



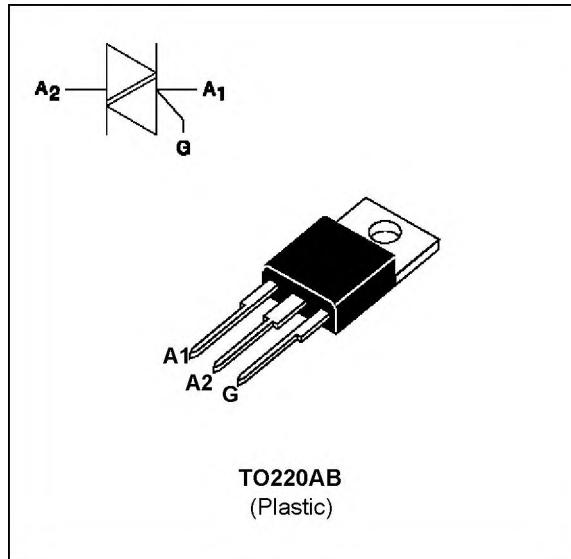
## STANDARD TRIACS

### FEATURES

- HIGH SURGE CURRENT CAPABILITY
- COMMUTATION :  $(dV/dt)_c > 5 \text{ V}/\mu\text{s}$
- BTA Family :
- INSULATING VOLTAGE =  $2500\text{V}_{(\text{RMS})}$
- (UL RECOGNIZED : E81734)

### DESCRIPTION

The BTA/BTB08 B/C triac family are high performance glass passivated PNPN devices. These parts are suitable for general purpose applications where high surge current capability is required. Application such as phase control and static switching on inductive or resistive load.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit	
IT(RMS)	RMS on-state current ( $360^\circ$ conduction angle)	BTA	Tc = 90 °C	8	A	
		BTB	Tc = 95 °C			
ITSM	Non repetitive surge peak on-state current ( Tj initial = 25°C )		tp = 8.3 ms	84	A	
			tp = 10 ms	80		
I2t	I2t value	tp = 10 ms		32	A2s	
di/dt	Critical rate of rise of on-state current Gate supply : Ig = 500mA   diG/dt = 1A/ $\mu$ s		Repetitive F = 50 Hz	10	A/ $\mu$ s	
			Non Repetitive	50		
Tstg Tj	Storage and operating junction temperature range	- 40 to + 150 - 40 to + 125		°C °C		
Tl	Maximum lead temperature for soldering during 10 s at 4.5 mm from case	260		°C		

Symbol	Parameter	BTA / BTB08... B/C				Unit
		400	600	700	800	
VDRM VRRM	Repetitive peak off-state voltage Tj = 125 °C	400	600	700	800	V

**THERMAL RESISTANCES**

Symbol	Parameter		Value		Unit
R <sub>th</sub> (j-a)	Junction to ambient		60		°C/W
R <sub>th</sub> (j-c) DC	Junction to case for DC		BTA	4.4	°C/W
	BTB	3.2			
R <sub>th</sub> (j-c) AC	Junction to case for 360° conduction angle ( F = 50 Hz)		BTA	3.3	°C/W
	BTB	2.4			

**GATE CHARACTERISTICS (maximum values)**

P<sub>G</sub> (AV) = 1W    P<sub>GM</sub> = 10W (tp = 20 μs)    I<sub>GM</sub> = 4A (tp = 20 μs)    V<sub>GM</sub> = 16V (tp = 20 μs).

**ELECTRICAL CHARACTERISTICS**

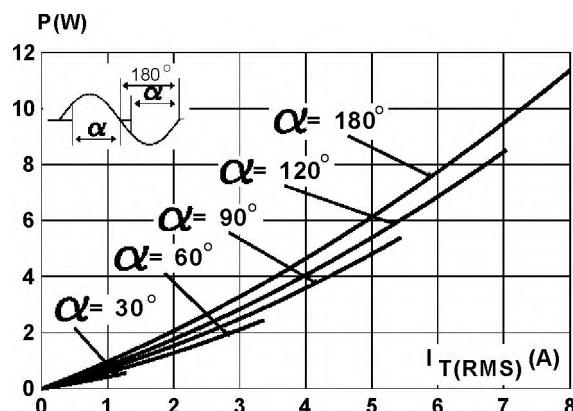
Symbol	Test Conditions	Quadrant	Suffix		Unit		
			B	C			
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> =25°C	I-II-III	MAX	mA		
			IV	MAX			
V <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> =25°C	I-II-III-IV	MAX	1.5	V	
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ	T <sub>j</sub> =110°C	I-II-III-IV	MIN	0.2	V	
t <sub>GT</sub>	V <sub>D</sub> =V <sub>DRM</sub> I <sub>G</sub> = 500mA dI <sub>G</sub> /dt = 3A/μs	T <sub>j</sub> =25°C	I-II-III-IV	TYP	2	μs	
I <sub>L</sub>	I <sub>G</sub> =1.2 I <sub>GT</sub>	T <sub>j</sub> =25°C	I-III-IV	TYP	40	mA	
			II		70		
I <sub>H</sub> *	I <sub>T</sub> = 500mA gate open	T <sub>j</sub> =25°C		MAX	50	mA	
V <sub>TM</sub> *	I <sub>TM</sub> = 11A tp= 380μs	T <sub>j</sub> =25°C		MAX	1.75	V	
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>DRM</sub> Rated V <sub>RRM</sub> Rated	T <sub>j</sub> =25°C		MAX	0.01	mA	
		T <sub>j</sub> =110°C		MAX	0.5		
dV/dt *	Linear slope up to V <sub>D</sub> =67%V <sub>DRM</sub> gate open	T <sub>j</sub> =110°C		MIN	250	100	V/μs
(dV/dt) <sub>c</sub> *	(dI/dt) <sub>c</sub> = 3.5A/ms	T <sub>j</sub> =110°C		MIN	10	5	V/μs

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

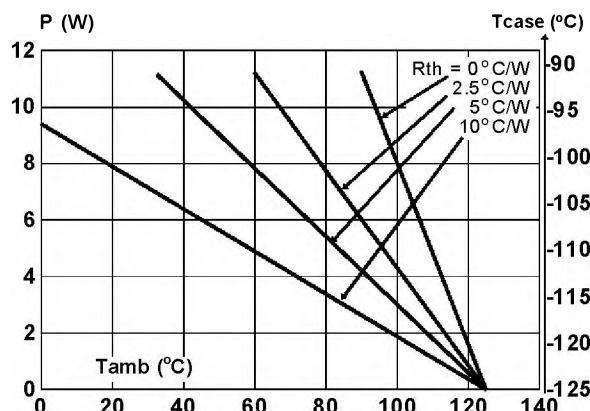
## ORDERING INFORMATION

Package	$I_T(\text{RMS})$	$V_{\text{DRM}} / V_{\text{RRM}}$	Sensitivity Specification	
		A	B	C
BTA (Insulated)	8	400	X	X
		600	X	X
		700	X	X
		800	X	X
BTB (Uninsulated)	8	400	X	X
		600	X	X
		700	X	X
		800	X	X

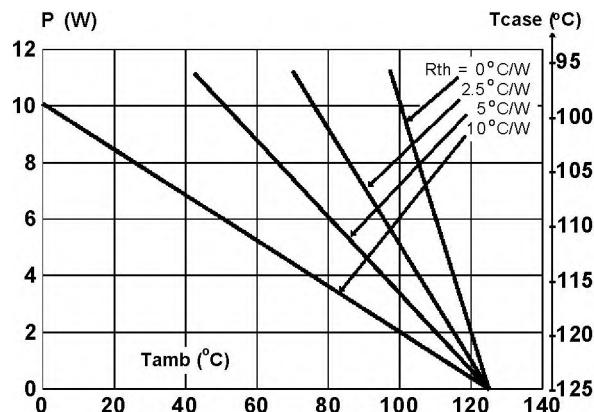
**Fig.1** : Maximum RMS power dissipation versus RMS on-state current ( $F=50\text{Hz}$ ).  
(Curves are cut off by  $(dI/dt)_c$  limitation)



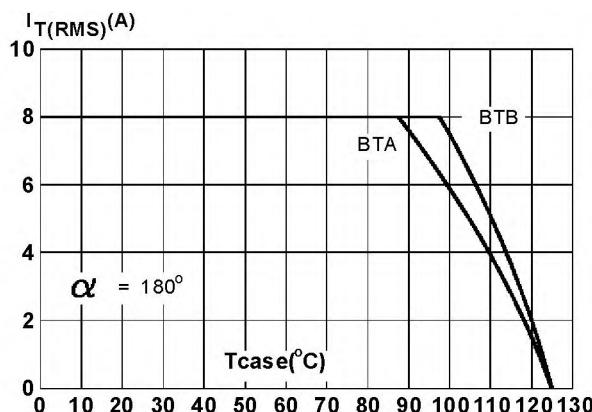
**Fig.2** : Correlation between maximum RMS power dissipation and maximum allowable temperatures ( $T_{\text{amb}}$  and  $T_{\text{case}}$ ) for different thermal resistances heatsink + contact (BTA).



**Fig.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).

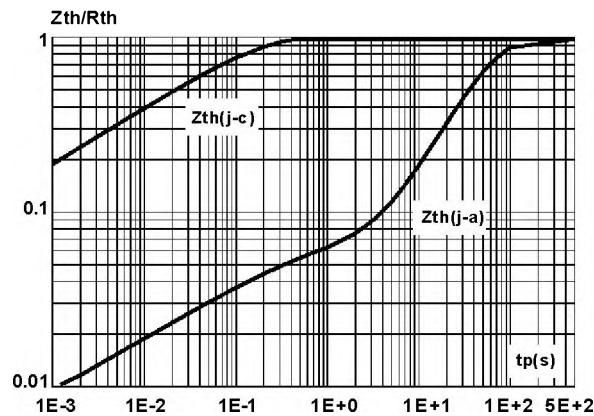


**Fig.4** : RMS on-state current versus case temperature.

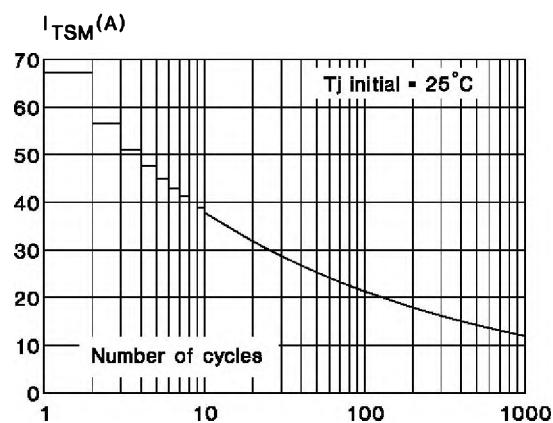


## BTA08 B/C / BTB08 B/C

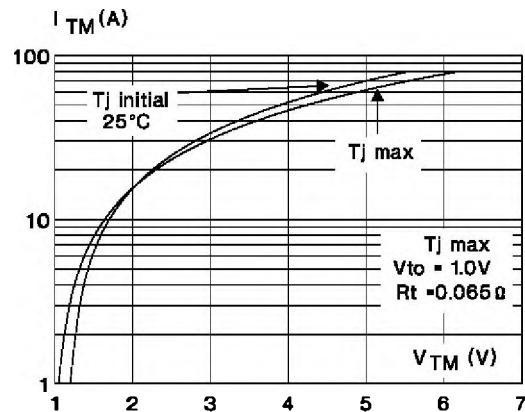
**Fig.5** : Relative variation of thermal impedance versus pulse duration.



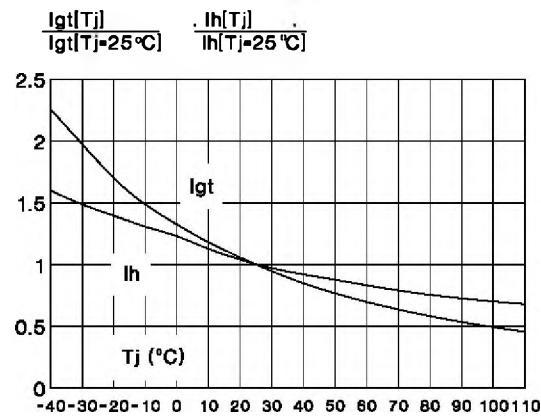
**Fig.7** : Non Repetitive surge peak on-state current versus number of cycles.



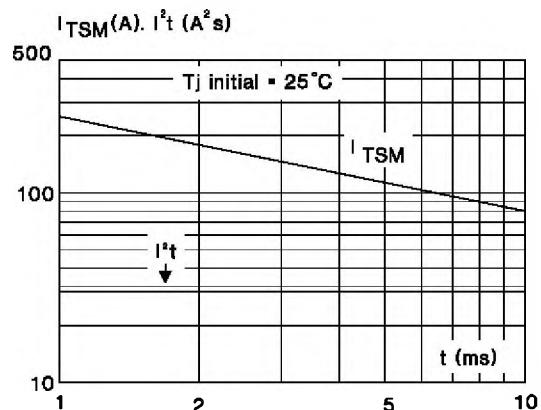
**Fig.9** : On-state characteristics (maximum values).



**Fig.4** : Relative variation of gate trigger current and holding current versus junction temperature.

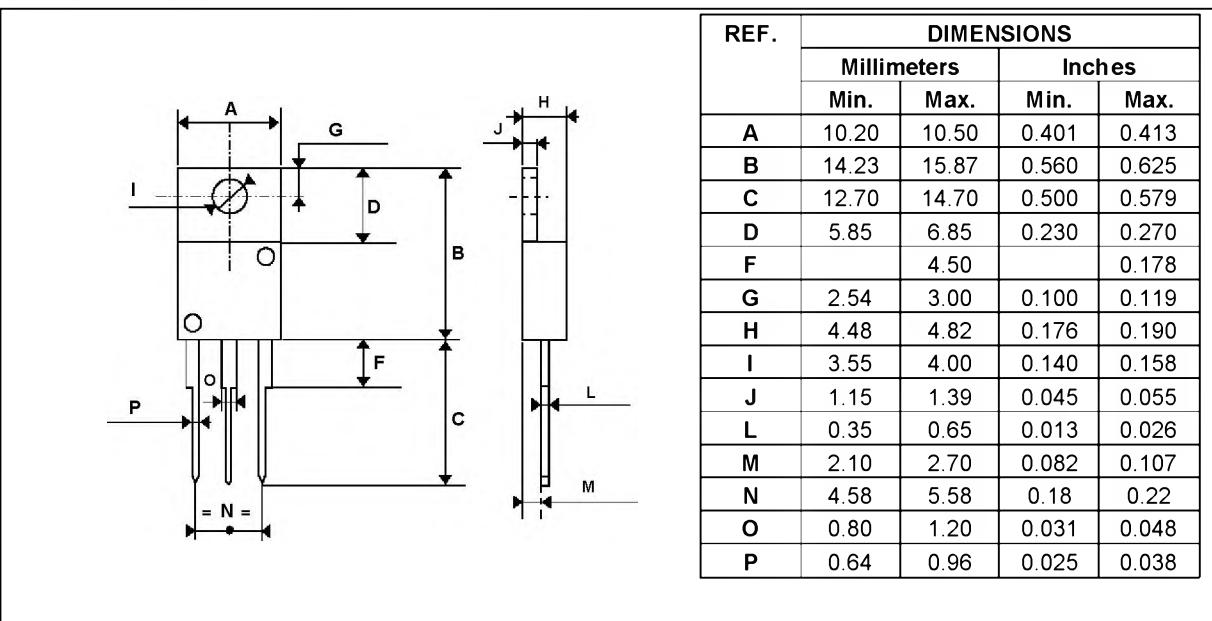


**Fig.8** : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



## PACKAGE MECHANICAL DATA

TO220AB Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10.20	10.50	0.401	0.413
B	14.23	15.87	0.560	0.625
C	12.70	14.70	0.500	0.579
D	5.85	6.85	0.230	0.270
F		4.50		0.178
G	2.54	3.00	0.100	0.119
H	4.48	4.82	0.176	0.190
I	3.55	4.00	0.140	0.158
J	1.15	1.39	0.045	0.055
L	0.35	0.65	0.013	0.026
M	2.10	2.70	0.082	0.107
N	4.58	5.58	0.18	0.22
O	0.80	1.20	0.031	0.048
P	0.64	0.96	0.025	0.038

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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