

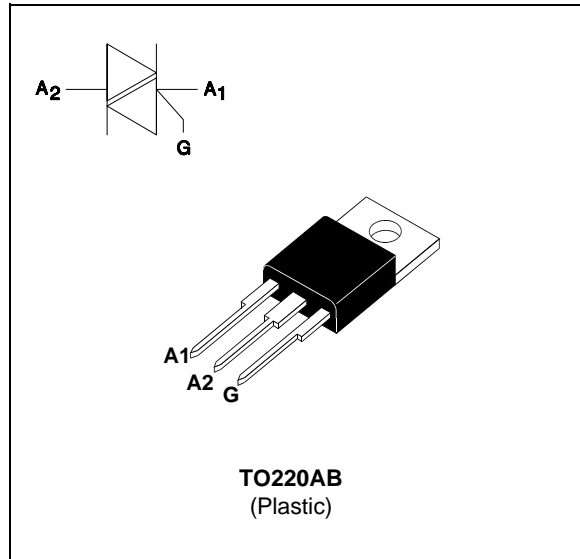
STANDARD TRIACS

FEATURES

- HIGH SURGE CURRENT CAPABILITY
- COMMUTATION : $(dV/dt)_c > 10V/\mu s$

DESCRIPTION

The BTB24 B triac family are high performance glass passivated PNP devices. These parts are suitable for general purpose applications where high surge current capability is required. Application such as phase control and static switching on inductive or resistive load.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_c = 90\text{ °C}$	25	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3\text{ ms}$	260	A
		$t_p = 10\text{ ms}$	250	
I^2t	I^2t value	$t_p = 10\text{ ms}$	312	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 2 \cdot I_{GT}$ $t_r \leq 100\text{ ns}$	Repetitive $F = 100\text{ Hz}$	50	A/ μs
T_{stg} T_j	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C °C
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	°C

Symbol	Parameter	BTB24-... B				Unit
		400	600	700	800	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125\text{ °C}$	400	600	700	800	V

BTB24 B

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient	60	°C/W
Rth (j-c) DC	Junction to case for DC	1.5	°C/W
Rth (j-c) AC	Junction to case for 360° conduction angle (F = 50 Hz)	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrant	Suffix	Unit		
I_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	I-II-III-IV	MIN	5	mA
			I-II-III	MAX	50	
			IV	MAX	100	
V_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	I-II-III-IV	MAX	1.3	V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3k\Omega$	$T_j=125^\circ C$	I-II-III-IV	MIN	0.2	V
I_L	$I_G=1.2 I_{GT}$	$T_j=25^\circ C$	I-III-IV	MAX	70	mA
					150	
I_H^*	$I_T=500mA$ gate open	$T_j=25^\circ C$		MAX	50	mA
V_{TM}^*	$I_{TM}=35A$ tp= 380μs	$T_j=25^\circ C$		MAX	1.6	V
I_{DRM} I_{RRM}	V_{DRM} Rated V_{RRM} Rated	$T_j=25^\circ C$		MAX	5	μA
		$T_j=125^\circ C$		MAX	2	mA
dV/dt *	Linear slope up to $V_D=67\%V_{DRM}$ gate open	$T_j=125^\circ C$		MIN	750	V/μs
(dV/dt)c *	(dI/dt)c = 11.1A/ms	$T_j=125^\circ C$		MIN	10	V/μs

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

Fig. 1: Maximum power dissipation versus RMS on-state current.

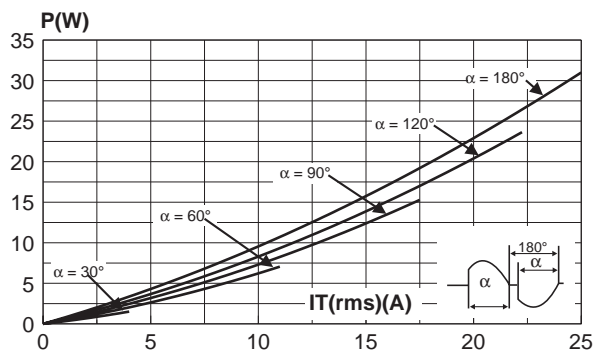


Fig. 2: Correlation between maximum power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

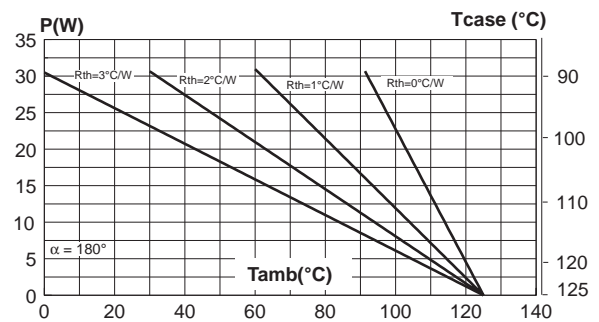


Fig. 3: RMS on-state current versus case temperature.

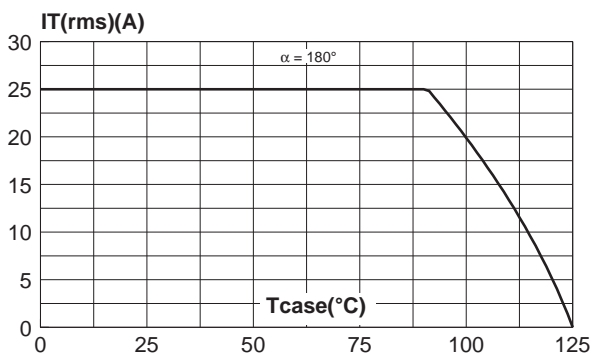


Fig. 4: Relative variation of thermal impedance versus pulse duration.

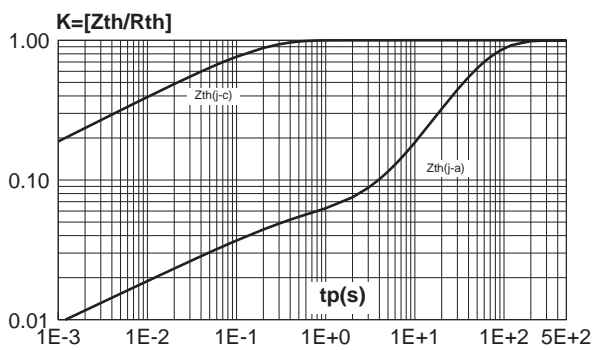


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature (typical values).

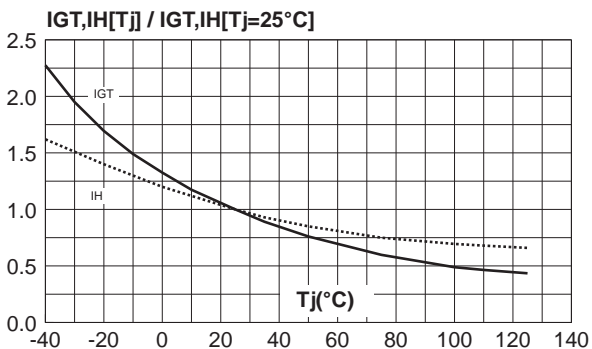


Fig. 6: Non Repetitive surge peak on-state current versus number of cycles.

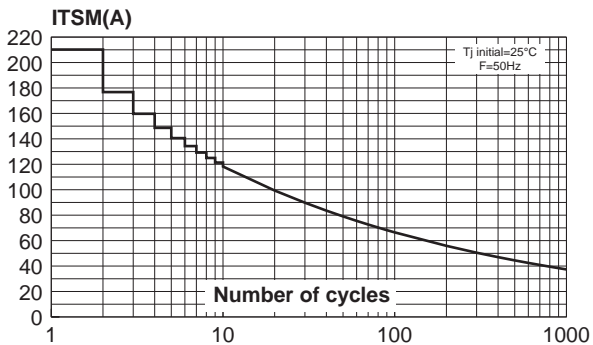


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

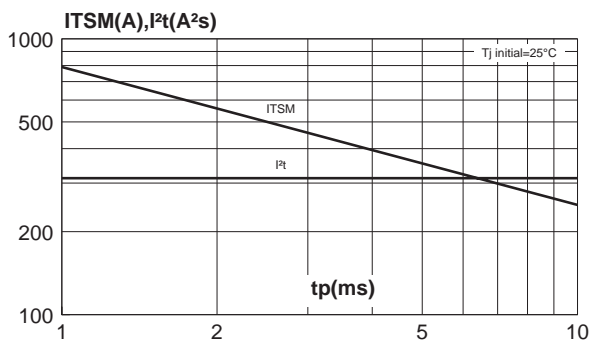
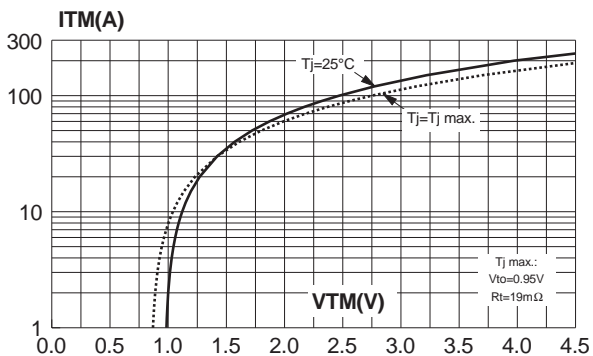


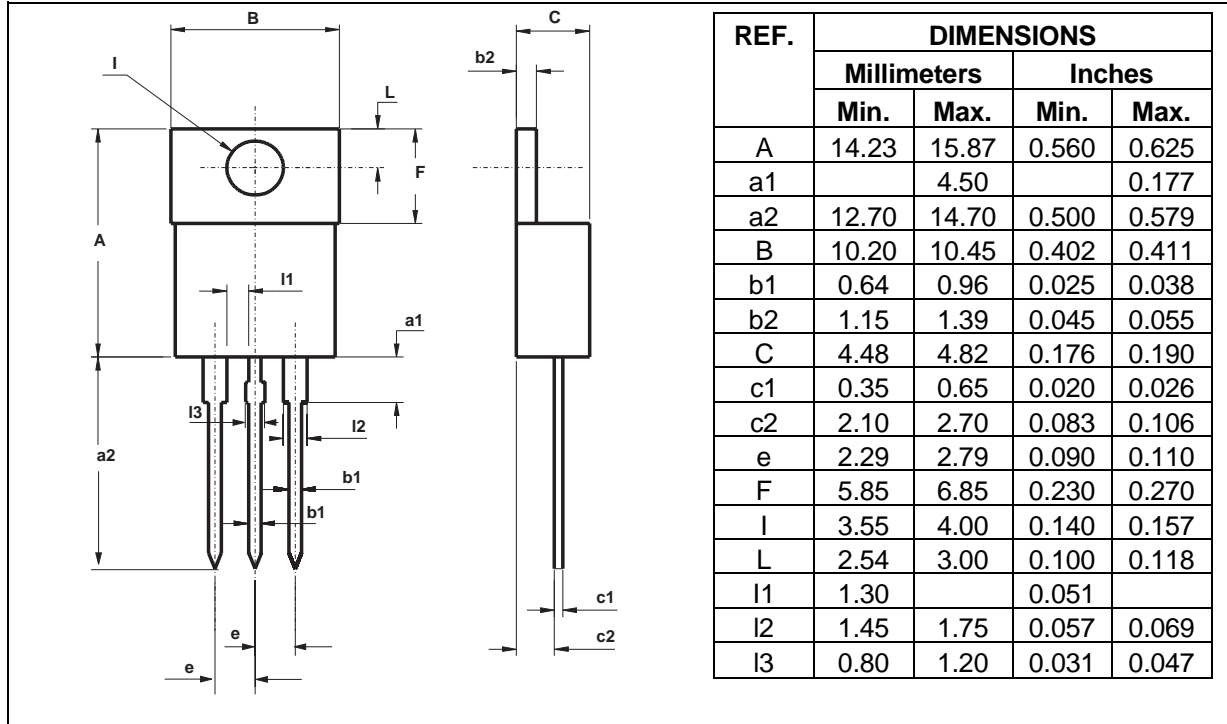
Fig. 8: On-state characteristics (maximum values).



BTB24 B

PACKAGE MECHANICAL DATA

TO220AB Plastic



Cooling method : C

Marking : type number

Weight : 2.25 g

Recommended torque value : 0.8 m.N.

Maximum torque value : 1 m.N.

Information furnished is believed to be accurate and reliable. However, STMicroelectronics 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 STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 1998 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

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

<http://www.st.com>

This datasheet has been downloaded from:

www.DatasheetCatalog.com

Datasheets for electronic components.