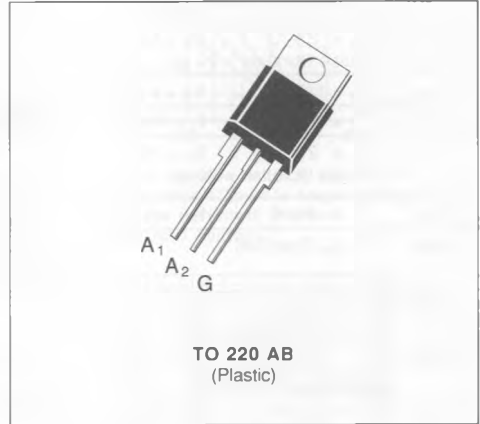


**SENSITIVE GATE TRIACS**

- GLASS PASSIVATED CHIP
- $I_{GT}$  SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE 2500 V<sub>RMS</sub>) 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)	$T_C = 75\text{ }^\circ\text{C}$ 4	A
$I_{TSM}$	Non Repetitive Surge Peak on-state Current ( $T_j$ initial = 25 °C - Half sine wave)	$t = 8.3\text{ ms}$	52
		$t = 10\text{ ms}$	50
$I^2t$	$I^2t$ Value for Fusing	$t = 10\text{ ms}$ 12.5	A <sup>2</sup> s
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 04-					Unit
		200T	400T	600T	700T	800T	
$V_{DRM}$	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1)  $I_G = 50\text{ mA}$      $di/dt = 1\text{ A}/\mu\text{s}$

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

**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	8.7	°C/W
$R_{th(j-c)}\text{ AC}$	Junction to Case for 360 ° Conduction Angle ( $F = 50\text{ Hz}$ )	6.5	°C/W

**GATE CHARACTERISTICS** (maximum values)

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

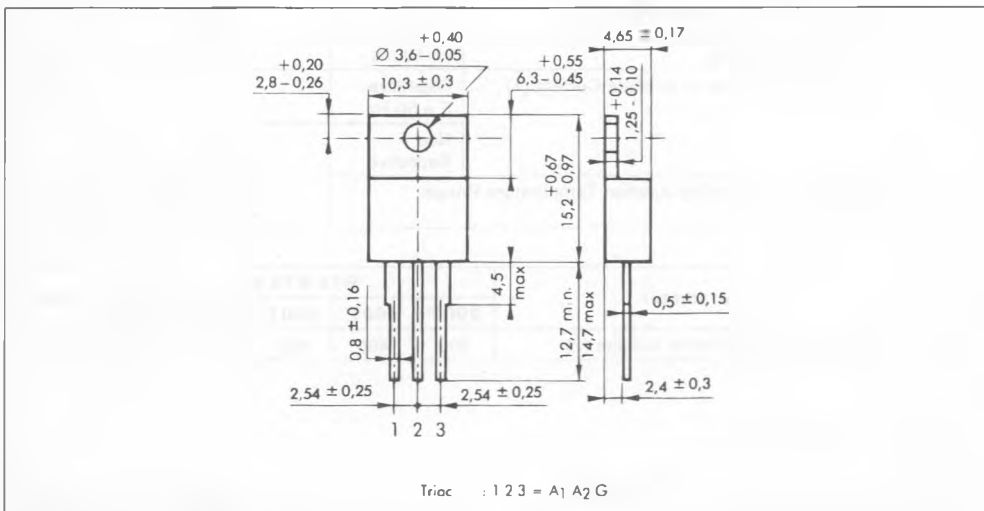
**ELECTRICAL CHARACTERISTICS**

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
$I_{GT}$	$T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 $\mu\text{s}$	$V_D = 12 \text{ V}$	$R_L = 33 \text{ } \Omega$	I-II-III-IV			5	mA
$V_{GT}$	$T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 $\mu\text{s}$	$V_D = 12 \text{ V}$	$R_L = 33 \text{ } \Omega$	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				15	mA
$I_L$	$T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 $\mu\text{s}$	$V_D = 12 \text{ V}$	$I_G = 10 \text{ mA}$	I-III-IV		15		mA
				II		30		
$V_{TM}^*$	$T_j = 25 \text{ }^\circ\text{C}$	$I_{TM} = 5.5 \text{ A}$	$t_p = 10 \text{ ms}$				1.65	V
$I_{DRM}^*$	$V_{DRM}$ Specified	$T_j = 25 \text{ }^\circ\text{C}$					0.01	mA
		$T_j = 110 \text{ }^\circ\text{C}$					0.75	
$dv/dt^*$	$T_j = 110 \text{ }^\circ\text{C}$	Gate Open	Linear Slope up to $V_D = 67\% V_{DRM}$			10		V/ $\mu\text{s}$
$(dv/dt)_c^*$	$T_c = 75 \text{ }^\circ\text{C}$ $(di/dt)_c = 1.8 \text{ A/ms}$	$V_D = V_{DRM}$	$I_T = 5.5 \text{ A}$			1		V/ $\mu\text{s}$
$t_{gt}$	$T_j = 25 \text{ }^\circ\text{C}$ $I_G = 20 \text{ mA}$	$V_D = V_{DRM}$ $di_G/dt = 0.25 \text{ A}/\mu\text{s}$	$I_T = 5.5 \text{ A}$	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.

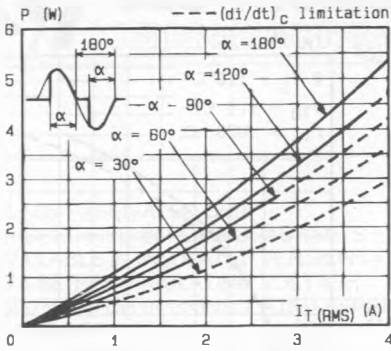


Fig. 1 - Maximum mean power dissipation versus RMS on-state current ( $F = 60$  Hz).

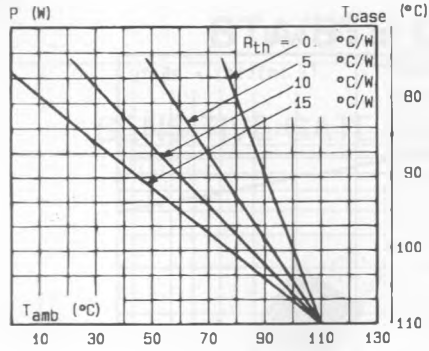


Fig. 2 - Correlation between maximum mean power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.

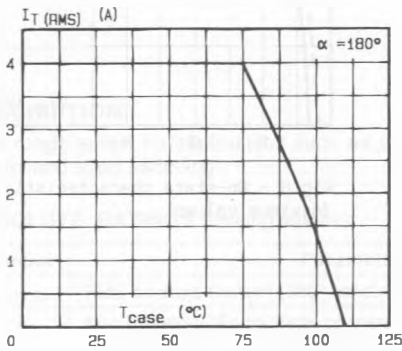


Fig. 3 - RMS on-state current versus case temperature.

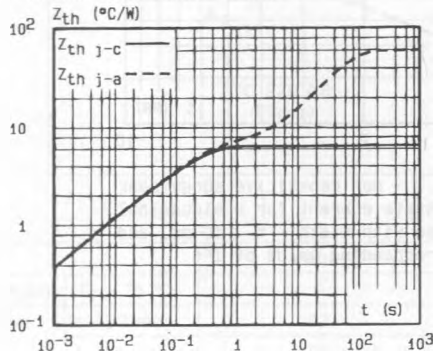


Fig. 4 - Thermal transient impedance to case and junction to ambient versus pulse duration.

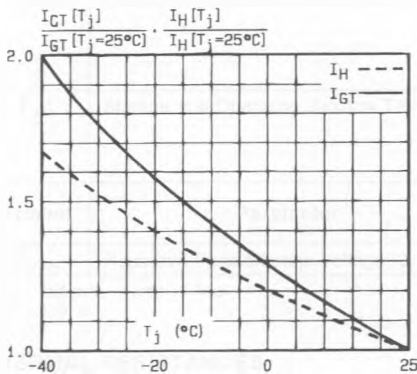


Fig. 5 - Relative variation of gate trigger current and holding current versus junction temperature.

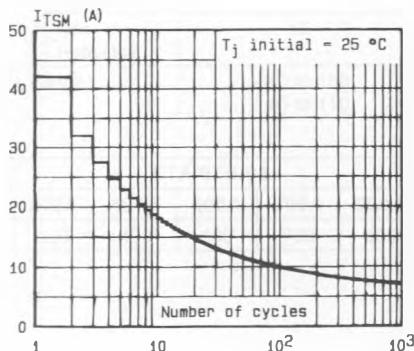


Fig. 6 - Non repetitive surge peak on-state current versus number of cycles.

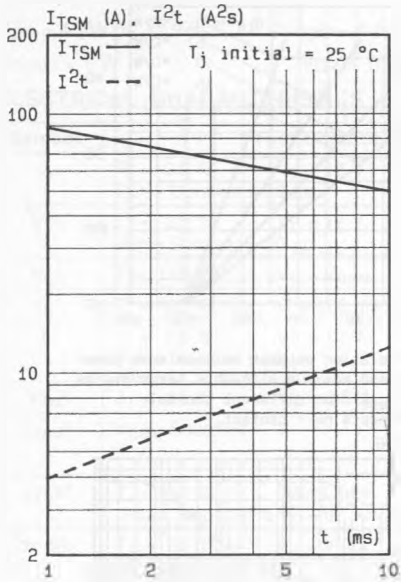


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

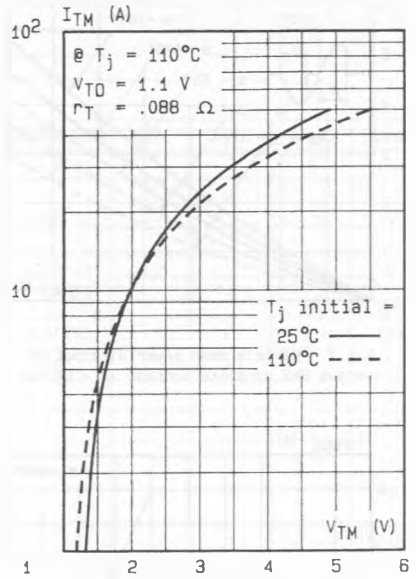


Fig.8 - On-state characteristics (maximum values).