

**FEATURES**

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

**DESCRIPTION**

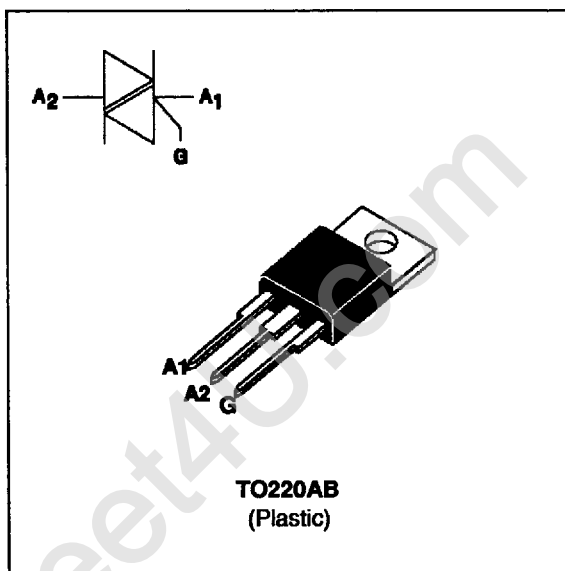
The BTA06 GP's use high performance, glass passivated chips.

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	A <sup>2</sup> 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	A/ $\mu\text{s}$
		Non Repetitive	50	
$T_{stg}$ $T_J$	Storage and operating junction temperature range		- 40 to + 150	$^\circ\text{C}$
			- 40 to + 125	$^\circ\text{C}$
$T_l$	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



**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)**

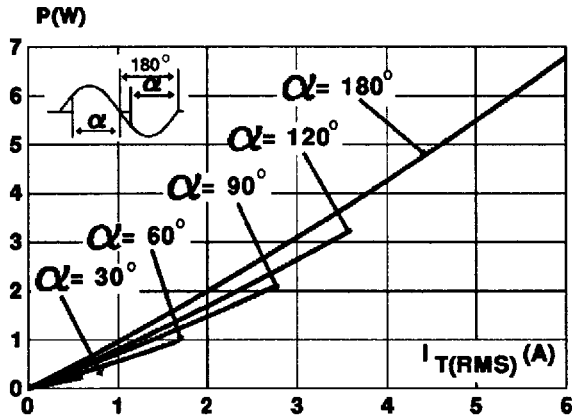
PG (AV) = 1W PGM = 10W (tp = 20 μs) IGM = 4A (tp = 20 μs) VGM = 16V (tp = 20 μs).

**ELECTRICAL CHARACTERISTICS**

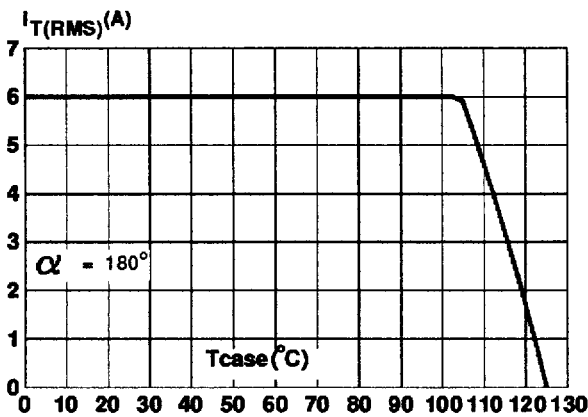
Symbol	Test Conditions	Quadrant		Suffix	Unit
				GP	
IGT	VD=12V (DC) RL=33Ω Tj=25°C	I-II-III IV	MAX	50	mA
				75	
VGT	VD=12V (DC) RL=33Ω Tj=25°C	I-II-III-IV	MAX	1.5	V
VGD	VD=VDRM RL=3.3kΩ Tj=110°C	I-II-III-IV	MIN	0.2	V
tgt	VD=VDRM IG = 500mA dIG/dt = 3A/μs Tj=25°C	I-II-III-IV	TYP	2	μs
IL	IG=1.2 IGT Tj=25°C	I-III-IV II	TYP	20	mA
				40	
IH *	IT= 100mA gate open Tj=25°C		MAX	13	mA
VTM *	ITM= 8.5A tp= 380μs Tj=25°C		MAX	1.4	V
IDRM IRRM	VDRM Rated VRRM Rated Tj=25°C Tj=110°C		MAX	0.01	mA
				0.5	
dV/dt *	Linear slope up to VD=67%VDRM gate open Tj=110°C		MIN	30	V/μs
				TYP	
(dV/dt)c *	(dI/dt)c= 1.8A/ms Tj=110°C		MIN	1	V/μs
				TYP	

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

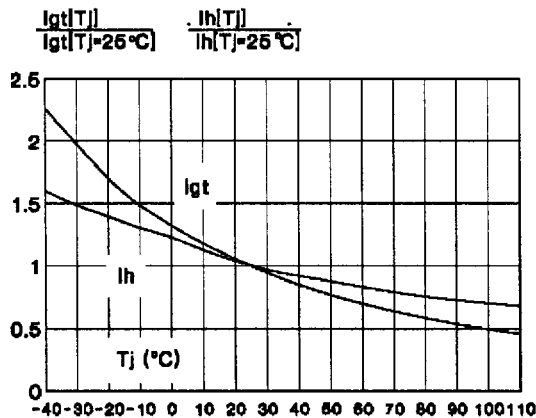
**Fig.1** : Maximum RMS power dissipation versus RMS on-state current (F=50Hz).  
(curves are cut off by (di/dt)c limitation)



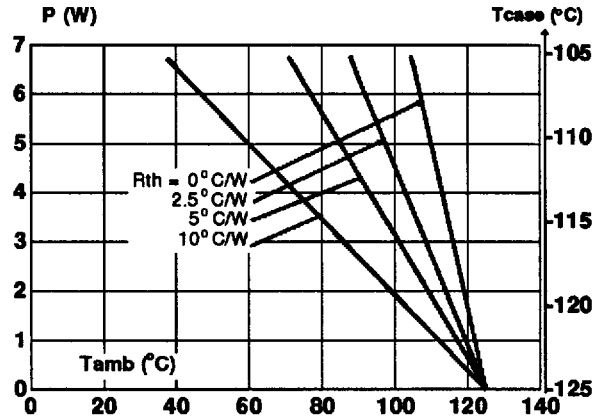
**Fig.3** : RMS on-state current versus case temperature.



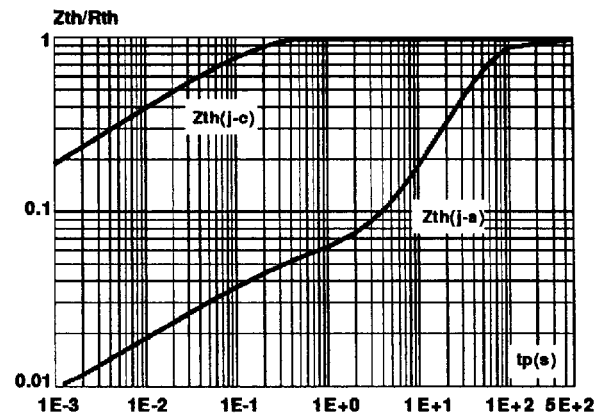
**Fig.5** : Relative variation of gate trigger current and holding current versus junction temperature.



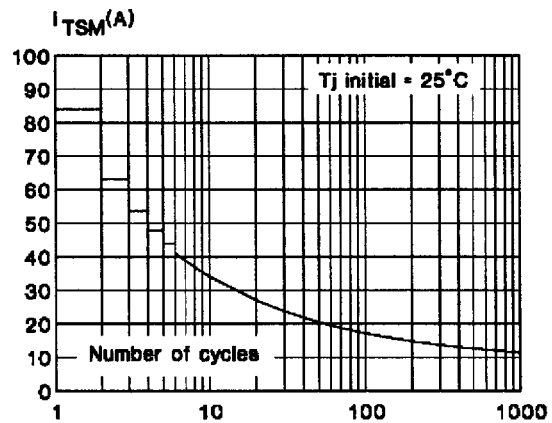
**Fig.2** : Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.



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

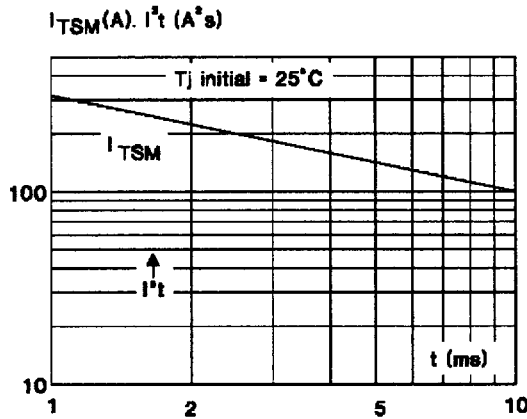


**Fig.6** : Non Repetitive surge peak on-state current versus number of cycles.

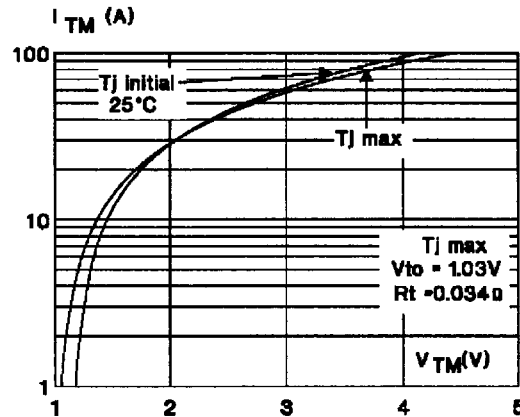


# BTA06 GP

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

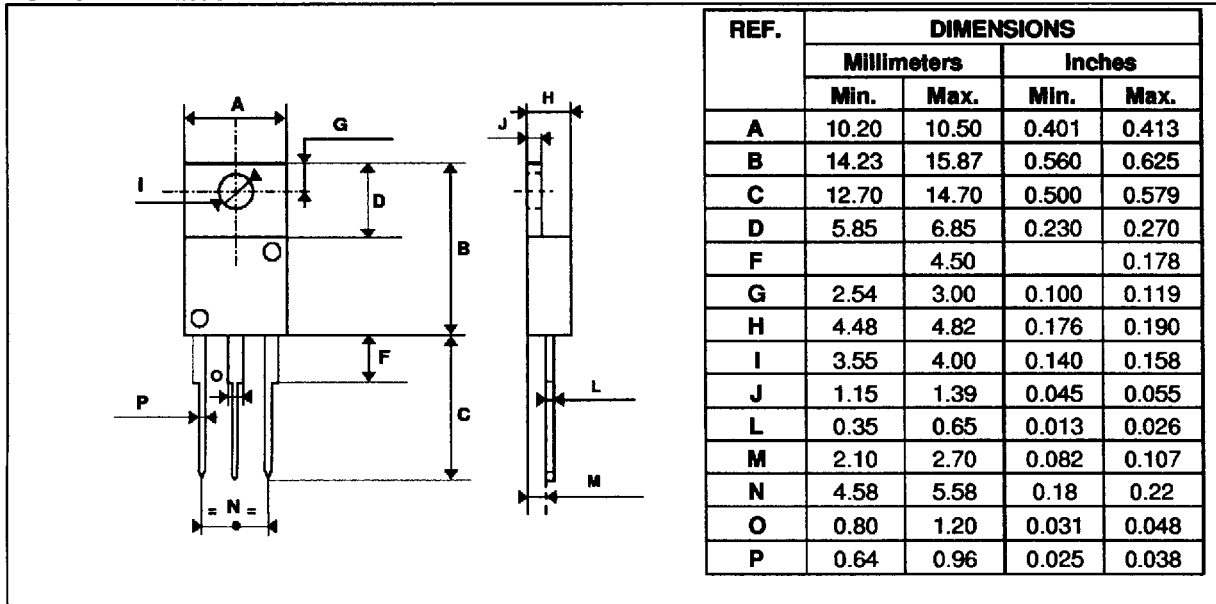


**Fig.8 :** On-state characteristics (maximum values).



## 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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