



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



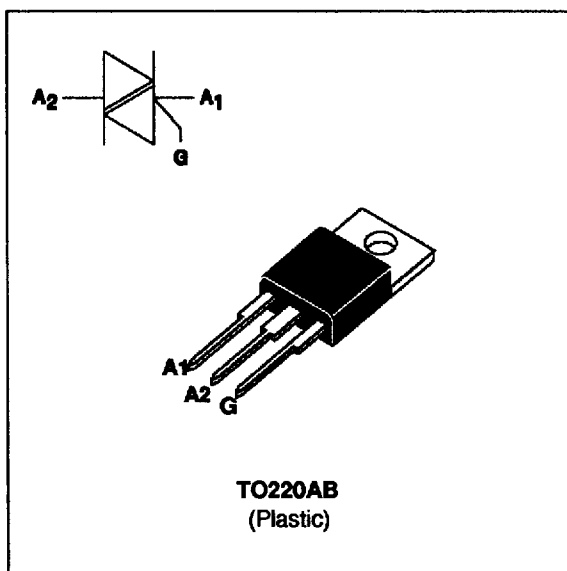
LOGIC LEVEL TRIACS

FEATURES

- LOW $I_{GT} = 10\text{mA max}$
- HIGH EFFICIENCY SWITCHING ON COMMUTATION
- BTA Family :
INSULATING VOLTAGE = 2500V(RMS)
(UL RECOGNIZED : E81734)

DESCRIPTION

The BTA/BTB12 SW Triac family are high performance products glass passivated PNPN devices. These parts are suited for low power trigger circuit (integrated circuits, microcontroller, microprocessors).



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_T(\text{RMS})$	RMS on-state current (360° conduction angle)	BTA	$T_c = 70\text{ }^{\circ}\text{C}$	12	A
		BTB	$T_c = 75\text{ }^{\circ}\text{C}$		
I_{TSM}	Non repetitive surge peak on-state current (T_J initial = 25°C)	$t_p = 8.3\text{ ms}$		126	A
		$t_p = 10\text{ ms}$		120	
I^2_t	I^2_t value	$t_p = 10\text{ ms}$		72	A^2s
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	$\text{A}/\mu\text{s}$
		Non Repetitive		100	
T_{stg} T_J	Storage and operating junction temperature range			- 40 to + 150 - 40 to + 110	$^{\circ}\text{C}$ $^{\circ}\text{C}$
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			260	$^{\circ}\text{C}$

Symbol	Parameter	BTA / BTB12-			Unit
		400 SW	600 SW	700 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
R _{th} (j-a)	Junction to ambient		60	°C/W
R _{th} (j-c) DC	Junction to case for DC	BTA	3.3	°C/W
		BTB	2.7	
R _{th} (j-c) AC	Junction to case for 360° conduction angle (F = 50 Hz)	BTA	2.5	°C/W
		BTB	2	

GATE CHARACTERISTICS (maximum values)

P_G (AV) = 1W P_{GM} = 10W (t_p = 20 μs) I_{GM} = 4A (t_p = 20 μs) V_{GM} = 16V (t_p = 20 μs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Suffix	Unit
					SW	
I _{GT}	V _D =12V (DC) R _L =33Ω	T _J =25°C	I-II-III	MAX	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	15	mA
			II		25	
I _H *	I _T = 100mA gate open	T _J =25°C		MAX	25	mA
V _{TM} *	I _{TM} = 17A t _p = 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	50	V/μs
(dI/dt) _c *	dV/dt = 0.1V/μs	T _J =110°C		MIN	5.3	A/ms
	dV/dt = 20V/μs			MIN	3.5	

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

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

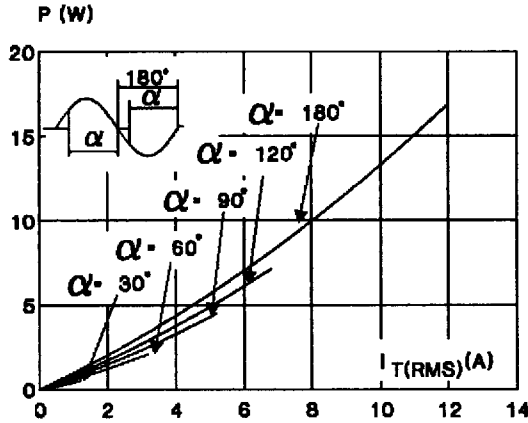


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTA).

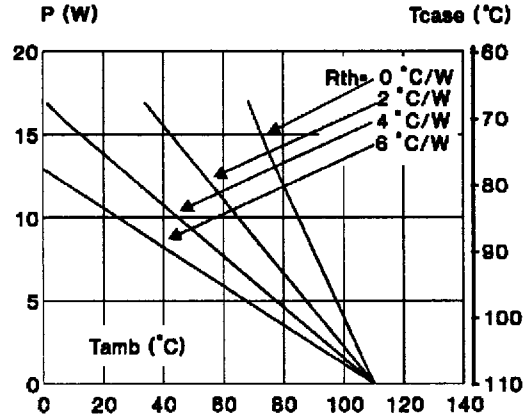


Fig.3 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTB).

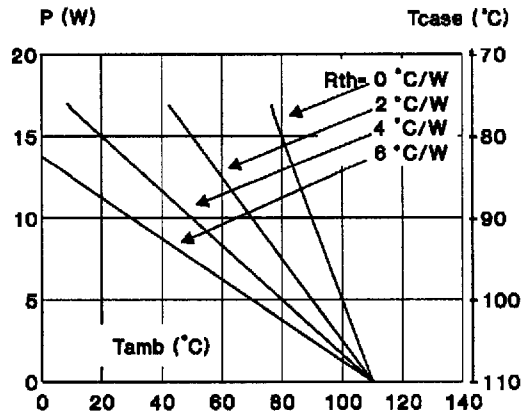


Fig.4 : RMS on-state current versus case temperature.

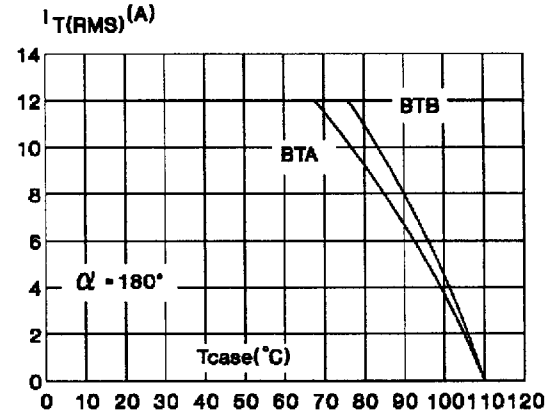


Fig.5 : Relative variation of thermal impedance versus pulse duration.

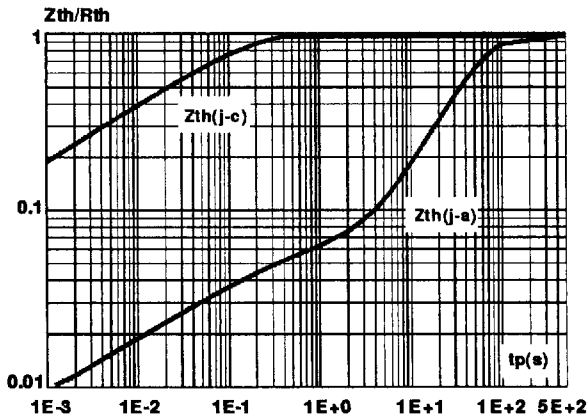


Fig.6 : Relative variation of gate trigger current and holding current versus junction temperature.

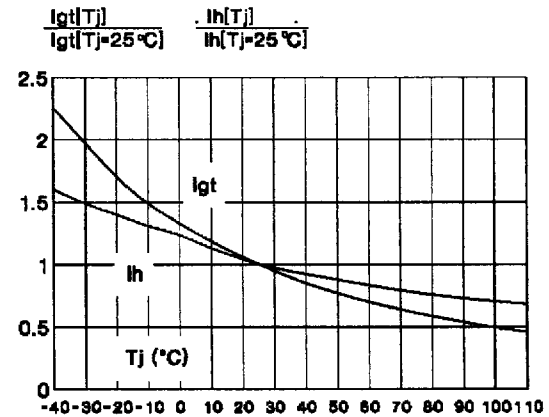


Fig.7 : Non Repetitive surge peak on-state current versus number of cycles.

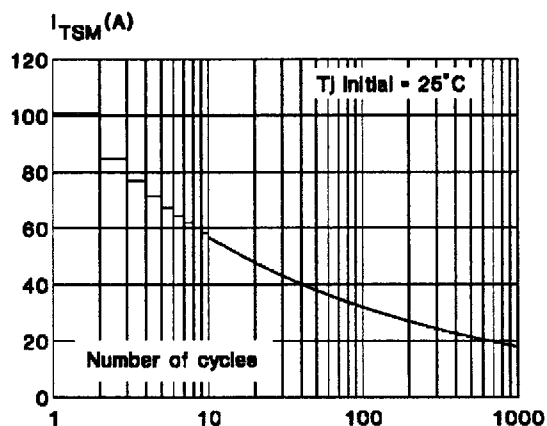


Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

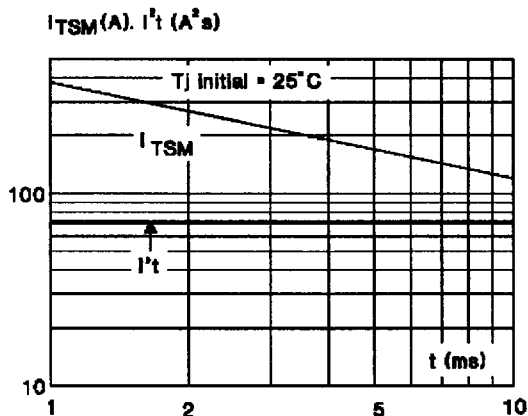


Fig.9 : On-state characteristics (maximum values).

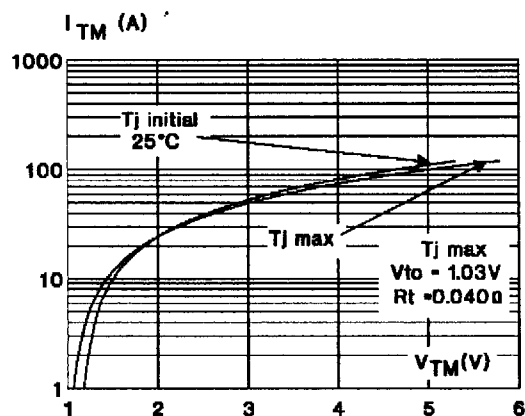
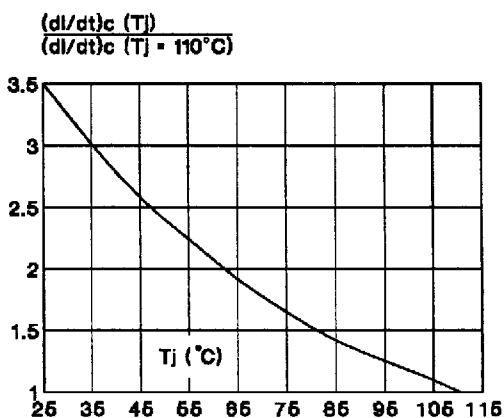
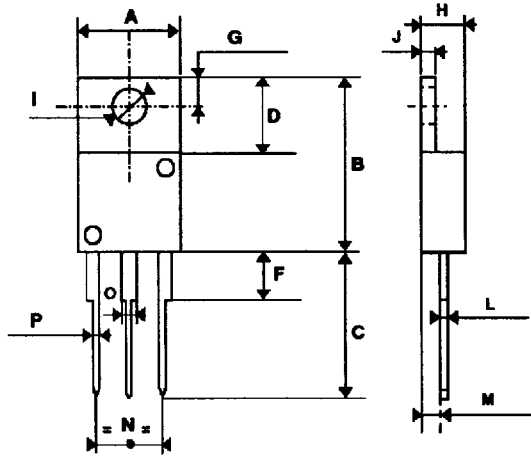


Fig.10 : Relative variation of $(dl/dt)_c$ versus junction temperature.



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.

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied.

SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - Printed in Italy - All rights reserved.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.