

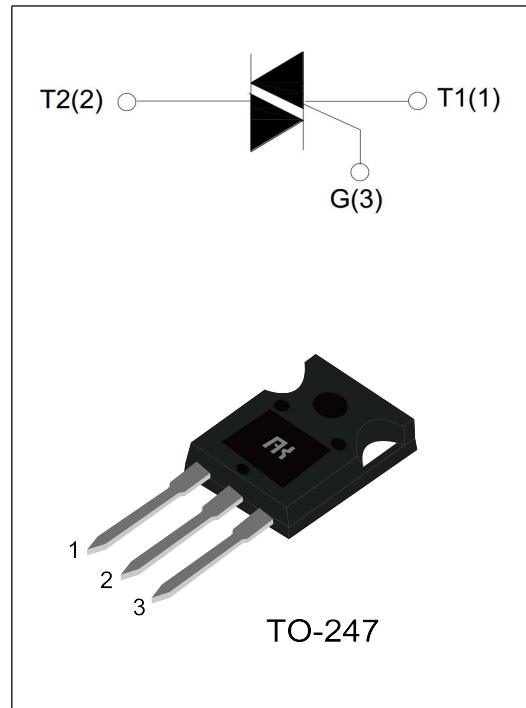
## BTB50 Serial Standard TRIACS

### GENERAL DESCRIPTION:

High current density due to double mesa technology; Glass Passivation. BTB50 series TRIACS are suitable for general purpose AC switching. They can be used as an ON/OFF Function in applications such as static relays, heating regulation, induction motor starting circuits..or for phase control operation light dimmers, motor speed controllers, etc.

### Main Features:

$I_{T(RMS)}$	$V_{DRM}/V_{RRM}$	$V_{TM}$
50 A	600/800/1200/1600 V	$\leq 1.5$ V



### Absolute Ratings(limiting values) :

Symbol	Parameter		Value	Unit
$T_{stg}$	Storage junction temperature range		- 40 to + 150	$^{\circ}C$
$T_j$	Operating junction temperature range		- 40 to + 125	$^{\circ}C$
$I_{T(RMS)}$	RMS on-state current	TO-247 (TC=73 $^{\circ}C$ )	50	A
$I_{TSM}$	Non repetitive surge peak on-state current (tp=10ms)		550	A
$V_{DRM}$	Repetitive peak off-state voltage(Tj =25 $^{\circ}C$ )		1000/1200/1600	V
$V_{RRM}$	Repetitive peak reverse voltage(Tj =25 $^{\circ}C$ )		1000/1200/1600	V
$V_{DSM}$	Non repetitive surge peak Off-state voltage		$V_{DRM} + 100$	V
$V_{RSM}$	Non repetitive peak reverse voltage		$V_{RRM} + 100$	V
$I^2t$	$I^2t$ value for fusing tp = 10 ms		1500	A $^2s$
$dI/dt$	Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )		100	A/ $\mu s$

<b>I<sub>GM</sub></b>	Peak gate current	8	A
<b>P<sub>G(AV)</sub></b>	Average gate power dissipation	2	W
<b>P<sub>GM</sub></b>	Peak gate power	10	W

**Electrical Characteristics : (T<sub>j</sub>=25°C unless otherwise specified)**

Symbol	Test Condition	Quadrant	Range	Value	Unit
<b>I<sub>GT</sub></b>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I-II-III	MAX	50	mA
<b>V<sub>GT</sub></b>		I-II-III	MAX	1.3	V
<b>V<sub>GD</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ T <sub>j</sub> =125°C	I-II-III	MIN	0.2	V
<b>I<sub>L</sub></b>	I <sub>G</sub> =1.2 I <sub>GT</sub>	I-III	MAX	80	mA
		II		120	
<b>I<sub>H</sub></b>	I <sub>TM</sub> = 100mA		MAX	60	mA
<b>dV/dt</b>	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C		MIN	1000	V/μs
<b>(dV/dt)<sub>c</sub></b>	Without snubber T <sub>j</sub> =125°C		MIN	20	V/μs

**Static Characteristics**

Symbol	Parameter		Value(MAX)	Unit
<b>V<sub>TM</sub></b>	I <sub>TM</sub> =80A tp= 380μs	T <sub>j</sub> =25°C	1.55	V
<b>I<sub>DRM</sub></b> <b>I<sub>RRM</sub></b>	V <sub>D</sub> =V <sub>DRM</sub> , V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	50	μ A
		T <sub>j</sub> =125°C	8	mA

**Thermal Resistances :**

Symbol	Parameter		Value	Unit
<b>R<sub>th(j-c)</sub></b>	Junction to case for AC	TO-247	0.65	°C/W

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

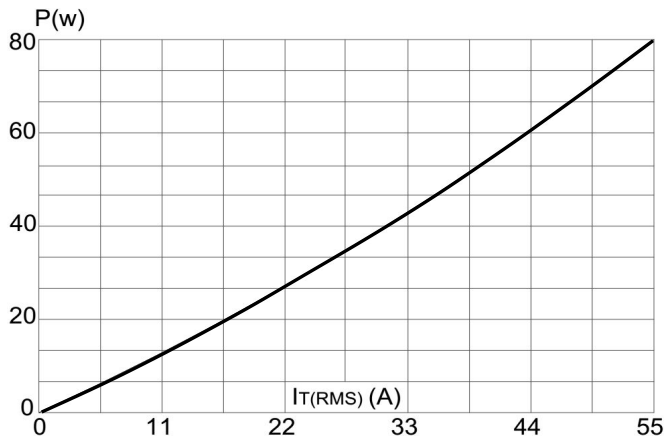


Fig.2 : RMS on-state current versus case temperature

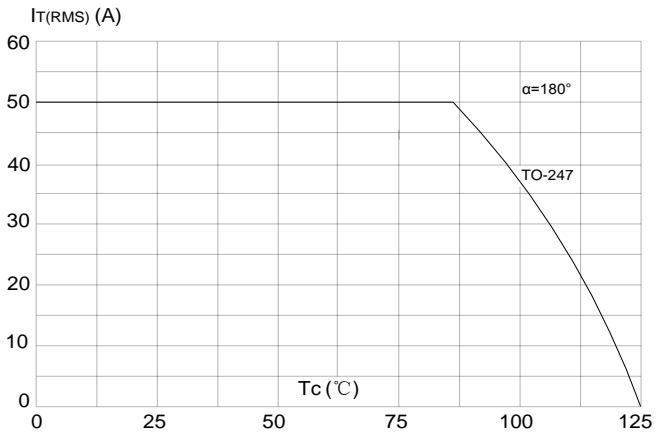


Fig.3 : Surge peak on-state current versus number of cycles

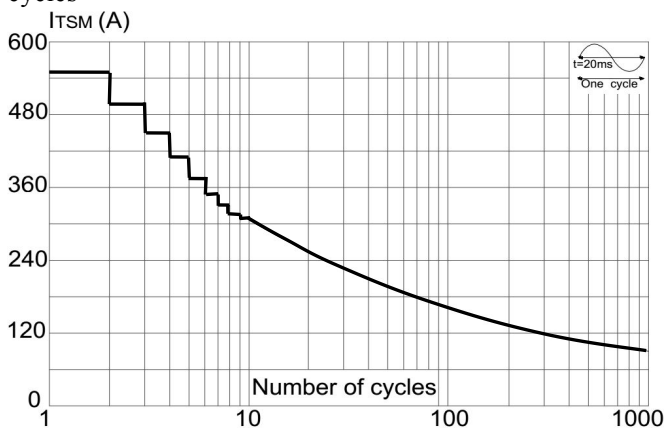


Fig.4 : On-state characteristics (maximum values)

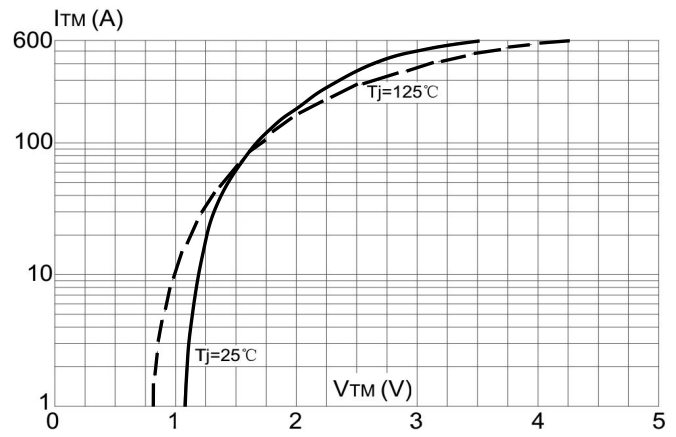


Fig.5 : Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I_t$  ( $dI/dt < 100\text{A}/\mu\text{s}$ )

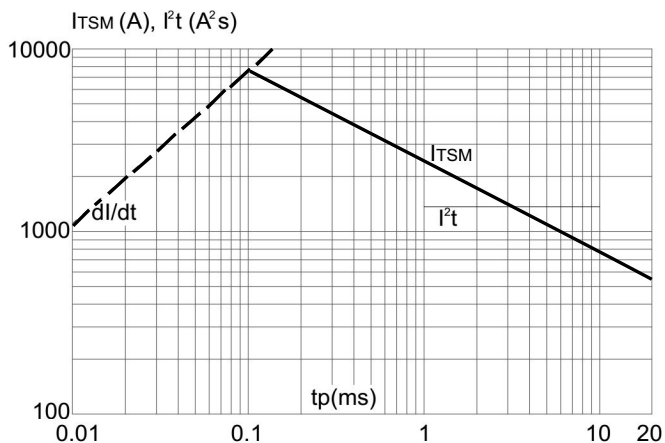
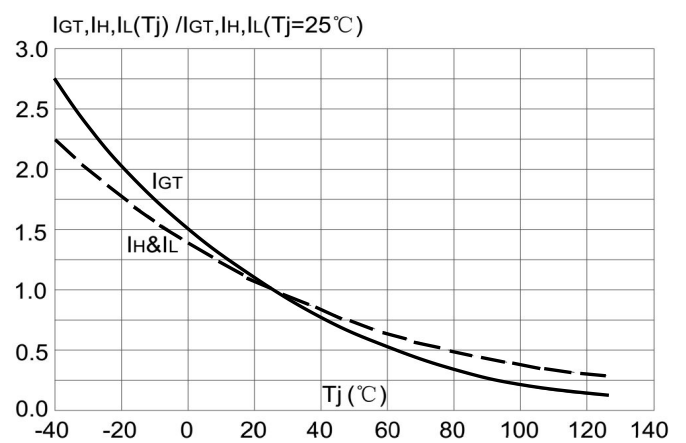
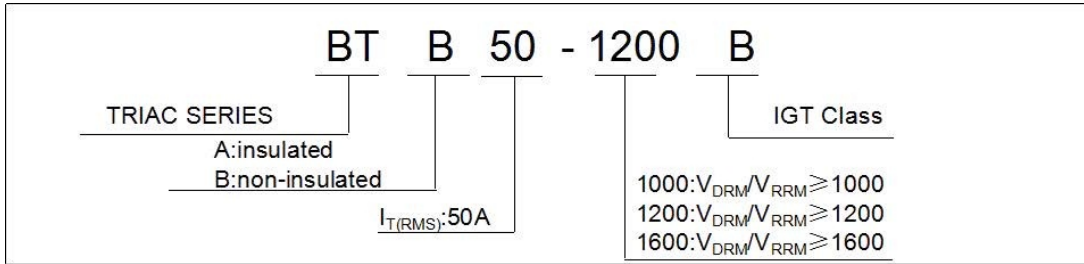


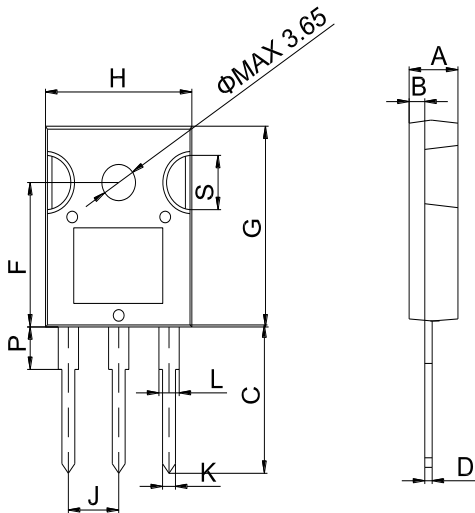
Fig.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



**Ordering Information:**



**Package Mechanical Data :**



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.9		5.4	0.193		0.213
B	1.6		2.0	0.063		0.079
C	14.35		15.4	0.565		0.606
D	0.5		0.8	0.020		0.031
F	14.4		15.1	0.567		0.594
G	19.7		20.6	0.775		0.811
H	15.4		16.2	0.606		0.638
J	5.3		5.6	0.209		0.220
K	1.3		1.5	0.051		0.059
L	2.8		3.3	0.110		0.130
P	3.7		4.2	0.146		0.165
S	5.35		5.65	0.211		0.222