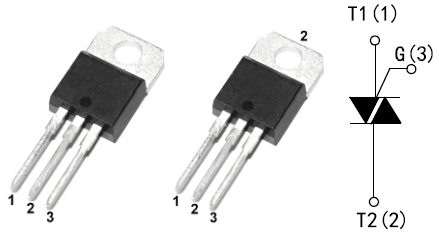
BTA / BTB08

8A TRIACS

DRAWING



BTA08 **BTB08**

(Insulated)

Description

- Package：TO-220T
- Available either in through-hole or surface-mount packages, the BTA08/BTB08 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.

Absolute Maximum Ratings

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current(full since wave)	TO-220T	TC=110℃	8	A
		TO-220T Ins.	TC=100℃		
I_{TSM}	Non repetitive surge peak on-state current(full cycle, Tj initial=25℃)	F=50Hz	t=20ms	80	A
		F=60Hz	t=16.7ms	84	
I^2t	I^2t Value for fusing	tp=10ms		36	A^2s
DI/DT	Critical rate of rise of on-state current IG=2X$I_{GT,tr\leq100ns}$	F=120Hz	Tj=125℃	50	A/us
I_{GM}	Peak gate current	tp=20us	Tj=125℃	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj=125℃	1	W
T_{stg}	Storage junction temperature range			-40 to +150	℃
T_j	Operating junction temperature range			-40 to +125	

Electrical Characteristics (Tj=25℃,unless otherwise specified)

Snubberless™ and Logic Level(3 quadrants)

Symbol	Test conditions	Quadrant	BTA08/BTB08		Unit
I_{GT}(1)	V_D=12V R_L=30Ω	Ⅰ-Ⅱ-Ⅲ	MAX	50	mA
V_{GT}		Ⅰ-Ⅱ-Ⅲ	MAX	1.3	V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩTj=125℃	Ⅰ-Ⅱ-Ⅲ	MIN	0.2	V
IH(2)	IT=100mA		MAX	50	mA
IL	I_G=1.2I_{GT}	Ⅰ-Ⅲ	MAX	70	mA
		Ⅱ		80	
Dv / Dt(2)	VD=67%V_{DRM} Gate open Tj=125℃		MIN	1000	V/us
(Dl/dt)c(2)	(Dv/dt)c=0.1 V/us Tj=125℃		MIN	-	A/ms
	(Dv/dt)c=10V/us Tj=125℃			-	
	Without snubber Tj=125℃			7	

Standard (4 Quadrants)

Symbol	Test conditions	Quadrant	BTA08/BTB08		Unit
IGT(1)	VD=12V RL=30Ω	Ⅰ-Ⅱ-Ⅲ	MAX	50	mA
		Ⅳ		100	
VGT		ALL	MAX	1.3	V
VGD	VD=VDRM RL=3.3KΩTj=125℃	ALL	MIN	0.2	V
IH(2)	IT=500mA		MAX	50	mA
IL	IG=1.2IGT	Ⅰ-Ⅲ-Ⅳ	MAX	50	mA
		Ⅱ		100	
(Dl/dt)(2)	VD=67%VDRM Gate open Tj=125℃		MIN	400	V/us
(Dl/dt)c(2)	(Dv/dt)c=3.5 A/ms Tj=125℃		MIN	10	V/us

Static Characteristics

Symbol	Test conditions			Value	Unit
VTM(2)	ITM=11A tp=380us	TJ=25℃	MAX	1.55	V
Vto(2)	Threshold voltage	TJ=125℃	MAX	0.85	V
Rd(2)	Dynamic resistance	TJ=125℃	MAX	50	mΩ
I_{DRM}	$V_{DRM}=V_{RRM}$	TJ=25℃		5	uA
I_{RRM}		TJ=125℃	MAX	1	mA
V_{DRM}/V_{RRM}	Voltage	TJ=25℃	MIN	800	V

Note 1: minimum IGT is guaranted 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	1.6	℃/W
		TO-220T(Insulated)	2.5	
Rth(j-a)	Junction to ambient	TO-220T TO-220T(Insulated)	60	℃/W

Typical Characteristics

Fig. 1: Maximum power dissipation versus RMS on-state current (full cycle).

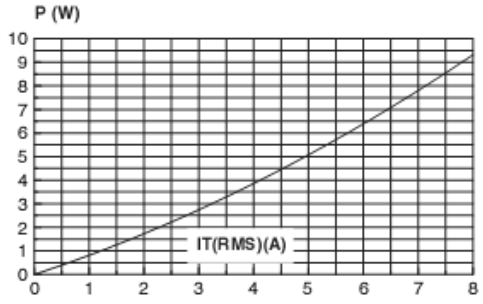


Fig. 2-1: RMS on-state current versus case temperature (full cycle).

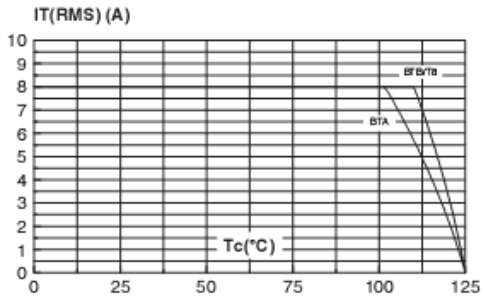


Fig. 2-2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35µm),full cycle.

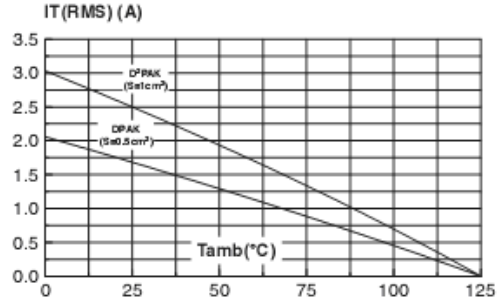


Fig. 3: Relative variation of thermal impedance versus pulse duration.

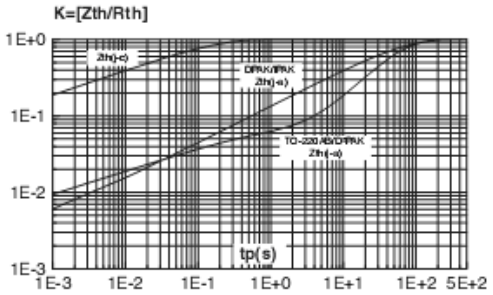


Fig. 4: On-state characteristics (maximum values).

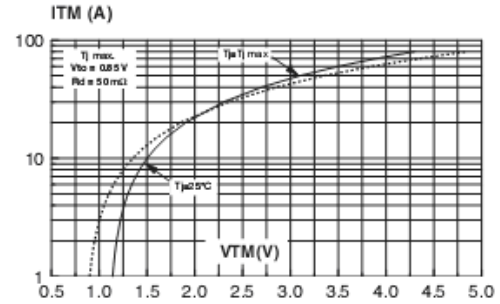


Fig. 5: Surge peak on-state current versus number of cycles.

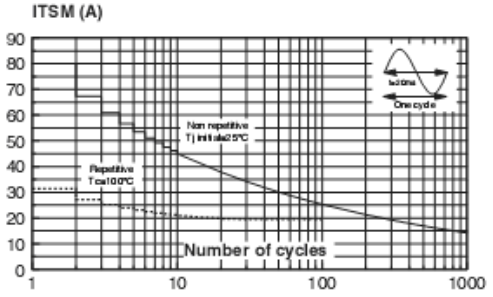


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.

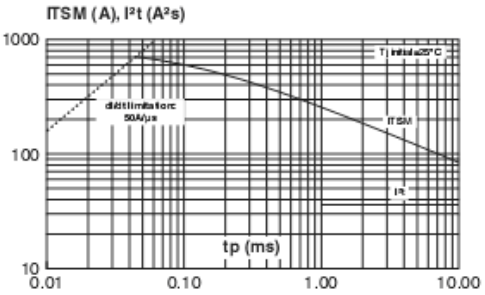


Fig. 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

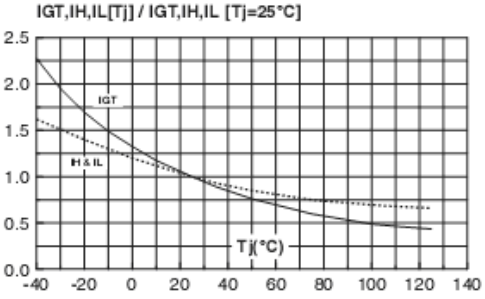


Fig. 8-1: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values). Snubberless & Logic Level Types

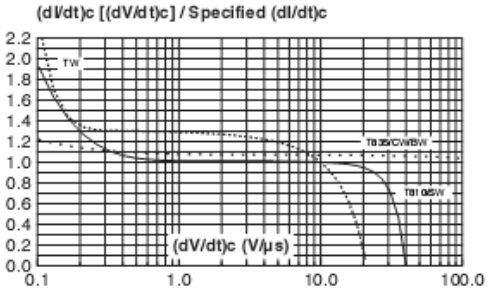


Fig. 8-2: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values). Standard Types

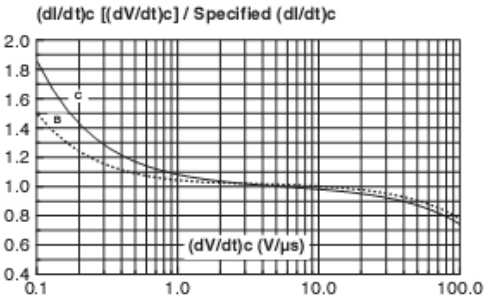


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.

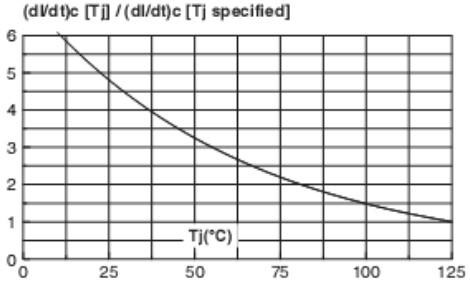
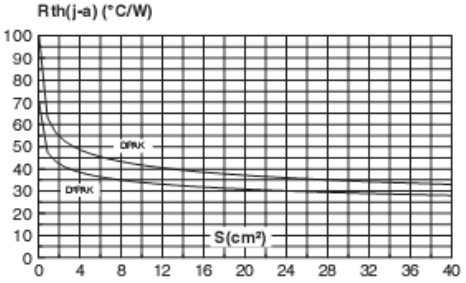


Fig. 10: DPAK and D^2PAK Thermal resistance junction to ambient versus copper surface under tab (printed circuit board FR4, copper thickness: 35 µm).



Package Mechanical Data