

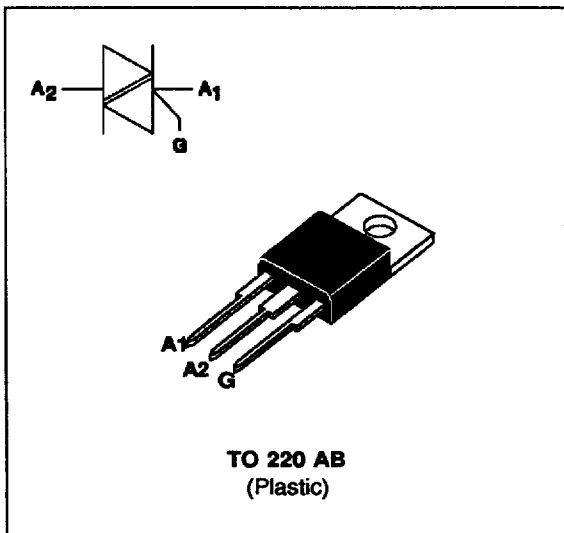
LOGIC LEVEL TRIACS

FEATURES

- LOW $I_{GT} = 5\text{mA max}$
- LOW $I_H = 15\text{mA max}$
- HIGH EFFICIENCY SWITCHING
- BTA Family :
 INSULATING VOLTAGE = 2500V(RMS)
 (UL RECOGNIZED : E81734)

DESCRIPTION

The BTA/BTB08 TW/SW use high performance products glass passivated chips. The low I_{GT} / I_H level coupled with the high efficiency circuit make this family will adapted for low power trigger circuits (microcontrollers, microprocessors, integrated circuits ...)



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_T(\text{RMS})$	RMS on-state current (360° conduction angle)	BTA	$T_c = 75^\circ\text{C}$	8	A
		BTB	$T_c = 80^\circ\text{C}$		
I_{TSM}	Non repetitive surge peak on-state current (T_J initial = 25°C)	$t_p = 8.3\text{ ms}$		85	A
		$t_p = 10\text{ ms}$		80	
I_{2t}	I_{2t} value	$t_p = 10\text{ ms}$		32	A2s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 50\text{mA}$ $di_G/dt = 0.1\text{A}/\mu\text{s}$	Repetitive $F = 50\text{ Hz}$		20	A/ μs
		Non Repetitive		100	
T_{stg} T_J	Storage and operating junction temperature range	- 40 to + 150		- 40 to + 150	$^\circ\text{C}$
		- 40 to + 110		- 40 to + 110	$^\circ\text{C}$
T_I	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			260	$^\circ\text{C}$

Symbol	Parameter	BTA / BTB08-			Unit
		400 TW/SW	600 TW/SW	700 TW/SW	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_J = 110^\circ\text{C}$	400	600	700	V

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	4.0	°C/W
		BTB	3.3	
Rth (j-c) AC	Junction to case for 360° conduction angle (F = 50 Hz)	BTA	3.0	°C/W
		BTB	2.5	

GATE CHARACTERISTICS (maximum values)

PG (AV) = 1W PGM = 10W (tp = 20 μs) IGM = 4A (tp = 20 μs) VGM = 16V (tp = 20 μs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Suffix		Unit
					TW	SW	
I _{GT}	V _D =12V (DC) R _L =33Ω	T _J =25°C	I-II-III	MAX	5	10	mA
V _{GT}	V _D =12V (DC) R _L =33Ω	T _J =25°C	I-II-III	MAX	1.5		V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _J =110°C	I-II-III	MIN	0.2		V
t _{gt}	V _D =V _{DRM} I _G = 40mA dI _G /dt = 0.5A/μs	T _J =25°C	I-II-III	TYP	2		μs
I _L	I _G =1.2 I _{GT}	T _J =25°C	I-III	TYP	8	15	mA
			II		15	25	
I _H *	I _T = 100mA gate open	T _J =25°C		MAX	15	25	mA
V _{TM} *	I _{TM} = 11A tp= 380μs	T _J =25°C		MAX	1.75		V
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated	T _J =25°C		MAX	0.01		mA
		T _J =110°C		MAX	1		
dV/dt *	Linear slope up to V _D =67%V _{DRM} gate open	T _J =110°C		MIN	20	50	V/μs
(dI/dt) _c *	dV/dt= 0.1V/μs	T _J =110°C		MIN	3.5	4.5	A/ms
	dV/dt= 20V/μs			MIN	1.8	3.5	

* For either polarity of electrode A2 voltage with reference to electrode A1.

ORDERING INFORMATION

Package	I _T (RMS)	V _{DRM} / V _{RRM}	Sensitivity Specification	
	A	V	TW	SW
BTA (Insulated)	8	400	X	X
		600	X	X
		700	X	X
BTB (Uninsulated)		400	X	X
		600	X	X
		700	X	X

Fig.1 : Maximum RMS power dissipation versus RMS on-state current ($F=50\text{Hz}$).
(Curves are cut off by $(di/dt)_c$ limitation)

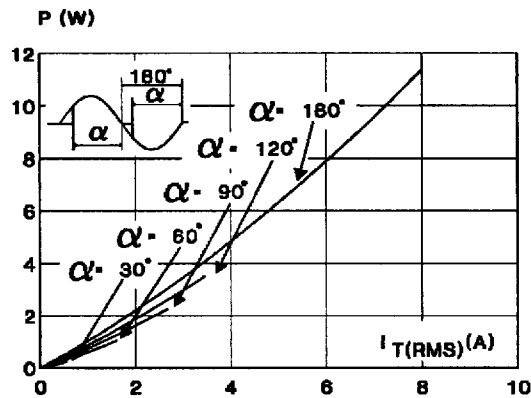


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTA).

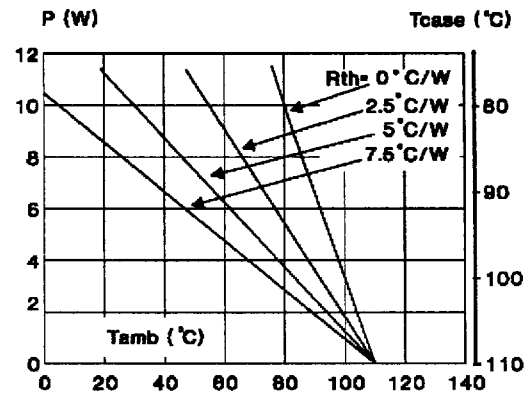


Fig.3 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTB).

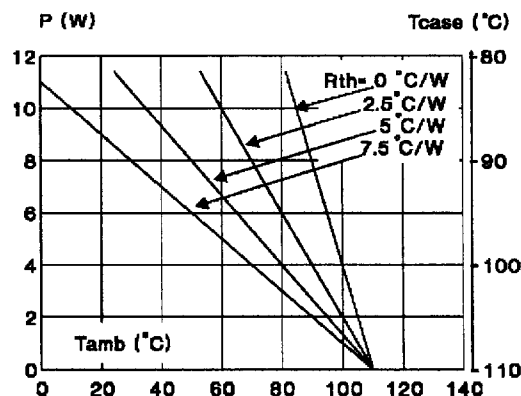


Fig.4 : RMS on-state current versus case temperature.

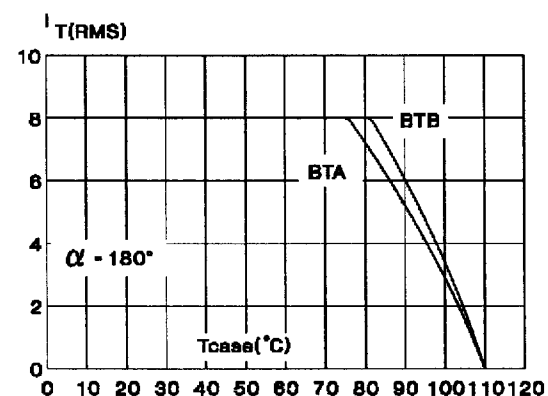


Fig.5 : Relative variation of thermal impedance versus pulse duration.

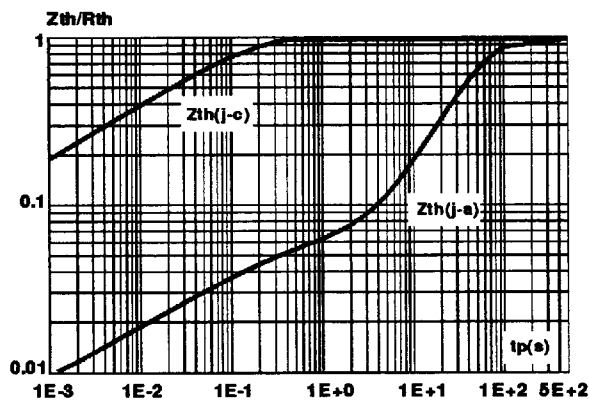


Fig.6 : Relative variation of gate trigger current and holding current versus junction temperature.

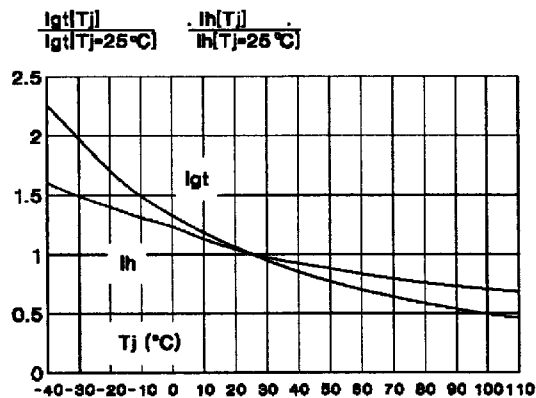


Fig.7 : Non Repetitive surge peak on-state current versus number of cycles.

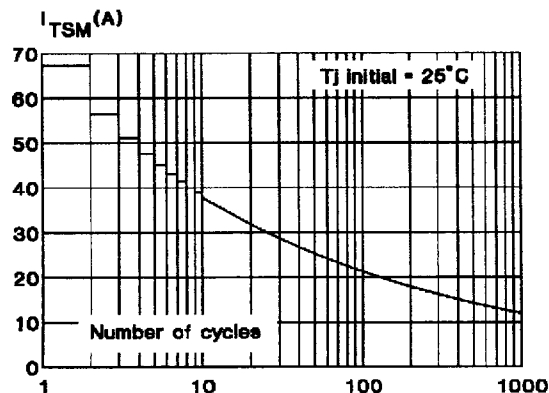


Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

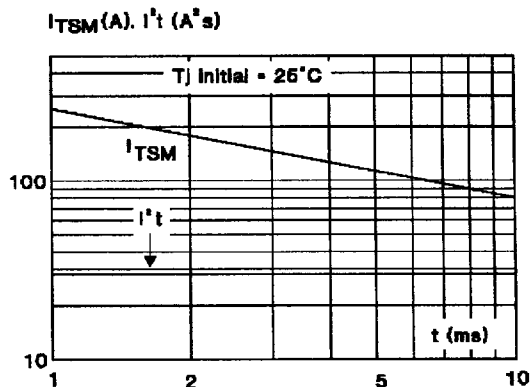


Fig.9 : On-state characteristics (maximum values).

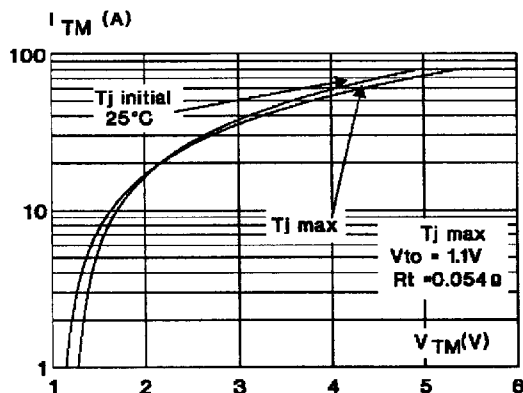
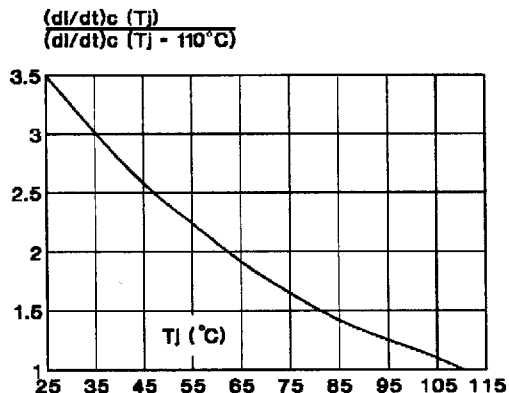
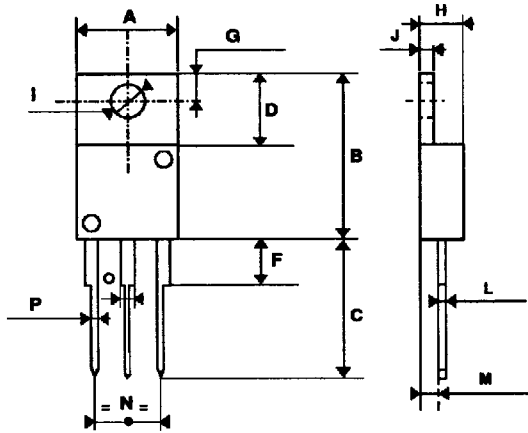


Fig.10 : Relative variation of $(di/dt)_c$ versus junction temperature.



PACKAGE MECHANICAL DATA

TO220AB Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10.20	10.50	0.401	0.413
B	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
H	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
M	2.10	2.70	0.082	0.107
N	4.58	5.58	0.18	0.22
O	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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