

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

SENSITIVE GATE TRIACS

FEATURES

- VERY LOW IGT = 10mA max
- LOW I_H = 15mA max
- BTA Family : INSULATING VOLTAGE = 2500V_(RMS) (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.

Symbol	Parameter			Value		Unit
IT(RMS)	RMS on-state current (360° conduction angle)	BTA	Tc = 85°C		6	A
		втв	Tc = 90°C			
ITSM	Non repetitive surge peak on-state curre	tp = 8.3 ms		63	A	
	(Tj initial = 25°C)	tp = 10 ms		60		
l ² t	l ² t value	tp = 10 ms		18	A ² s	
dl/dt	Critical rate of rise of on-state current Gate supply : I _G = 50mA di _G /dt = 0.1A/µs		Repetitive F = 50 Hz		10	A/μs
			Non Repetitive		50	
Tstg Tj	Storage and operating junction temperature range				40 to + 150 40 to + 110	°C °C
ΤI	Maximum lead temperature for soldering during 10 s at 4.5 mm from case				260	°C
Symbol	Parameter	Parameter				Unit

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	BTA / BTB06-				
		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 BTA		4.4	°C/W
		втв	3.2	
Rth (j-c) AC	Junction to case for 360° conduction angle	ΒΤΑ	3.3	°C/W
	(F= 50 Hz)	втв	2.4	

GATE CHARACTERISTICS (maximum values)

 $\mathsf{P}_{G}\;(\mathsf{AV}) = 1\mathsf{W} \quad \mathsf{P}_{GM} = 10\mathsf{W}\;(\mathsf{tp} = 20\;\mu\mathsf{s}) \quad \mathsf{I}_{GM} = 4\mathsf{A}\;(\mathsf{tp} = 20\;\mu\mathsf{s}) \quad \mathsf{V}_{GM} = 16\mathsf{V}\;(\mathsf{tp} = 20\;\mu\mathsf{s}).$

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions Quadrant Su		Iffix		Unit				
					Т	D	S	A	
IGT	V _D =12V (DC) R _L =33Ω	Tj=25°C	- -	MAX	5	5	10	10	mA
			IV	MAX	5	10	10	25	
V _{GT}	V_{D} =12V (DC) RL=33 Ω	Tj=25°C	I-II-III-IV	MAX		1	.5		V
V _{GD}	$V_{D}=V_{DRM}$ RL=3.3k Ω	Tj=110°C	I-II-III-IV	MIN		0	.2		V
tgt	VD=VDRM IG = 40mA dIG/dt = 0.5A/µs	Tj=25°C	I-II-III-IV	TYP	2		μs		
١L	IG= 1.2 I _{GT}	Tj=25°C	I-III-IV	TYP	10	10	20	20	mA
			II		20	20	40	40	
IH *	IT= 100mA gate open	Tj=25°C		MAX	15	15	25	25	mA
∨тм *	I _{TM} = 8.5Α tp= 380μs	Tj=25°C		МАХ	1.65		V		
DRM	VDRM Rated	Tj=25°C		МАХ	0.01		mA		
IRRM	V _{RRM} Rated	Tj=110°C		МАХ	0.75				
dV/dt *	Linear slope up to	Tj=110°C		TYP	10	10	-	I	V/µs
	VD=67%VDRM gate open			MIN	-	-	10	10	
(dV/dt)c *	(dl/dt)c = 2.7A/ms	Tj=110°C		TYP	1	1	5	5	V/μs

* For either polarity of electrode A_2 voltage with reference to electrode $\mathsf{A}_1.$



ORDERING INFORMATION

Package	IT(RMS)	V _{DRM} / V _{RRM}	Sensitivity Specification			
	A	v	т	D	S	А
BTA	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). (Curves are cut off by (dI/dt)c limitation)



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



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



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





Fig.5 : Relative vatiation 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).



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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 $1^2 t$.





PACKAGE MECHANICAL DATA

TO220AB Plastic



DEE							
REF.	DIMENSIONS						
	Millimeters		Inc	hes			
	Min.	Max.	Min.	Max.			
Α	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			
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			
М	2.10	2.70	0.082	0.107			
Ν	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 Marking : type number Weight : 2.3 g Recommended torque value : 0.8 m.N. Maximum torque value : 1 m.N.

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