

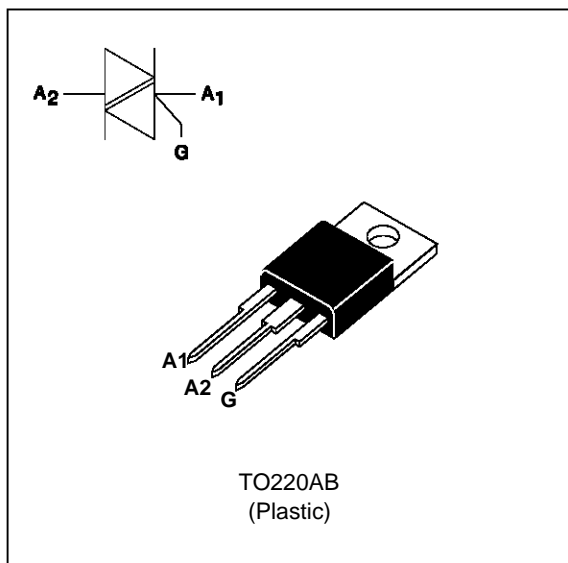
## LOGIC LEVEL TRIACS

### FEATURES

- LOW  $I_{GT} = 5\text{mA max}$
- LOW  $I_H = 15\text{mA max}$
- HIGH EFFICIENCY SWITCHING
- BTA Family :  
INSULATING VOLTAGE =  $2500V_{(RMS)}$   
(UL RECOGNIZED : E81734)

### DESCRIPTION

The BTA/BTB06 TW/SW use high performance products glass passivated chips. The low  $I_{GT} / I_H$  level coupled with the high efficiency circuit make this family will adapted for low power trigger circuits (microcontrollers, microprocessors, integrated circuits ...)



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	BTA	$T_c = 80\text{ °C}$	6	A
		BTB	$T_c = 90\text{ °C}$		
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25\text{ °C}$ )		$t_p = 8.3\text{ ms}$	63	A
			$t_p = 10\text{ ms}$	60	
$i^2t$	$i^2t$ value		$t_p = 10\text{ ms}$	18	$A^2s$
$di/dt$	Critical rate of rise of on-state current Gate supply : $I_G = 50\text{mA}$ $di_G/dt = 0.1\text{A}/\mu\text{s}$		Repetitive $F = 50\text{ Hz}$	20	$A/\mu\text{s}$
			Non Repetitive	100	
$T_{stg}$ $T_j$	Storage and operating junction temperature range			- 40 to + 150 - 40 to + 110	$^{\circ}\text{C}$ $^{\circ}\text{C}$
$T_l$	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			260	$^{\circ}\text{C}$

Symbol	Parameter	BTA / BTB06-			Unit
		400 TW/SW	600 TW/SW	700 TW/SW	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 110\text{ °C}$	400	600	700	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	BTA	4.4	°C/W
		BTB	3.3	
Rth (j-c) AC	Junction to case for 360° conduction angle ( F= 50 Hz)	BTA	3.3	°C/W
		BTB	2.5	

**GATE CHARACTERISTICS (maximum values)**

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

**ELECTRICAL CHARACTERISTICS**

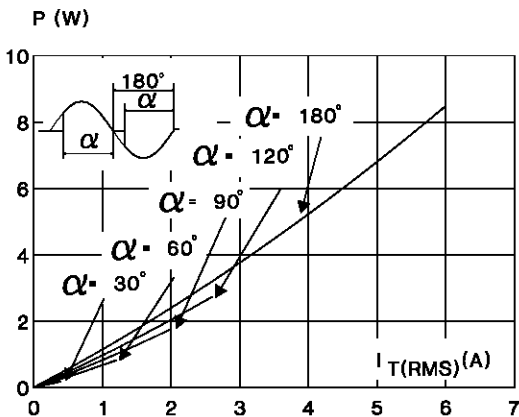
Symbol	Test Conditions	Quadrant		Suffix		Unit	
				TW	SW		
IGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III	MAX	5	10	mA
VGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III	MAX	1.5		V
VGD	VD=VDRM RL=3.3kΩ	Tj=110°C	I-II-III	MIN	0.2		V
tgt	VD=VDRM IG = 40mA dIG/dt = 0.5A/μs	Tj=25°C	I-II-III	TYP	2		μs
IL	IG=1.2 IGT	Tj=25°C	I-III	TYP	8	15	mA
			II		15	25	
IH *	IT= 100mA gate open	Tj=25°C		MAX	15	25	mA
VTM *	ITM= 8.5A tp= 380μs	Tj=25°C		MAX	1.75		V
IDRM IRRM	VDRM Rated VRRM Rated	Tj=25°C		MAX	0.01		mA
		Tj=110°C		MAX	1		
dV/dt *	Linear slope up to VD=67%VDRM gate open	Tj=110°C		MIN	20	50	V/μs
(dl/dt)c *	dV/dt= 0.1V/μs	Tj=110°C		MIN	2.7	3.5	A/ms
	dV/dt= 20V/μs			MIN	1.3	2.7	

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

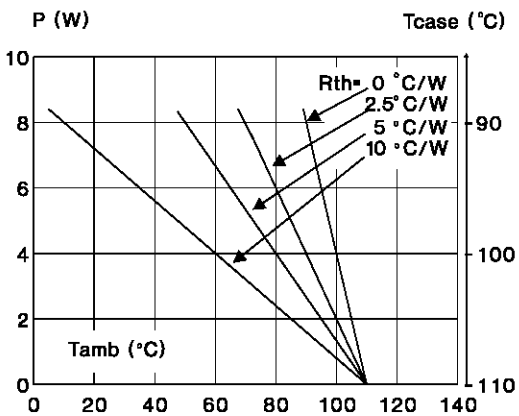
ORDERING INFORMATION

Package	$I_T(\text{RMS})$	$V_{\text{DRM}} / V_{\text{RRM}}$	Sensitivity Specification		
	A		V	TW	SW
BTA (Insulated)	6	400	X	X	
			600	X	X
			700	X	X
BTB (Uninsulated)	6	400	X	X	
			600	X	X
			700	X	X

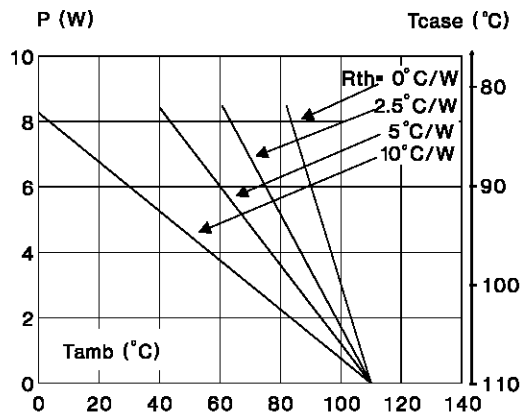
**Fig.1** : Maximum RMS power dissipation versus RMS on-state current ( $F=50\text{Hz}$ ).  
(Curves are cut off by  $(di/dt)_c$  limitation)



**Fig.3** : Correlation between maximum RMS power dissipation and maximum allowable temperatures ( $T_{\text{amb}}$  and  $T_{\text{case}}$ ) for different thermal resistances heatsink + contact (BTB).



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



**Fig.4** : RMS on-state current versus case temperature.

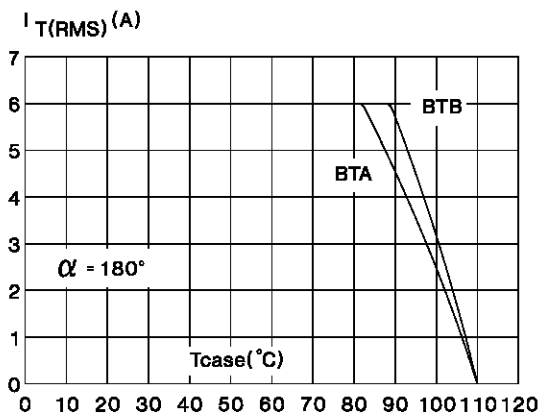


Fig.5 : Relative variation of thermal transient impedance versus pulse duration.

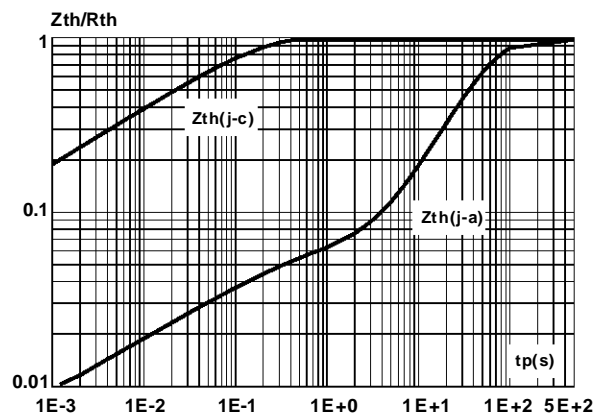


Fig.7 : Non Repetitive surge peak on-state current versus number of cycles.

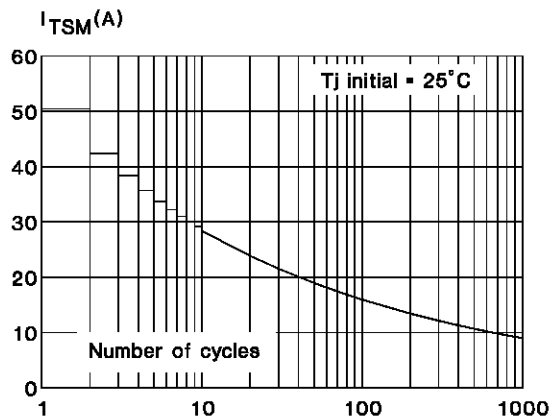


Fig.9 : On-state characteristics (maximum values).

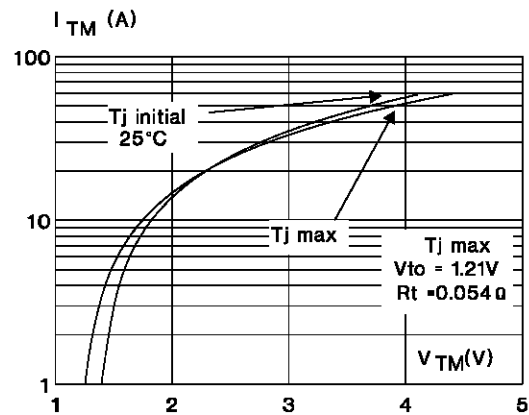


Fig.6 : Relative variation of gate trigger current and holding current versus junction temperature.

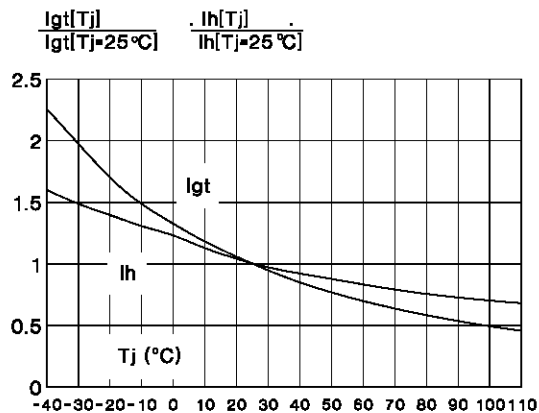


Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .

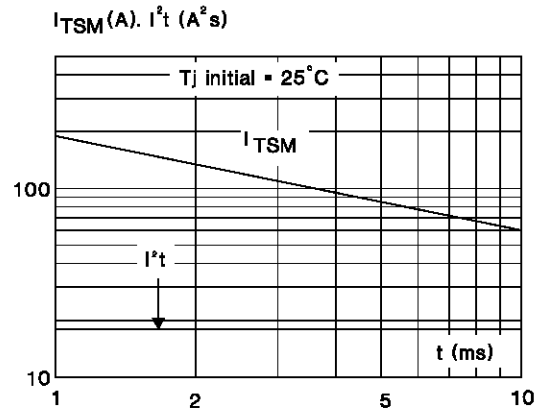
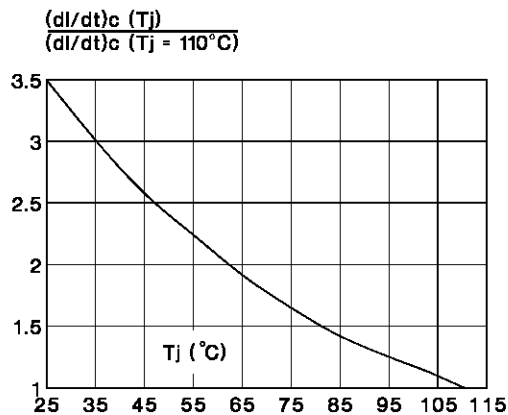
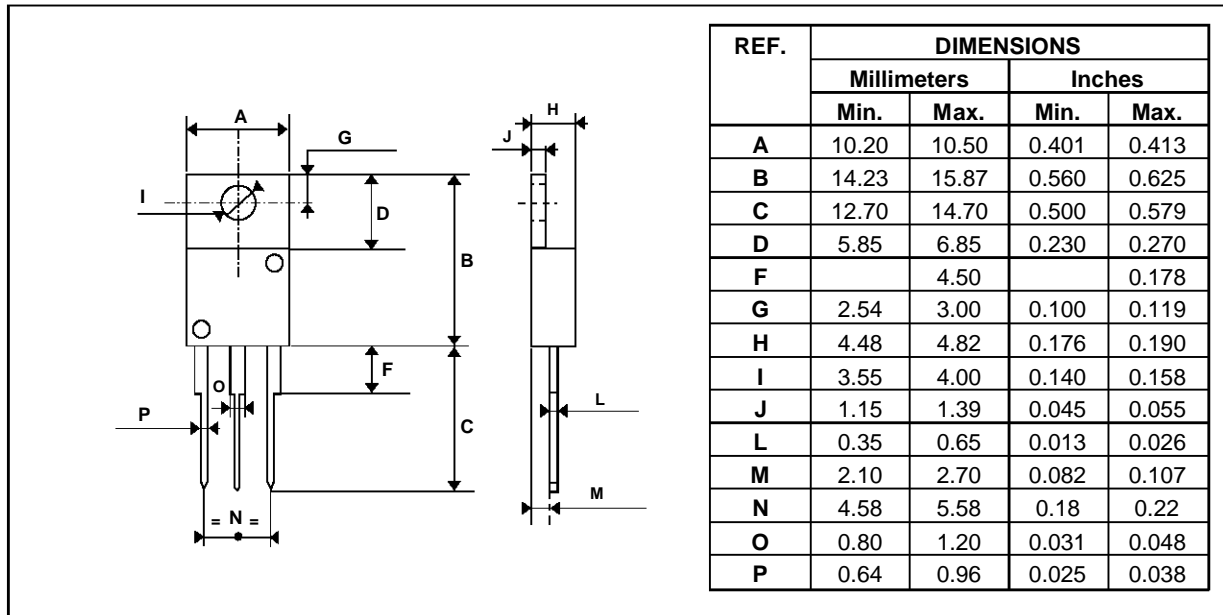


Fig.10 : Relative variation of  $(di/dt)c$  versus junction temperature.



**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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