

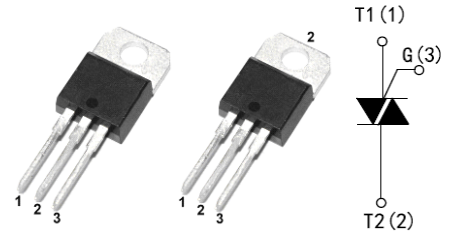
BTA/BTB12

12A TRIACS

Description

- Package: TO-220T
- Available either in through-hole or surface-mount packages, the BTA/BTB12 is suitable for general purpose AC switching. They can be used as an ON/OFF function in application such as static relays, heating regulation ,Induction motor starting circuits...or for phase control operation in light dimmers, motor speed controllers.

DRAWING



BTA12

BTB12

(Insulated)

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit	
$I_{T(RMS)}$	RMS on-state current(full sine wave)	TO-220T TC=105°C	12	A
		TO-220T Ins. TC=90°C		
I_{TSM}	Non repetitive surge peak on-state current(full cycle, T_j initial=25°C)	F=50Hz t=20ms	120	A
		F=60Hz t=16.7ms	126	
I^2t	I^2t Value for fusing	tp=10ms	78	A ² s
DI/DT	Critical rate of rise of on-state current $I_G=2X_{IGT, tr \le 100ns}$	F=120Hz Tj=125°C	50	A/us
VDSM/V RSM	Non repetitive surge peak off-state voltage	tp=10ms Tj=25°C	Vdrm / vrrm + 100V	V
IGM	Peak gate current	tp=20us Tj=125°C	4	A
$P_{G(AV)}$	Average gate power dissipation	Tj=125°C	1	W
T_{stg}	Storage junction temperature range		-40 to +150	°C
T_j	Operating junction temperature range		-40 to +125	

Electrical Characteristics (Tj=25°C, unless otherwise specified)

Snubberless™ and Logic Level(3 quadrant)

Symbol	Test conditions	Quadrant	BTA12		Unit
$I_{GT(1)}$		I - II - III	MAX	50	mA
V_{GT}	$V_D=12V R_L=30\Omega$	I - II - III	MAX	1.3	V
V_{GD}	$V_D=V_{DRM} R_L=3.3K\Omega T_j=125^\circ C$	I - II - III	MIN	0.2	V
$I_{H(2)}$	$I_T=100mA$		MAX	50	mA
IL	$I_G=1.2I_{GT}$	I - III	MAX	70	mA
		II		80	
Dv / Dt(2)	$V_D=67\%V_{DRM}$ Gate open Tj=125°C		MIN	1000	V/us
(DI/dt)c(2)	(Dv/dt)c=0.1 V/us Tj=125°C		MIN	-	A/ms
	(Dv/dt)c=10V/us Tj=125°C			-	
	Without snubber Tj=125°C			12	

Standard (4 Quadrants)

Symbol	Test conditions	Quadrant	BTA12		Unit
IGT(1)	VD=12V RL=30Ω	I - II - III	MAX	50	mA
VGT		IV		100	
VGD	VD=VDRM RL=3.3KΩTj=125°C	ALL	MIN	0.2	V
IH(2)	IT=500mA		MAX	50	mA
IL	IG=1.2IGT	I - III- IV	MAX	50	mA
		II		100	
(DI/dt)(2)	VD=67%VDRM Gate open Tj=125°C		MIN	400	V/us
(DI/dt)c(2)	(Dv/dt)c=5.3 A/ms Tj=125°C		MIN	10	V/us

Static Characteristics

Symbol	Test conditions			Value	Unit
V _{TM} (2)	ITM=11A tp=380us	T _J =25°C	MAX	1.55	V
V _{to} (2)	Threshold voltage	T _J =125°C	MAX	0.85	V
R _d (2)	Dynamic resistance	T _J =125°C	MAX	35	mΩ
I _{DRM} I _{R_{RRM}}	V _{DRM} =V _{R_{RRM}}	T _J =25°C		5	uA
		T _J =125°C	MAX	1	mA
V _{DRM} /V _{R_{RRM}}	Voltage	T _J =25°C	MIN	600 and 800	V

Note 1: minimum IGT is guaranteed at 5% of IGT max

Note 2: for both polarities of A2 referenced to A1

Thermal Resistances

Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case(AC)	TO-220T	1.4	°C/W
		TO-220T(Insulated)	2.3	
R _{th(j-a)}	Junction to ambient	TO-220T/	60	°C/W
		TO-220T(Insulated)		