

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)	$T_C = 75\text{ °C}$ 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 ² s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 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
		200D	400D	600D	700D	800D	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) $I_G = 100\text{ mA}$ $di_c/dt = 1\text{ A}/\mu\text{s}$

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

GATE CHARACTERISTICS (maximum values)

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

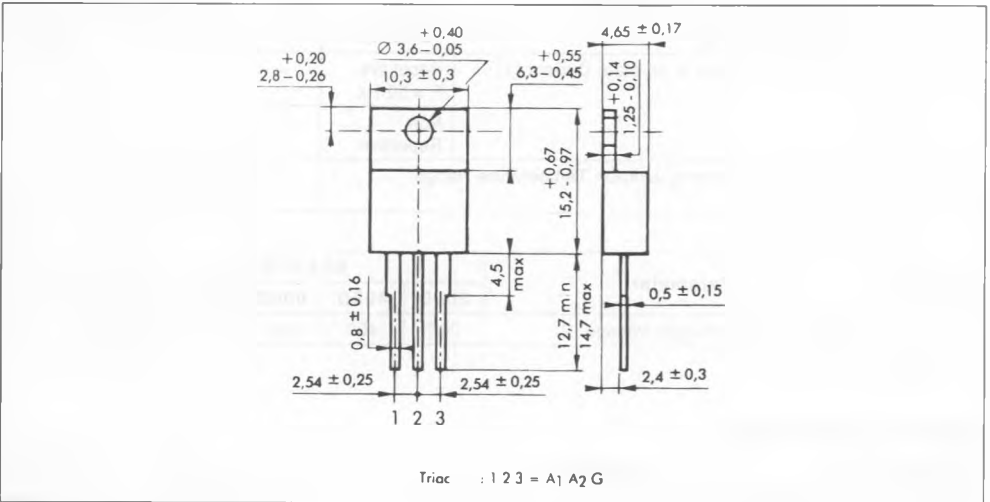
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ } \Omega$ Pulse Duration > 20 μs	I-III-III			5	mA
		IV			10	
V_{GT}	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ } \Omega$ Pulse Duration > 20 μs	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 33 \text{ k}\Omega$	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	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $I_G = 20 \text{ mA}$ Pulse Duration > 20 μs	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				0.01	mA
					0.75	
dv/dt^*	$T_j = 110 \text{ }^\circ\text{C}$ Gate Open Linear Slope up to $V_D = 67\% V_{DRM}$			10		V/ μs
$(dv/dt)_c^*$	$T_c = 75 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 5.5 \text{ A}$ $(di/dt)_c = 1.8 \text{ A/ms}$			1		V/ μs
t_{g1}	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 5.5 \text{ A}$ $I_G = 20 \text{ mA}$ $di_G/dt = 0.25 \text{ A}/\mu\text{s}$	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



Cooling method : by conduction (method C)
 Marking : type number
 Weight : 2 g.

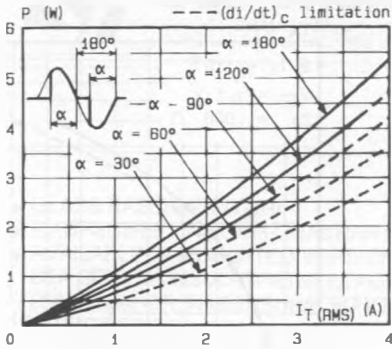


Fig.1 - Maximum mean power dissipation versus RMS on-state current ($F = 60 \text{ Hz}$).

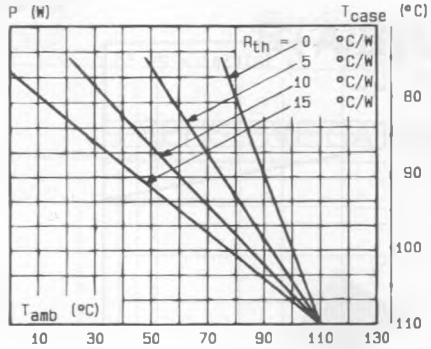


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

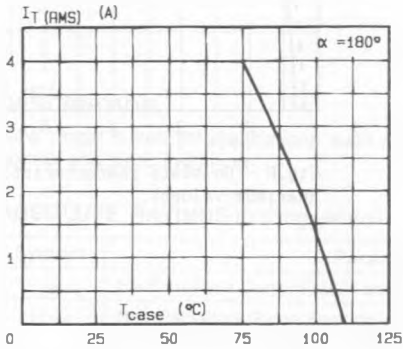


Fig.3 - RMS on-state current versus case temperature.

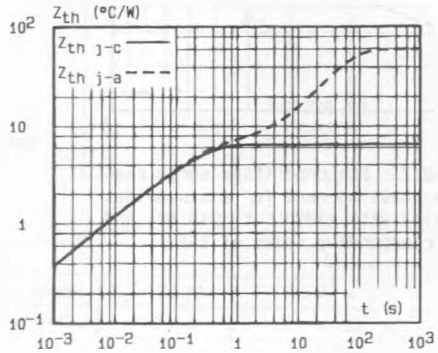


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

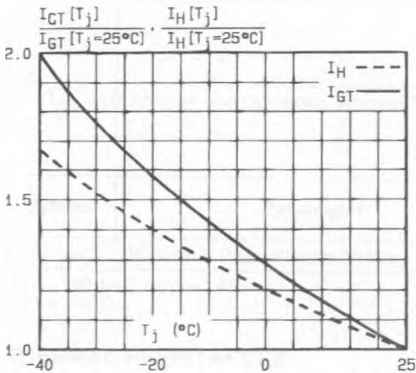


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

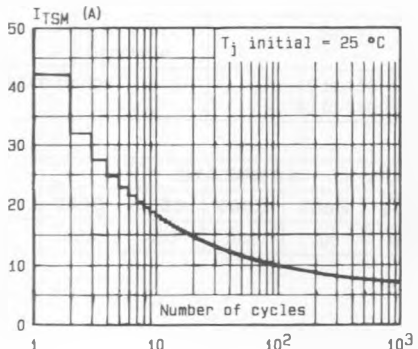


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

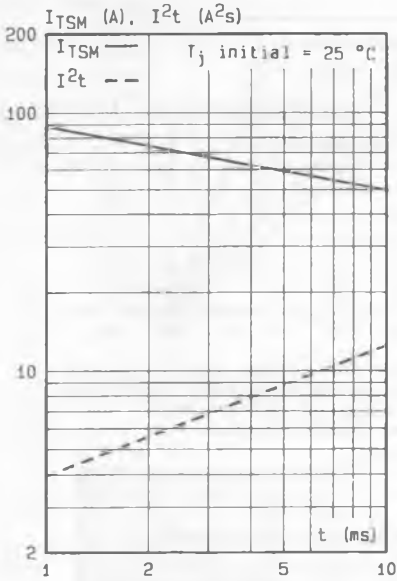


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

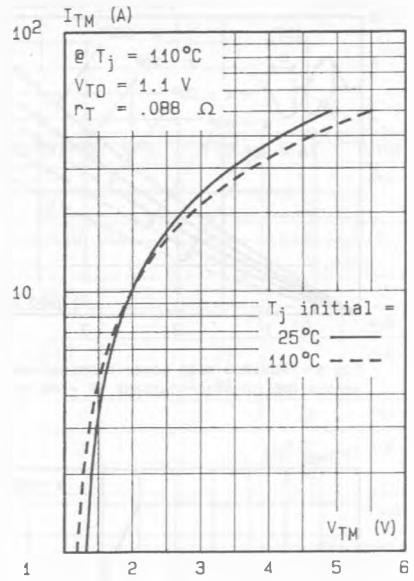


Fig.8 - On-state characteristics (maximum values).