

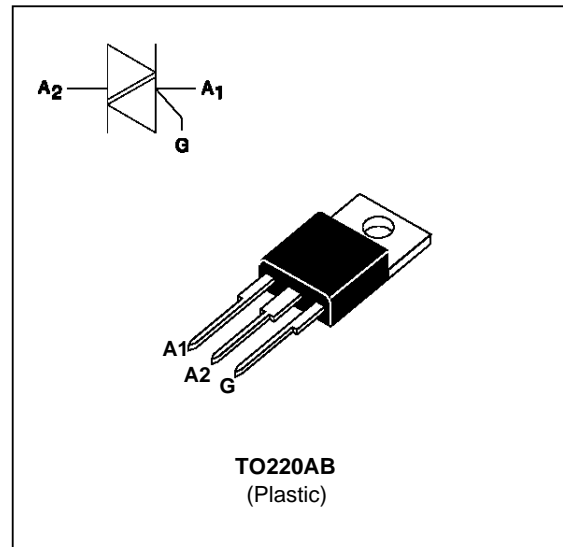
### FEATURES

- LOW  $I_H = 13\text{mA}$  max
- HIGH SURGE CURRENT :  $I_{TSM} = 100\text{A}$
- $I_{GT}$  SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE =  $2500V_{(RMS)}$   
(UL RECOGNIZED : E81734)

### DESCRIPTION

The BTA06 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)	$T_c = 105^\circ\text{C}$	6	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ\text{C}$ )	$t_p = 8.3\text{ ms}$	105	A
		$t_p = 10\text{ ms}$	100	
$I^2t$	$I^2t$ value	$t_p = 10\text{ ms}$	50	$\text{A}^2\text{s}$
$di/dt$	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	$\text{A}/\mu\text{s}$
		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	BTA06-		Unit
		400 GP	600 GP	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$	400	600	V

## BTA06 GP

### 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)

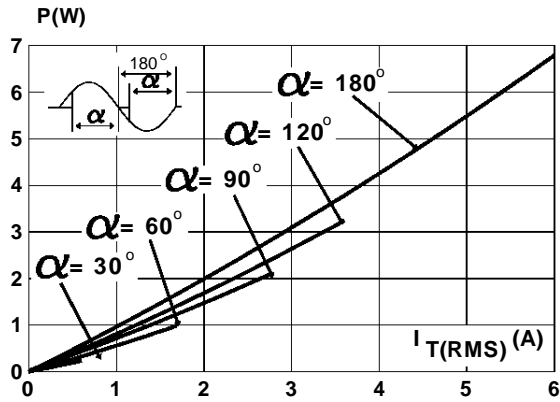
$P_G$  (AV) = 1W     $P_{GM}$  = 10W (tp = 20  $\mu$ s)     $I_{GM}$  = 4A (tp = 20  $\mu$ s)     $V_{GM}$  = 16V (tp = 20  $\mu$ s).

### ELECTRICAL CHARACTERISTICS

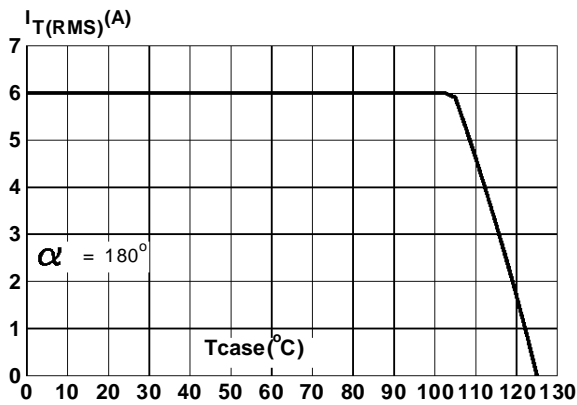
Symbol	Test Conditions	Quadrant		Suffix	Unit	
				GP		
$I_{GT}$	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	I-II-III	MAX	50	mA
			IV	MAX	75	
$V_{GT}$	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	I-II-III-IV	MAX	1.5	V
$V_{GD}$	$V_D=V_{DRM}$ $R_L=3.3k\Omega$	$T_j=110^\circ C$	I-II-III-IV	MIN	0.2	V
tgt	$V_D=V_{DRM}$ $I_G = 500mA$ $dI_G/dt = 3A/\mu s$	$T_j=25^\circ C$	I-II-III-IV	TYP	2	$\mu s$
$I_L$	$I_G=1.2 I_{GT}$	$T_j=25^\circ C$	I-III-IV	TYP	20	mA
			II		40	
$I_H$ *	$I_T= 100mA$ gate open	$T_j=25^\circ C$		MAX	13	mA
$V_{TM}$ *	$I_{TM}= 8.5A$ tp= 380 $\mu s$	$T_j=25^\circ C$		MAX	1.4	V
$I_{DRM}$ $I_{RRM}$	$V_{DRM}$ Rated $V_{RRM}$ Rated	$T_j=25^\circ C$		MAX	0.01	mA
		$T_j=110^\circ C$		MAX	0.5	
dV/dt *	Linear slope up to $V_D=67\%V_{DRM}$ gate open	$T_j=110^\circ C$		MIN	30	V/ $\mu s$
				TYP	100	
(dV/dt)c *	(dI/dt)c= 1.8A/ms	$T_j=110^\circ C$		MIN	1	V/ $\mu s$
				TYP	10	

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

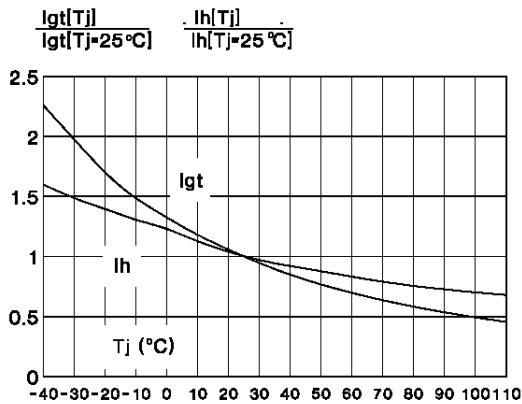
**Fig.1 :** Maximum RMS power dissipation versus RMS on-state current (F=50Hz).  
(curves are cut off by (di/dt)c limitation)



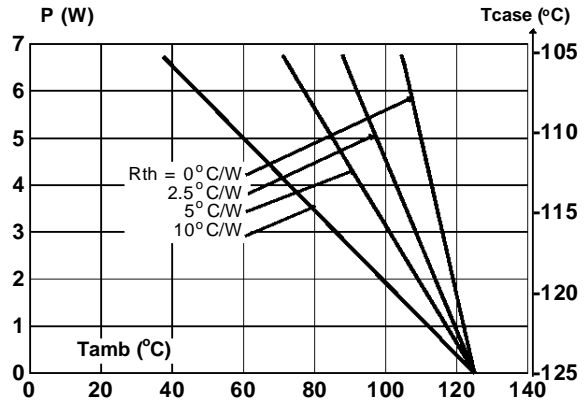
**Fig.3 :** RMS on-state current versus case temperature.



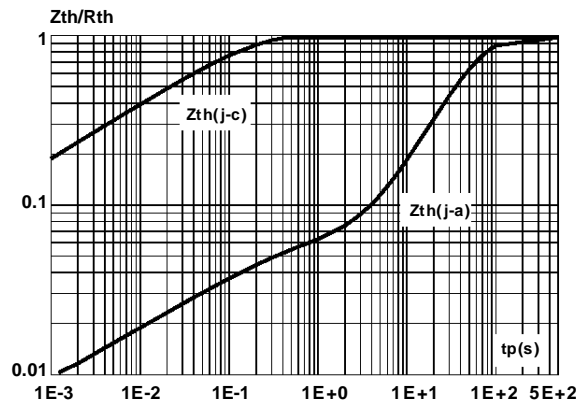
**Fig.5 :** Relative variation of gate trigger current and holding current versus junction temperature.



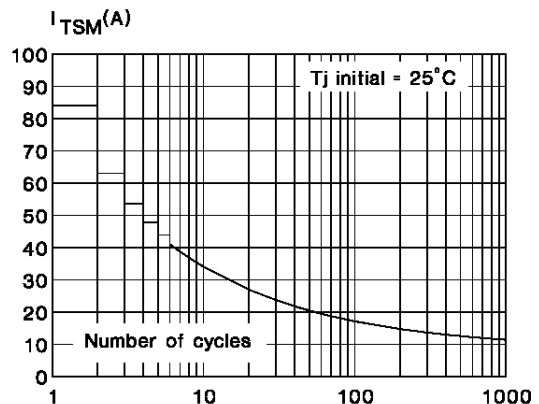
**Fig.2 :** Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.



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

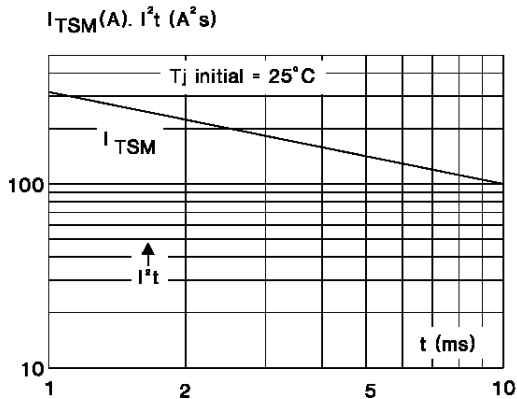


**Fig.6 :** Non Repetitive surge peak on-state current versus number of cycles.

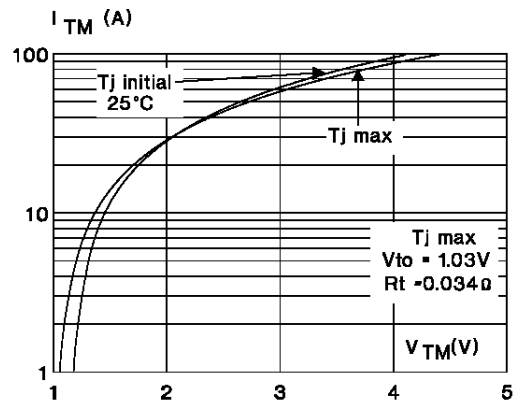


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**Fig.7** : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .

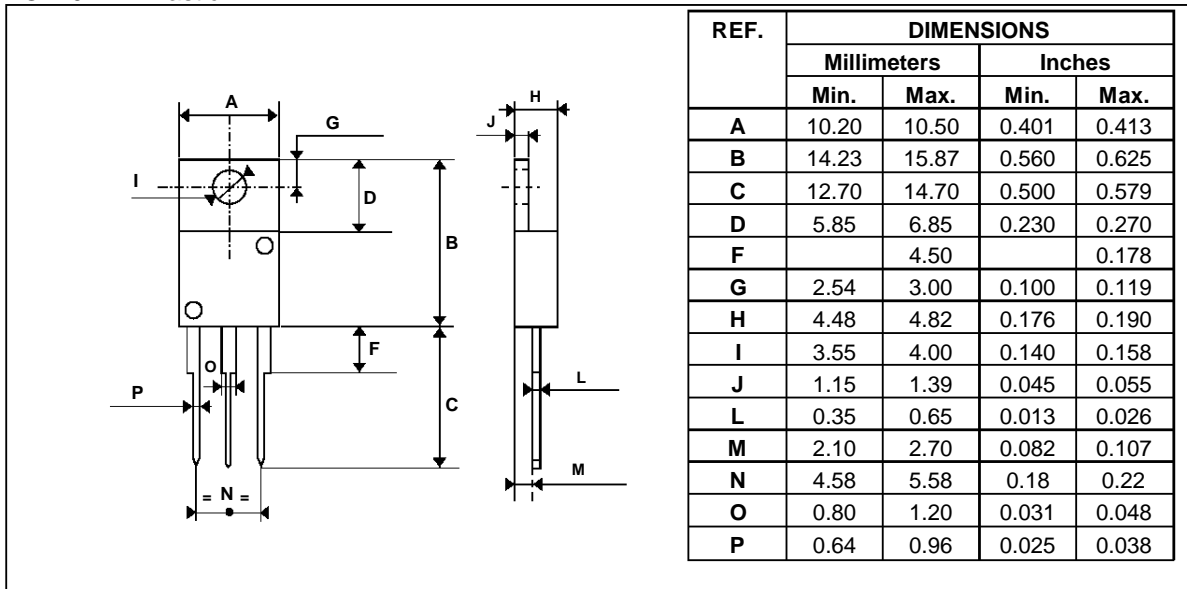


**Fig.8** : On-state characteristics (maximum values).



## 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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