



BTA25 BW BTA25 CW

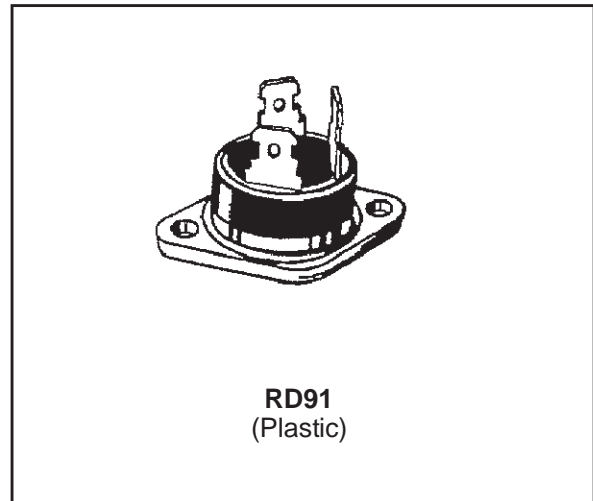
SNUBBERLESS™ TRIACS

FEATURES

- $I_{T(RMS)} = 25A$
- HIGH COMMUTATION:
 $(di/dt)_c \geq 12A/ms$ BTA25-xxxCW
 $(di/dt)_c \geq 22A/ms$ BTA25-xxxBW
- INSULATING VOLTAGE $2500V_{(RMS)}$

DESCRIPTION

The BTA25-xxxBW/CW series use a high performance MESA GLASS technology. The SNUBBERLESS concept offers suppression of RC network and it is suitable for application such as water heaters, motor control, welding equipment, ...



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_c = 85^\circ C$	25	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3 ms$	260	A
		$t_p = 10 ms$	250	
I^2t	I^2t Value for fusing	$t_p = 10 ms$	312	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 500 mA$ $di_G/dt = 1 A/\mu s$.	Repetitive $F = 50 Hz$	20	$A/\mu s$
		Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	$^\circ C$
TI	Maximum lead temperature for soldering during 10s		260	$^\circ C$

Symbol	Parameter	BTA25-xxxBW/CW		Unit
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ C$	600	800	V

BTA25BW / BTA25CW

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case for DC	1.7	°C/W
Rth(j-c)	Junction to case for AC 360° conduction angle (F=50Hz)	1.3	°C/W

GATE CHARACTERISTICS (maximum values)

$P_G (AV) = 1 \text{ W}$ $P_{GM} = 10 \text{ W}$ ($t_p = 20 \mu\text{s}$) $I_{GM} = 4 \text{ A}$ ($t_p = 20 \mu\text{s}$)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Sensitivity		Unit
					CW	BW	
I_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MIN	4	5	mA
				MAX	35	50	
V_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	1.3		V
I_H^*	$I_T = 250 \text{ mA}$ Gate open	$T_j = 25^\circ\text{C}$		MAX	50	70	mA
I_L	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ\text{C}$	I-III	MAX	50	70	mA
			II	MAX	60	80	
V_{TM}^*	$I_{TM} = 35\text{A}$ $t_p = 380\mu\text{s}$	$T_j = 25^\circ\text{C}$		MAX	1.5		V
I_{DRM} I_{RRM}	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$		MAX	5		μA
		$T_j = 125^\circ\text{C}$		MAX	3		mA
dV/dt^*	$V_D = 67\% V_{DRM}$ Gate open	$T_j = 125^\circ\text{C}$		MIN	750	1000	V/ μs
$(di/dt)_c^*$	Without snubber	$T_j = 125^\circ\text{C}$		MIN	12	22	A/ms

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

ORDERING INFORMATION

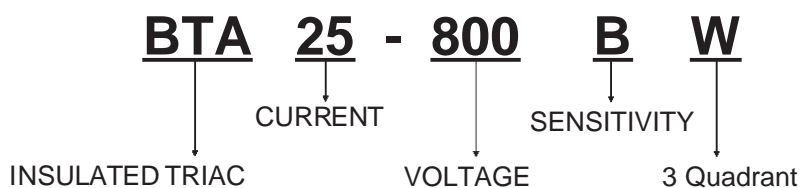


Fig.1 : Maximum power dissipation versus RMS on-state current.

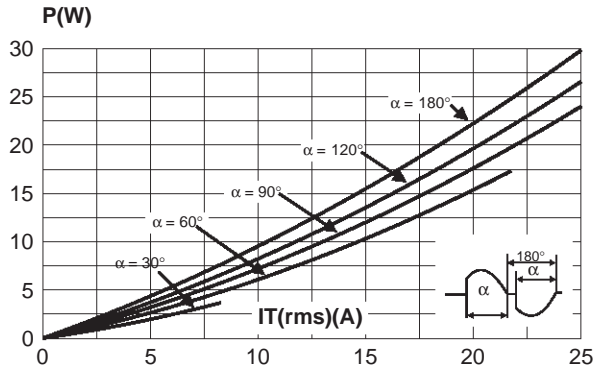


Fig.2 : Correlation between maximum power dissipation and maximum allowable temperature (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

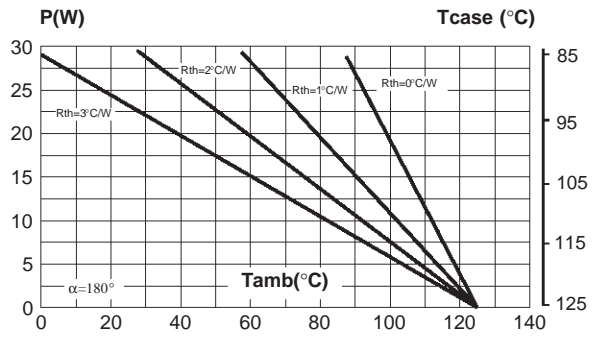


Fig.3 : RMS on-state current versus case temperature.

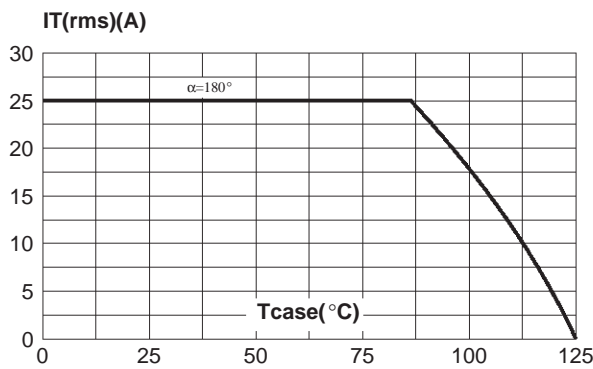


Fig.4 : Relative variation of thermal impedance versus pulse duration.

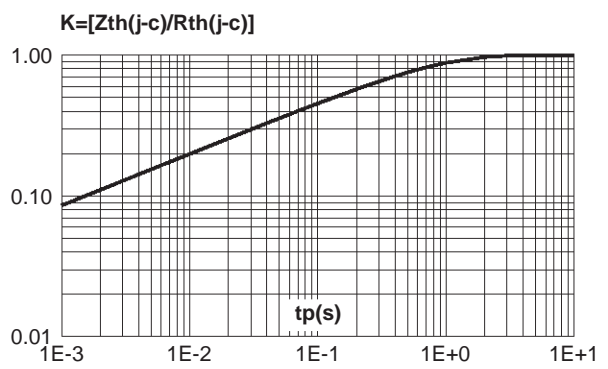


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature (typical value).

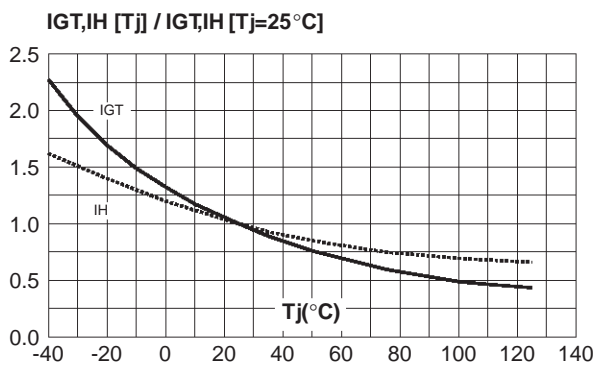
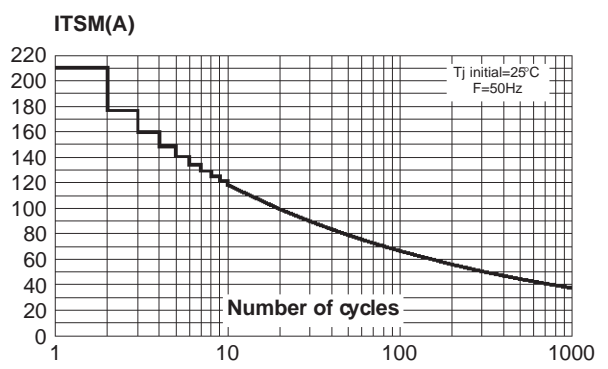


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



BTA25BW / BTA25CW

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

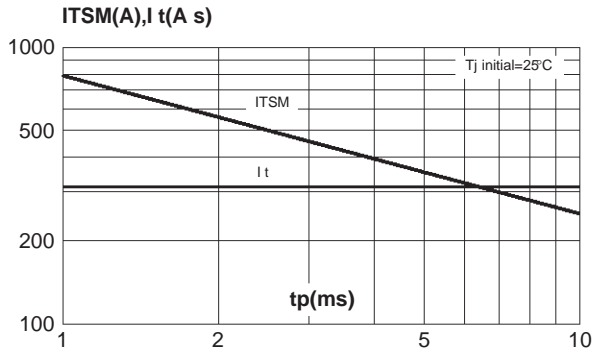
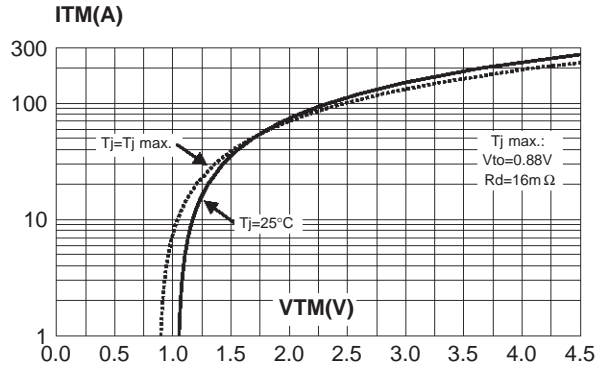
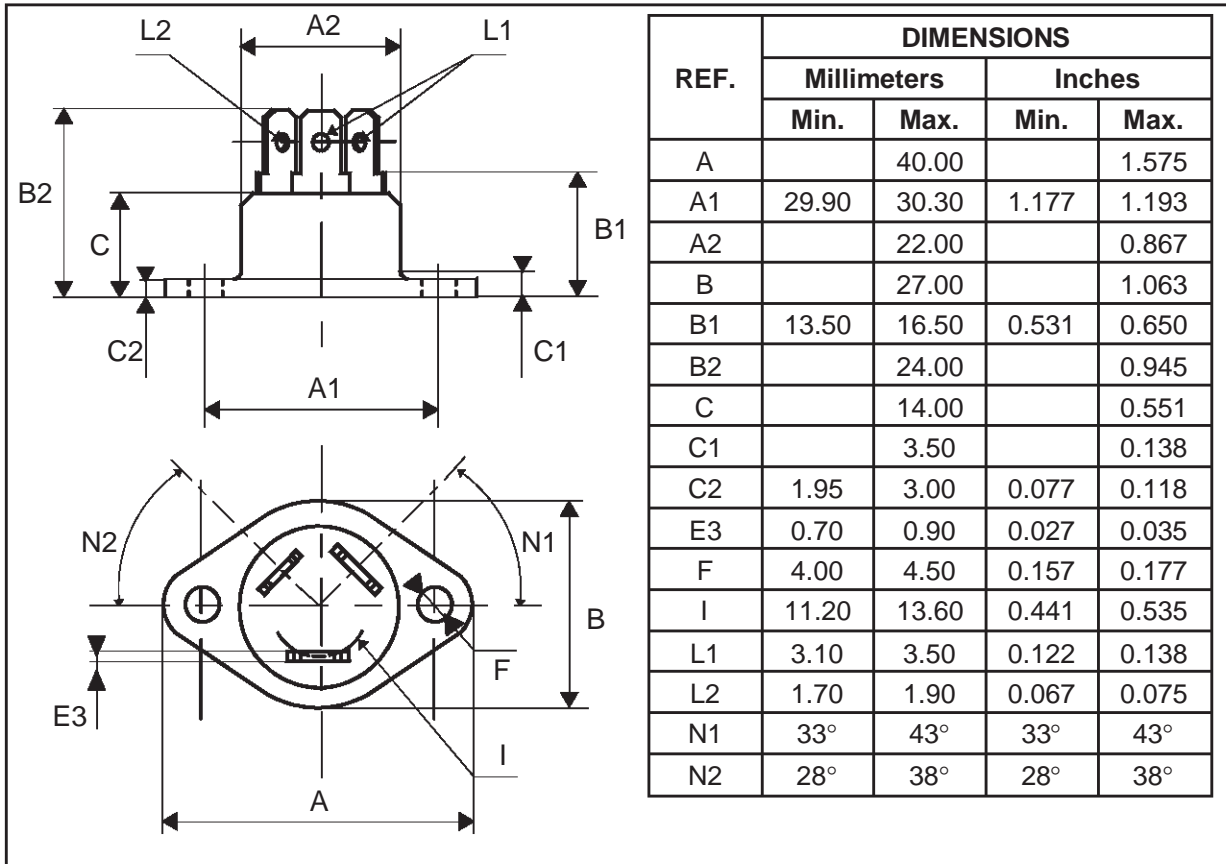


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

RD91 (Plastic)



Marking : type number
 Weight : 20 g

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>

