

## TRIACS

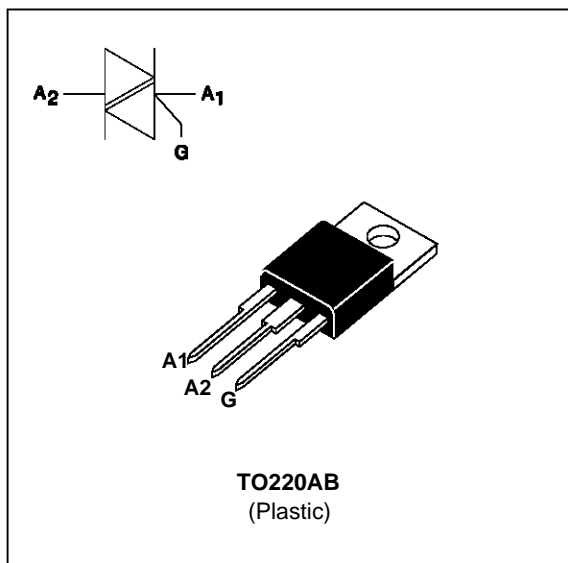
### FEATURES

- LOW  $I_H = 13\text{mA}$  max
- HIGH SURGE CURRENT :  $I_{TSM} = 120\text{A}$
- $I_{GT}$  SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE =  $2500V_{(RMS)}$   
(UL RECOGNIZED : E81734)

### DESCRIPTION

The BTA10 GP's use high performance, glass passivated chips.

The insulated TO220AB package, the high surge current and low holding current make this family well adapted to LIGHT DIMMER applications.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_c = 90\text{ °C}$	10	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25\text{ °C}$ )	$t_p = 8.3\text{ ms}$	126	A
		$t_p = 10\text{ ms}$	120	
$I^2t$	$I^2t$ value	$t_p = 10\text{ ms}$	72	$A^2s$
$di/dt$	Critical rate of rise of on-state current Gate supply : $I_G = 500\text{mA}$ $di_G/dt = 1\text{A}/\mu\text{s}$	Repetitive $F = 50\text{ Hz}$	10	$A/\mu\text{s}$
		Non Repetitive	50	
$T_{stg}$ $T_j$	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	$^{\circ}\text{C}$ $^{\circ}\text{C}$
$T_l$	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	$^{\circ}\text{C}$

Symbol	Parameter	BTA10-		Unit
		400 GP	600 GP	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125\text{ °C}$	400	600	V

**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient	60	°C/W
Rth (j-c) DC	Junction to case for DC	4	°C/W
Rth (j-c) AC	Junction to case for 360° conduction angle ( F= 50 Hz)	3	°C/W

**GATE CHARACTERISTICS** (maximum values)

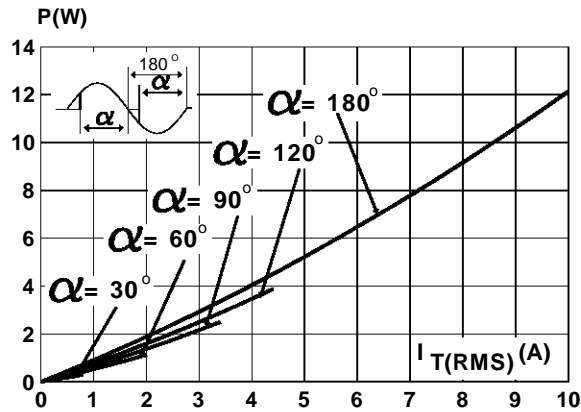
$P_G$  (AV) = 1W     $P_{GM}$  = 10W (tp = 20 μs)     $I_{GM}$  = 4A (tp = 20 μs)     $V_{GM}$  = 16V (tp = 20 μs).

**ELECTRICAL CHARACTERISTICS**

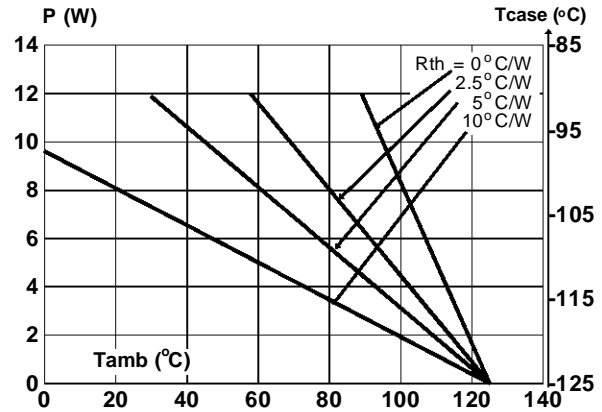
Symbol	Test Conditions		Quadrant		Suffix	Unit
					GP	
IGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III	MAX	50	mA
			IV	MAX	75	
VGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III-IV	MAX	1.5	V
VGD	VD=VDRM RL=3.3kΩ	Tj=110°C	I-II-III-IV	MIN	0.2	V
tgt	VD=VDRM IG = 500mA dIG/dt = 3A/μs	Tj=25°C	I-II-III-IV	TYP	2	μs
IL	IG=1.2 IGT	Tj=25°C	I-III-IV	TYP	20	mA
			II		40	
IH *	IT= 100mA gate open	Tj=25°C		MAX	13	mA
VTM *	ITM= 14A tp= 380μs	Tj=25°C		MAX	1.5	V
IDRM IRRM	VDRM Rated VRRM Rated	Tj=25°C		MAX	0.01	mA
		Tj=110°C		MAX	0.5	
dV/dt *	Linear slope up to VD=67%VDRM gate open	Tj=110°C		MIN	30	V/μs
				TYP	100	
(dV/dt)c *	(dI/dt)c= 2.2A/ms	Tj=110°C		MIN	1	V/μs
				TYP	10	

\* For either polarity of electrode A2 voltage with reference to electrode A1.

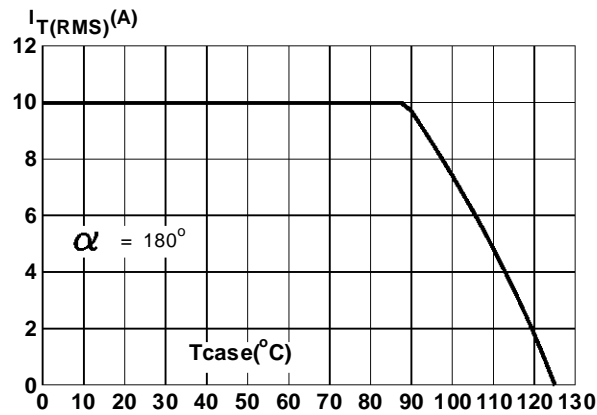
**Fig.1** : Maximum RMS power dissipation versus RMS on-state current ( $F=50\text{Hz}$ ).  
(curves are cut off by  $(di/dt)_c$  limitation)



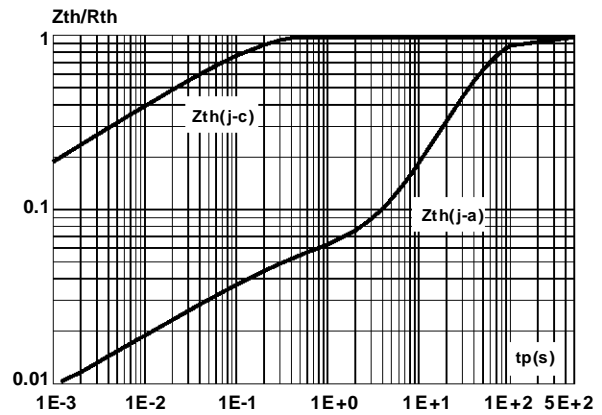
**Fig.2** : Correlation between maximum RMS power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.



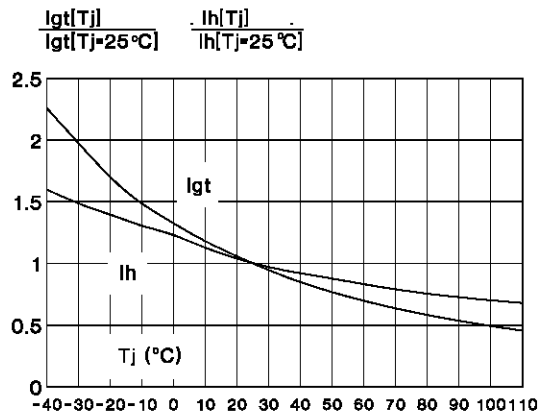
**Fig.3** : RMS on-state current versus case temperature.



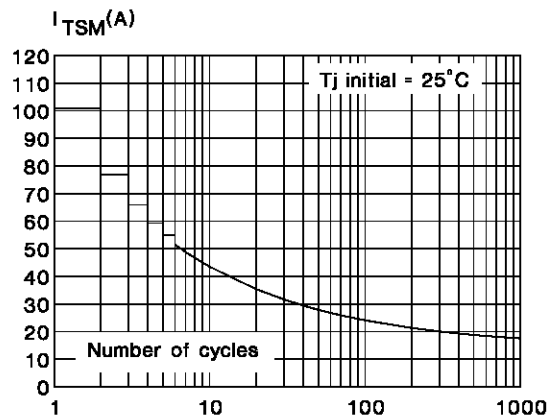
**Fig.4** : Relative variation of thermal impedance versus pulse duration.



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

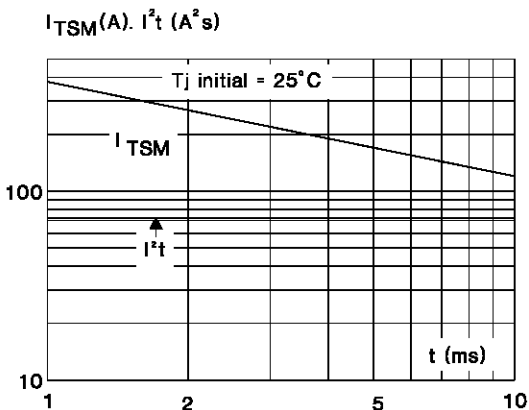


**Fig.6** : Non repetitive surge peak on-state current versus number of cycles.

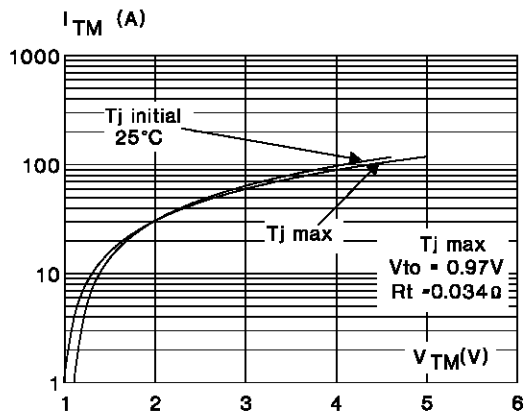


# BTA10 GP

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

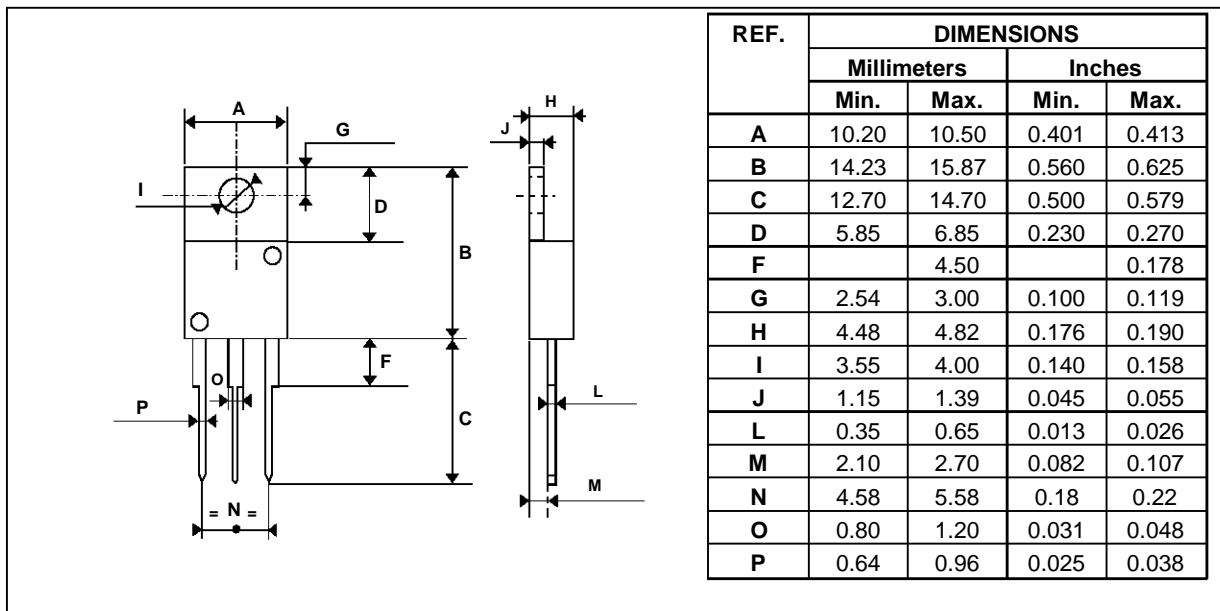


**Fig.8 :** On-state characteristics (maximum values).



## PACKAGE MECHANICAL DATA

TO220AB Plastic



Cooling method : C  
 Marking : type number  
 Weight : 2.3 g

Recommended torque value : 0.8 m.N.  
 Maximum torque value : 1 m.N.

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