

## **SNUBBERLESS TRIACS**

#### **FEATURES**

■ HIGH COMMUTATION: (dl/dt)c > 7A/ms without snubber

■ HIGH SURGE CURRENT : ITSM = 80A

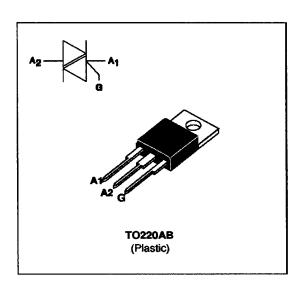
■ V<sub>DRM</sub> UP TO 800V

■ BTA Family:

INSULATING VOLTAGE = 2500V(RMS) (UL RECOGNIZED : E81734)

#### DESCRIPTION

The BTA/BTB08 BW/CW triac family are high performance glass passivated chips technology. The SNUBBERLESS™ concept offer suppression of RC network and it is suitable for 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	вта	Tc = 90 °C	8	Α
	(360° conduction angle)	втв	Tc = 95 °C		
ITSM	Non repetitive surge peak on-state curren	tp = 8.3 ms	85	Α	
	(Tj initial = 25°C)	tp = 10 ms	80		
l2t	I <sup>2</sup> t value	tp = 10 ms	32	A2s	
dl/dt	dl/dt Critical rate of rise of on-state current Gate supply: IG = 500mA dig/dt = 1A/µs		Repetitive F = 50 Hz	20	A/μs
			Non Repetitive	100	
Tstg Tj	Storage and operating junction temperature range			- 40 to + 150 - 40 to + 125	ဗ္
Tì	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			260	•c

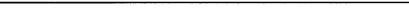
Symbol	Parameter	BTA / BTB08 BW/CW				Unit
		400	600	700	800	
VDRM VRRM	Repetitive peak off-state voltage Tj = 125 °C	400	600	700	800	V

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#### THERMAL RESISTANCES

Symbol	nbol Parameter		Value	Unit	
Rth (j-a)	Junction to ambient	60	•c/w		
Rth (j-c) DC	Junction to case for DC	ВТА	4.4	•c/w	
		втв	3.3		
Rth (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)	ВТА	3.3	•c/w	
	( F= 50 Hz)	втв	2.5		

### **GATE CHARACTERISTICS** (maximum values)

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

#### **ELECTRICAL CHARACTERISTICS**

Symbol	Test Conditions		Quadrant		Su	ffix	Unit
-					BW	CW	
lGT	VD=12V (DC) RL=33Ω	Tj=25°C	1-11-111	MIN	2	1	mA
				MAX	50	35	
VGT	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	Tj=25°C	1-11-111	MAX	1	.5	٧
VGD	VD=VDRM RL=3.3kΩ	Tj≖125°C	1-11-111	MIN	0	.2	٧
tgt	VD=VDRM IG = 500mA diG/dt = 3A/μs	Tj=25°C	1-11-111	ТҮР		2	μs
1_	IG=1.2 IGT	Tj=25°C	1-111	TYP	40	-	mA
			H	TYP	80	-	
			1-111	MAX	-	50	
			11	MAX	-	80	
lн *	IT= 500mA gate open	Tj=25°C		MAX	50	35	mA
∨ <sub>TM</sub> *	I <sub>TM</sub> = 11A tp= 380μs	Tj=25°C		MAX	1.	.75	٧
IDRM	V <sub>DRM</sub> Rated	Tj=25°C		MAX	0.	.01	mA
IRRM	VRRM Rated	Tj=125°C		MAX		2	
dV/dt *	Linear slope up to V <sub>D</sub> =67%V <sub>DRM</sub>	Tj=125°C		MIN	500	250	V/µs
	gate open			TYP	750	500	
(dl/dt)c *	Without snubber	Tj=125°C		MIN	7	4.5	A/ms
				TYP	14	9	

<sup>\*</sup> For either polarity of electrode A2 voltage with reference to electrode A1.

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#### ORDERING INFORMATION

Package	lt(RMS)	VDRM / VRRM	Sensitivity Specification		
	A	v	BW	CW	
ВТА	8	400	X	Х	
(Insulated)		600	X	X	
		700	X	Х	
		800	Х	X	
втв		400	X	Х	
(Uninsulated)		600	X	Х	
		700	Х	X	
		800	Х	Х	

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

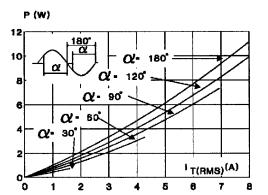


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T<sub>amb</sub> and T<sub>case</sub>) for different thermal resistances heatsink + contact (BTA).

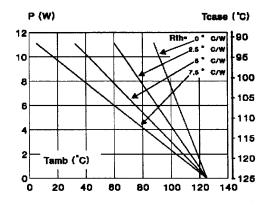


Fig.3 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and  $T_{\text{Case}}$ ) for different thermal resistances heatsink + contact (BTB).

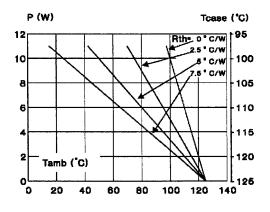
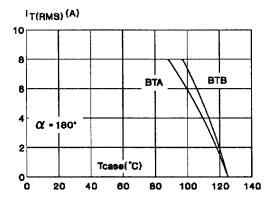


Fig.4: RMS on-state current versus case temperature.



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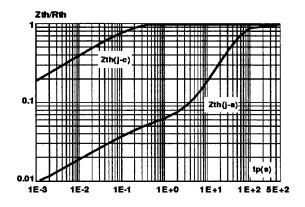
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Fig.5: Relative variation of hermal impedance versus pulse duration.

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



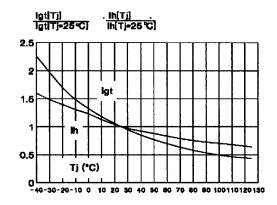
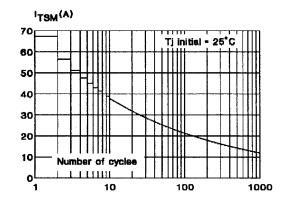


Fig.7: Non Repetitive surge peak on-state current versus number of cycles.

Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t  $\leq$  10ms, and corresponding value of l<sup>2</sup>t.



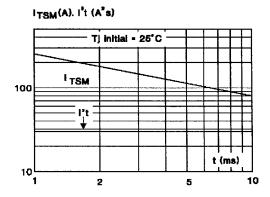
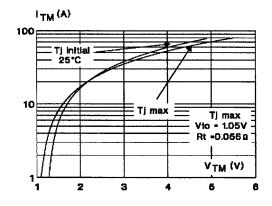


Fig.9: On-state characteristics (maximum values).



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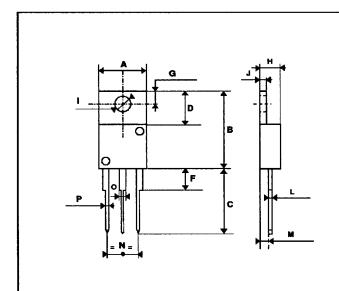
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#### **PACKAGE MECHANICAL DATA**

#### TO220AB Plastic



REF.	DIMENSIONS				
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A	10.20	10.50	0.401	0.413	
В	14.23	15.87	0.560	0.625	
С	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	
Н	4.48	4.82	0.176	0.190	
1	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	
0	0.80	1.20	0.031	0.048	
Р	0.64	0.96	0.025	0.038	

Cooling method: C Weight: 2.3 g
Recommended torque value: 0.8 m.N.

Maximum torque value : 1 m.N.

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