

# BTA06 T/D/S/A BTB06 T/D/S/A

# SENSITIVE GATE TRIACS

### **FEATURES**

■ VERY LOW I<sub>GT</sub> = 10mA max

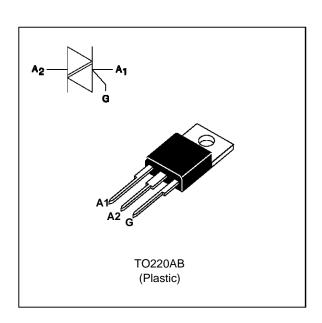
■ LOW I<sub>H</sub> = 15mA max

■ BTA Family: INSULATING VOLTAGE = 2500V<sub>(RMS)</sub> (UL RECOGNIZED: E81734)

#### **DESCRIPTION**

The BTA/BTB06 T/D/S/A triac family are high performance glass passivated PNPN devices.

These parts are suitables for general purpose applications where gate high sensitivity is required. Application on 4Q such as phase control and static switching.



# **ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter	Value	Unit		
IT(RMS)	RMS on-state current BTA		Tc = 85°C	6	Α
	(360° conduction angle)	втв	Tc = 90°C		
ITSM	ITSM Non repetitive surge peak on-state current (Tj initial = 25°C)			63	Α
				60	
l <sup>2</sup> t	I <sup>2</sup> t value tp =			18	A <sup>2</sup> s
dl/dt	Critical rate of rise of on-state current Gate supply: IG = 50mA dig/dt = 0.1A/	Repetitive F = 50 Hz	10	A/μs	
		50			
Tstg Tj	Storage and operating junction temperature range			- 40 to + 150 - 40 to + 110	ပိ ပိ
TI	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			260	ů

Symbol	Parameter		Unit		
		400 T/D/S/A	600 T/D/S/A	700 T/D/S/A	
VDRM VRRM	Repetitive peak off-state voltage Tj = 110°C	400	600	700	V

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# THERMAL RESISTANCES

Symbol	Parameter	Value	Unit	
Rth (j-a)	Junction to ambient	60	°C/W	
Rth (j-c) DC	Junction to case for DC	4.4	°C/W	
		втв	3.2	
Rth (j-c) AC	Junction to case for 360° conduction angle	вта	3.3	°C/W
	( F= 50 Hz)	втв	2.4	

# **GATE CHARACTERISTICS** (maximum values)

 $P_{GM} = 10W$  (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	
					Т	D	S	Α	
IGT	$V_D=12V$ (DC) $R_L=33\Omega$	Tj=25°C	1-11-111	MAX	5	5	10	10	mA
			IV	MAX	5	10	10	25	
VGT	$V_D=12V$ (DC) $R_L=33\Omega$	Tj=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	Tj=110°C	I-II-III-IV	MIN		0	.2		٧
tgt	$V_D=V_{DRM}$ $I_G=40$ mA $dI_G/dt=0.5$ A/ $\mu$ s	Tj=25°C	I-II-III-IV	TYP		2		μs	
IL	IG= 1.2 IGT	Tj=25°C	I-III-IV	TYP	10	10	20	20	mA
			II		20	20	40	40	
lH *	IT= 100mA gate open	Tj=25°C		MAX	15	15	25	25	mA
VTM *	I <sub>TM</sub> = 8.5A tp= 380μs	Tj=25°C		MAX	1.65		V		
!DRM	VDRM Rated	Tj=25°C		MAX 0.01			mA		
IRRM	VRRM Rated	Tj=110°C		MAX		0.	75		
dV/dt *	Linear slope up to	Tj=110°C		TYP	10	10	-	-	V/μs
	V <sub>D</sub> =67%V <sub>DRM</sub> gate open			MIN	-	-	10	10	
(dV/dt)c *	(dl/dt)c = 2.7A/ms	Tj=110°C		TYP	1	1	5	5	V/μs

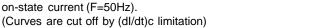
<sup>\*</sup> For either polarity of electrode A<sub>2</sub> voltage with reference to electrode A<sub>1</sub>.



#### **ORDERING INFORMATION**

Package	IT(RMS)	V <sub>DRM</sub> / V <sub>RRM</sub>	Sensitivity Specification			
	Α	v	Т	D	S	Α
ВТА	6	400	Х	Х	Х	Х
(Insulated)		600	Х	Х	Х	Х
		700	Х	Х	Х	Х
ВТВ		400	Х	Х	Х	Х
(Uninsulated)		600	Х	Х	Х	Х
		700	Х	Х	Х	Х

Fig.1: Maximum RMS power dissipation versus RMS on-state current (F=50Hz).



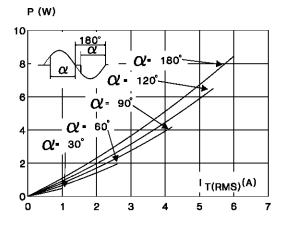


Fig.3: Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact (BTB).

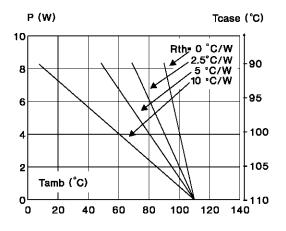


Fig.2: Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and T<sub>case</sub>) for different thermal resistances heatsink + contact (BTA).

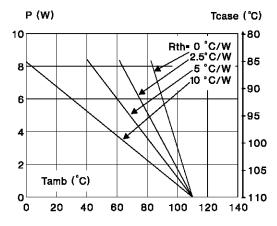


Fig.4: RMS on-state current versus case temperature.

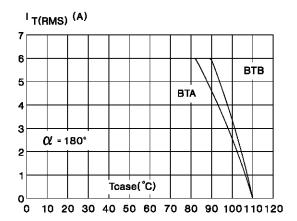


Fig.5: Relative variation of thermal impedance versus pulse duration.

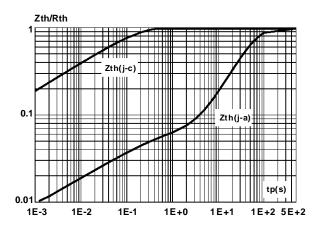


Fig.7 : Non Repetitive surge peak on-state current versus number of cycles.

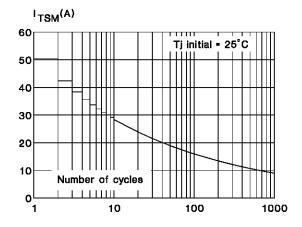


Fig.9: On-state characteristics (maximum values).

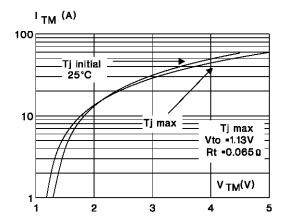


Fig.6: Relative variation of gate trigger current and holding current versus junction temperature.

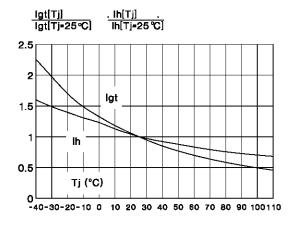
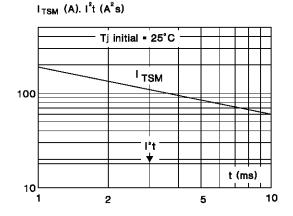
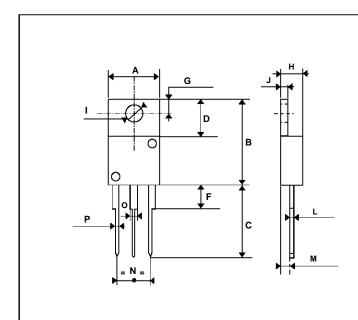


Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \le 10 ms,$  and corresponding value of  $l^2t.$ 



#### **PACKAGE MECHANICAL DATA**

TO220AB Plastic



REF.	DIMENSIONS					
	Millimeters		Inches			
	Min.	Max.	Min.	Max.		
Α	10.20	10.50	0.401	0.413		
В	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		
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		
М	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		
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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