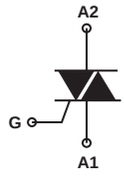
chanhvinh.com

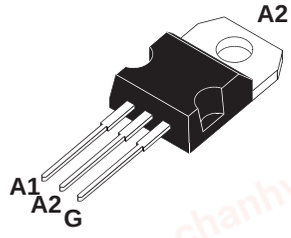
BTB04-600SL

STANDARD 4A TRIAC

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM} / V_{RRM}	600	V
$I_{GT(Q1)}$	10	mA





TO-220AB

DESCRIPTION

The BTB04-600SL 4 quadrants TRIAC is intended for general purpose applications where high surge current capability is required, such as lighting, corded power tools, industrial.
This TRIAC features a gate current capability sensitivity of 10mA.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB	Tc = 105°C	4	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial = 25°C)	F = 50 Hz	t = 20 ms	35	A
		F = 60 Hz	t = 16.7 ms	38	
I^2t	I^2t value for fusing		tp = 10ms	6	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT}, tr ≤ 100 ns	Repetitive F = 100Hz		50	A/µs
I_{GM}	Peak gate	tp = 20µs	Tj = 125°C	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj = 125°C	0.5	W
Tstg Tj	Storage junction temperature range Operating junction temperature range			-40 to +150 -40 to +125	°C

chanhvinh.com

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

Symbol	Test conditions	Quadrant		Value	Unit
I_{GT} (1)	V_D = 12V R_L = 30Ω	I - II - III	MAX.	10	mA
		IV	MAX.	25	
V_{GT}	V_D = 12V R_L = 30Ω	ALL	MAX.	1.3	V
V_{GD}	V_D = V_{DRM} R_L = 3.3kΩ Tj = 125°C	ALL	MIN.	0.2	V
I_H (2)	I_T = 100mA		MAX.	15	mA
I_L	I_G = 1.2I_{GT}	I - III - IV	MAX.	15	mA
		II		25	
dV/dt (2)	V_D = 67% V_{DRM} gate open Tj = 125°C		MIN.	75	V/µs
(dV/dt)c (2)	(dI/dt)c = 1.8A/ms Tj = 125°C		MIN.	10	V/µs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM} (2)	I_{TM} = 5A tp = 380µs	Tj = 25°C	MAX.	1.5	V
V_{TO} (2)	Threshold voltage	Tj = 125°C	MAX.	0.85	V
Rd (2)	Dynamic resistance	Tj = 125°C	MAX.	100	mΩ
I_{DRM} I_{RRM}	V_{DRM} = V_{RRM}	Tj = 25°C Tj = 125°C	MAX.	5 1	µA mA

Note 1: minimum IGT is guaranted at 5% of IGT max.

Note 2: for both polarities of A2 referenced to A1.

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-c)	Junction to case (AC)	3	°C/W
Rth (j-a)	Junction to ambient	60	°C/W

chanhvinh.com

PRODUCT SELECTOR

Part Number	Voltage	Sensitivity	Type	Package
BTB04-600SL	600V	10 mA	Standard	TO-220AB

ORDERING INFORMATION

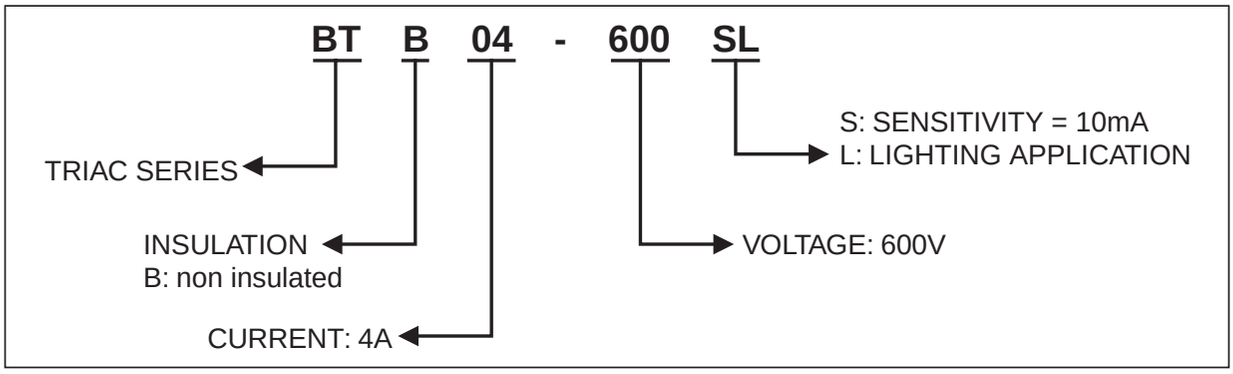


Fig. 1: Maximum power dissipation versus RMS on-state current

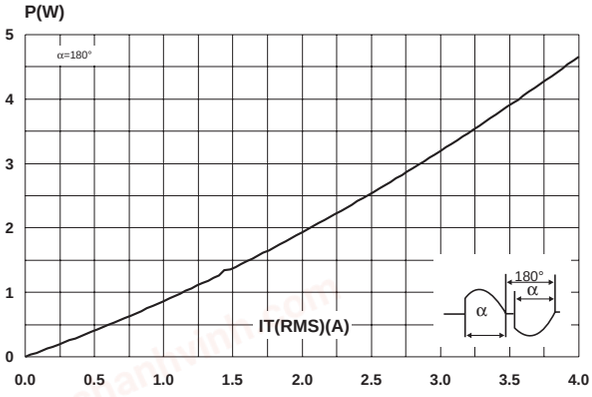


Fig. 2: RMS on-state current versus case temperature.

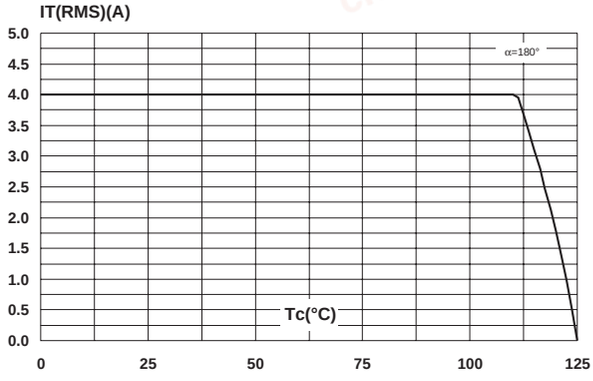


Fig. 3: Relative variation of thermal impedance versus pulse duration.

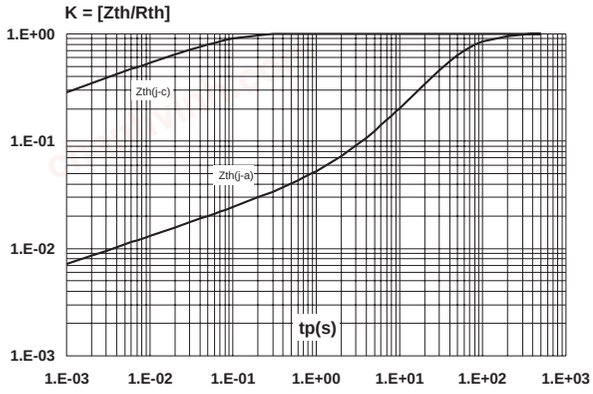
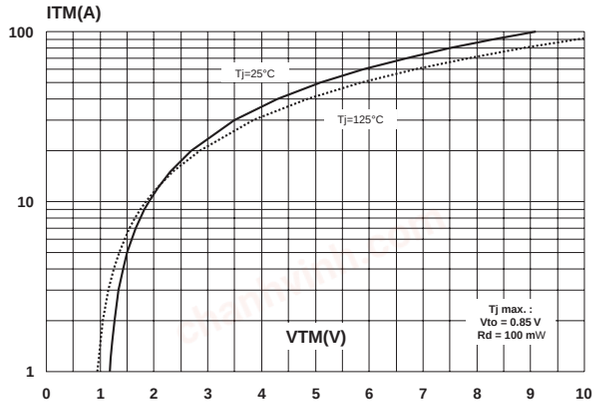


Fig. 4: On-state characteristics (maximum values)



chanhvinh.com

Fig. 5: Surge peak on-state current versus number of cycles.

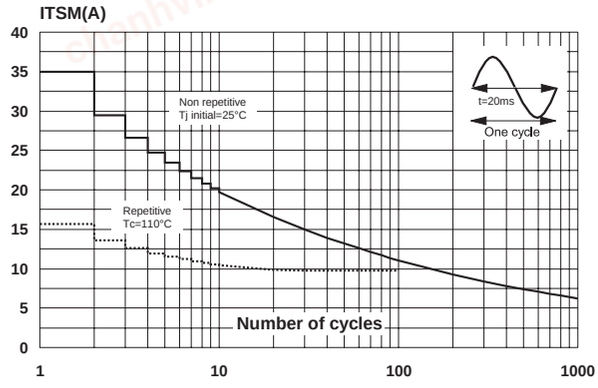


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.

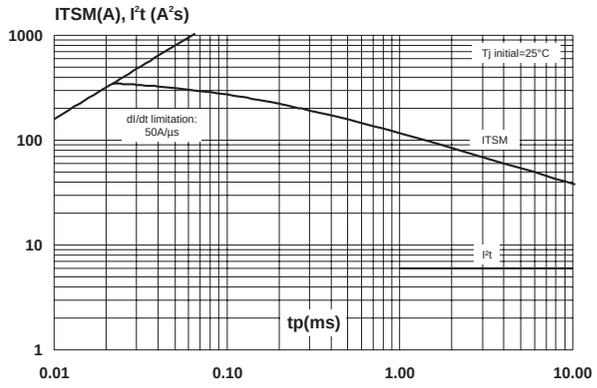


Fig. 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

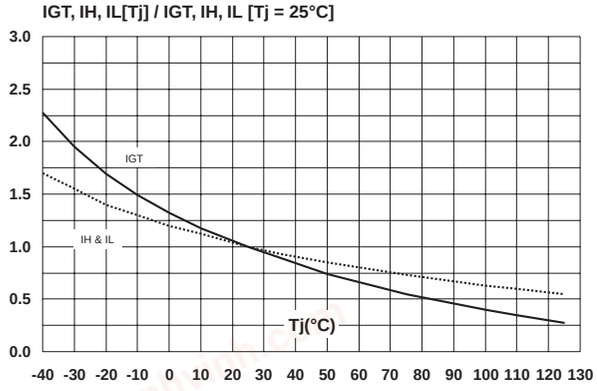


Fig. 8: Relative variation of critical rate of decrease of main current versus reapplied dV/dt (typical values).

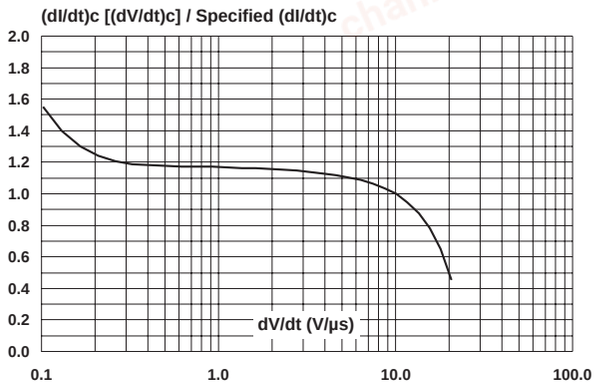


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.

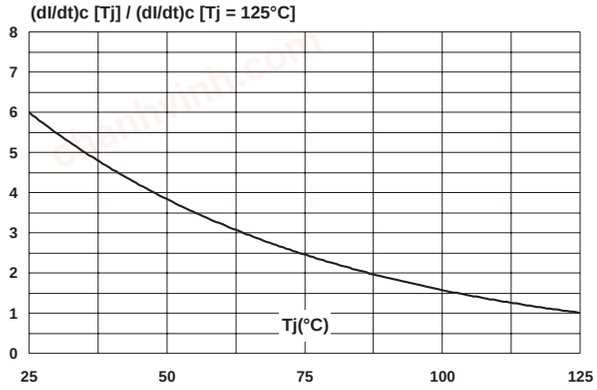
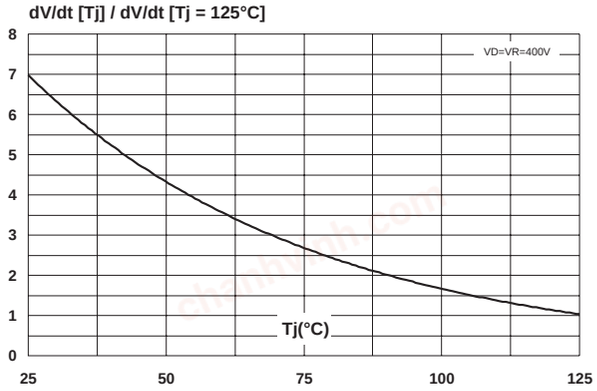


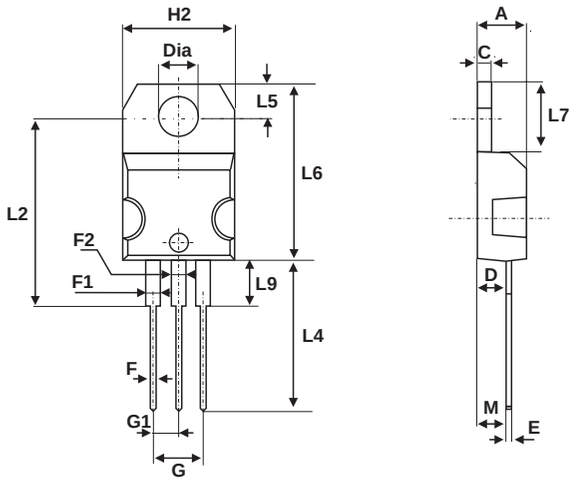
Fig. 10: Relative variation of static dV/dt immunity versus junction temperature.



chanhvinh.com

PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
F2	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
G1	2.40	2.70	0.094	0.106
H2	10	10.40	0.393	0.409
L2	16.4 typ.		0.645 typ.	
L4	13	14	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam.	3.75	3.85	0.147	0.151

OTHER INFORMATION

Ordering type	Marking	Package	Weight	Base qty	Packing mode
BTB04-600SL	BTB04-600SL	TO-220AB	2.3 g	50	Tube

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

© 2002 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES
Australia - Brazil - Canada - China - Finland - France - Germany
Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore
Spain - Sweden - Switzerland - United Kingdom - United States.

http://www.st.com