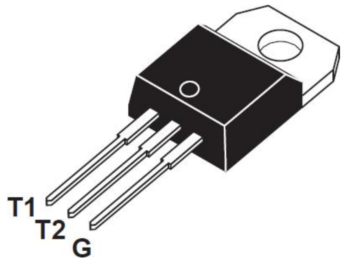
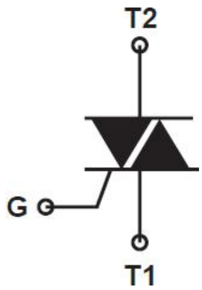
BTA208 TRIACS

●DESRCRIPTION:

Due to separation glass passivation, these devices have good performance at dv/dt and reliability. The Triac series is suitable for general purpose AC switching. They can be used as an On-Off function in the applications such as static relays, heating regulation, or for phase control operation in light dimmers, motor speed controllers.



TO-220



●MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
V_{DRM}/V_{RRM}	600/800	V
I_{GT}	≤10	mA

●ABSOLUTE MAX I MUM RATINGS

Symbol	PARAMETER		Value	Unit
$I_{T(RMS)}$	RMS on-state current(full sine wave)	TO-220.Non-Ins $T_C \leq 102°C$	8	A
I_{TSM}	Non repetitive surge peak on-state current (full sine wave, Tj=25°C)	t=20ms	65	A
		t=16.7ms	71	
I^2t	I^2t Value for fusing	t=10ms	21	A^2S
di/dt	Repetitive rate of rise of on-state Current after triggering	I_{TM} = 12 A; I_G = 0.2 A dI_G/dt = 0.2 A/us	100	A/μs
I_{GM}	Peak gate current	—	2	A
V_{GM}	Peak gate voltage	—	5	W
P_{GM}	Peak gate power	—	5	W
$P_{G(AV)}$	Average gate power	over any 20 ms period	0.5	W
T_{stg}	Storage junction temperature range	-40 to +150		°C
T_j	Operating junction temperature range	125		°C

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● ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

STATIC CHARACTERISTICS

Symbol	Parameter	Test Condition	Quadrant	Value			Unit
				MIN	TYPE	MAX	
I_{GT}	Gate trigger current	V_D=12V, I_T=0.1A	I-II-III	-	-	10	mA
V_{GT}	Gate trigger voltage	V_D=12V, I_T=0.1A		-	0.7	1.5	V
		V_D=400V, I_T=0.1A,Tj=125°C		0.25	0.4	-	
V_T	On-state voltage	I_T=10A		-	1.3	1.65	V
I_H	Holding current	V_D=12V, I_{GT}=0.1A	I-II-III	-	-	60	mA
I_L	Latching current	V_D=12V, I_{GT}=0.1A	I-III	-	-	60	mA
			II	-	-	90	mA
I_D	Off-state leakage current	V_D = $V_{DRM(max)}$; Tj= 125 ˚C		-	0.1	0.5	mA

DYNAMIC CHARACTERISTICS

Symbol	Parameter	Test Condition	Value		Unit
			MIN	TYPE	
dV_D/dt	Critical rate of rise of off-state voltage	V_{DM} = 67% $V_{DRM(max)}$; Tj = 125 ˚C exponential waveform; gate open circuit	1000	4000	V/us
dIcom/dt	Critical rate of change of commutating current	V_{DM} = 400 V; Tj = 125 ˚C; $I_{T(RMS)}$ = 8 A; without snubber; gate open circuit		14	A/ms
tgt	Gate controlled turn-on time	I_{TM} = 12 A; V_D= $V_{DRM(max)}$; I_G = 0.1 A; dI_G/dt = 5 A/μs		2	us

● THERMAL RESISTANCES

Symbol	Parameter	Test Condition	Value			Unit
			MIN	TYPE	MAX	
$R_{th\ j\text{-}mb}$	Thermal resistance junction to mounting base	full cycle			2.0	K/W
		half cycle			4.0	
$R_{th\ j\text{-}a}$	Thermal resistance junction to ambient	In free air		60		K/W

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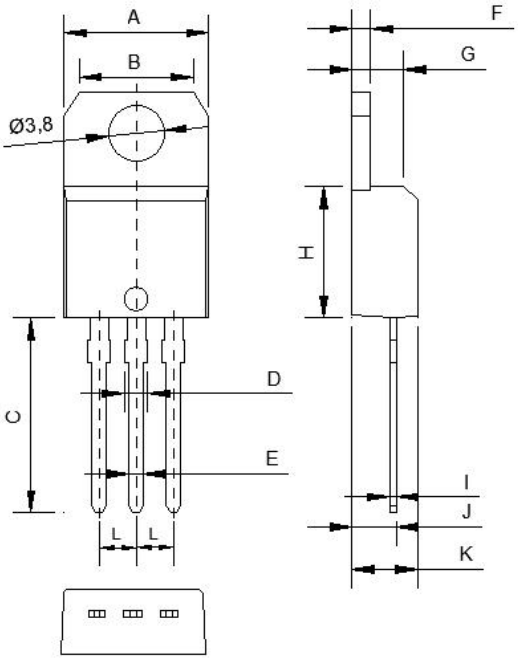
PACKAGE MECHANICAL DATA

TO-220



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	9.80	10.00	0.386	0.394
B	7.70	7.90	0.303	0.311
C	13.15	13.55	0.518	0.533
D	1.51	1.61	0.059	0.063
E	0.96	1.00	0.038	0.039
F	1.20	1.30	0.047	0.051
G	3.40	3.60	0.134	0.142
H	8.80	9.10	0.346	0.358
I	0.42	0.48	0.017	0.019
J	2.80	3.10	0.110	0.122
K	4.20	4.70	0.165	0.185
L	2.50	2.60	0.098	0.102

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ELECTRICAL CHARACTERISTICS (CURVES)

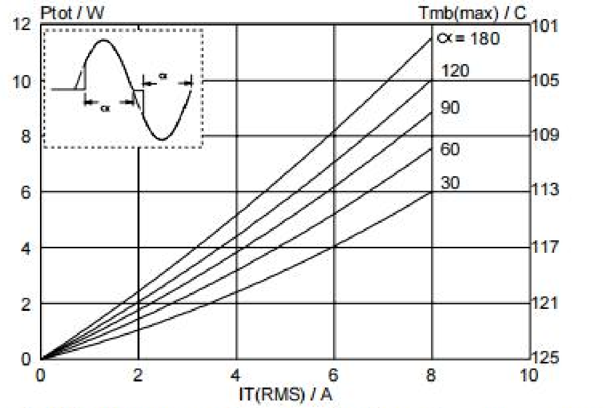

Fig.1. Maximum on-state dissipation, P_{tot}, versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

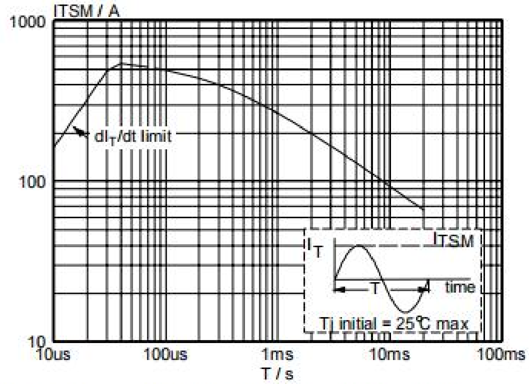

Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus pulse width t_p, for sinusoidal currents, $t_p \leq 20ms$.

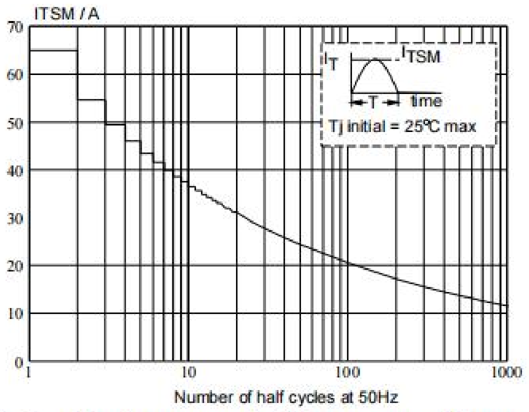

Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus number of cycles, for sinusoidal currents, f = 50 Hz.

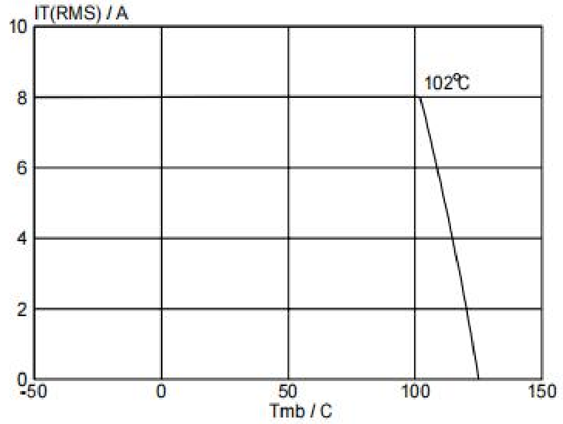

Fig.4. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb}.

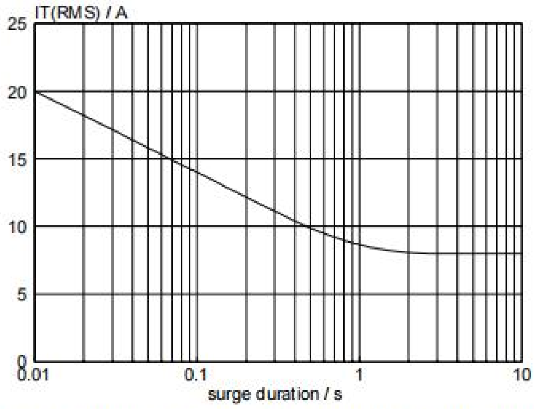

Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, f = 50 Hz; $T_{mb} \leq 102$˚C.

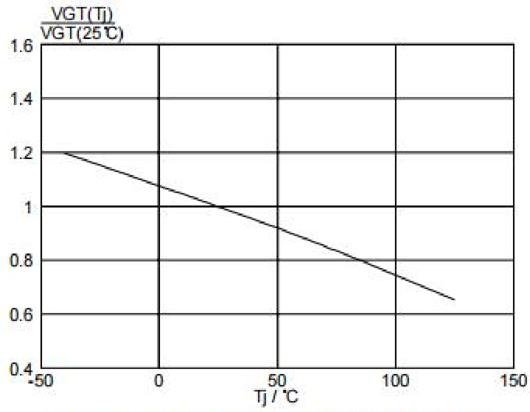

Fig.6. Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}(25$˚C$)$, versus junction temperature T_j.

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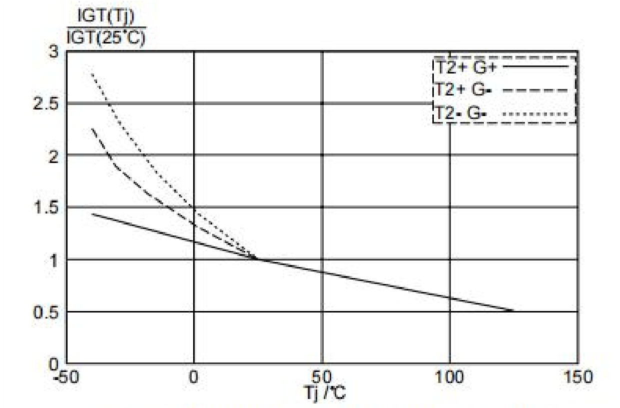

Fig.7. Normalised gate trigger current $I_{GT}(T_j)/I_{GT}(25^{\circ}C)$, versus junction temperature T_j.

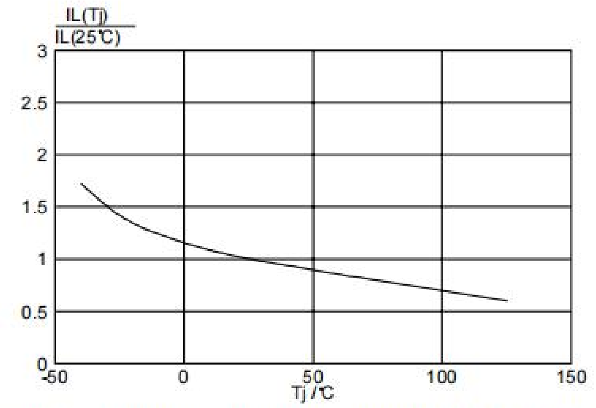

Fig.8. Normalised latching current $I_L(T_j)/I_L(25^{\circ}C)$, versus junction temperature T_j.

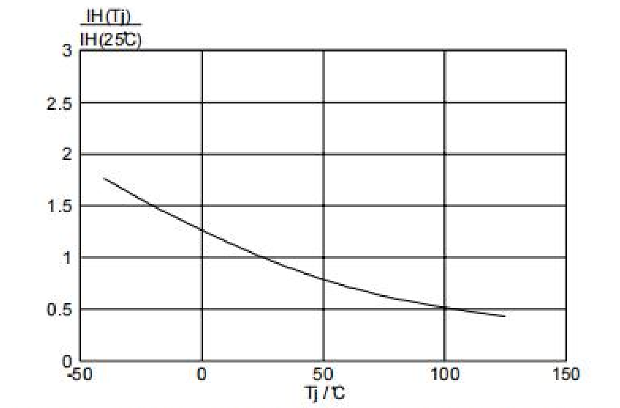

Fig.9. Normalised holding current $I_H(T_j)/I_H(25^{\circ}C)$, versus junction temperature T_j.

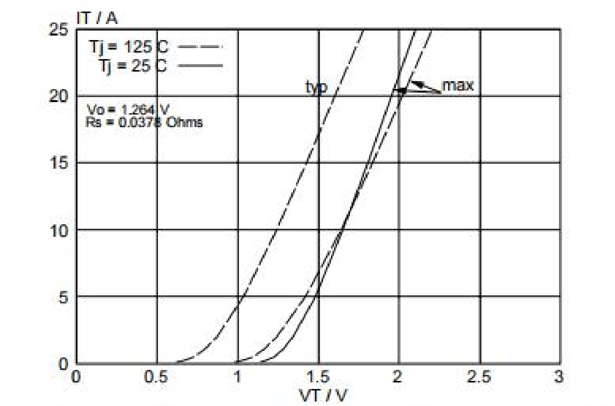

Fig.10. Typical and maximum on-state characteristic.

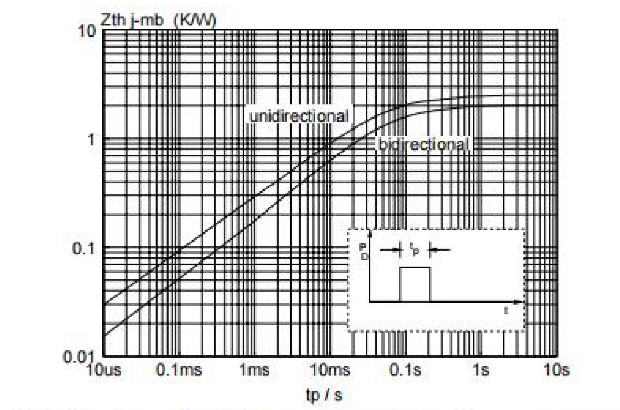

Fig.11. Transient thermal impedance $Z_{th\ j\text{-}mb}$, versus pulse width t_p.

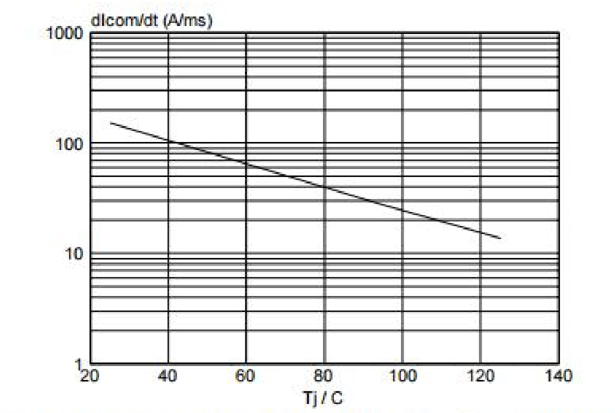

Fig.12. Typical, critical rate of change of commutating current, dI_{com}/dt versus junction temperature.

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