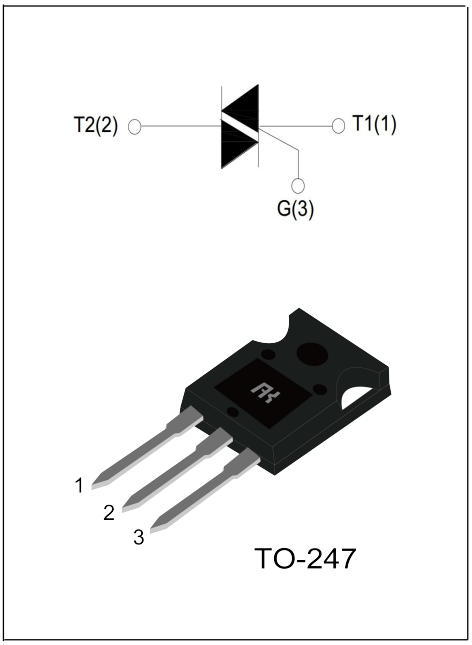
BTB41 Serial Standard TRIACS

GENERAL DESCRIPTION:

High current density due to double mesa technology; Glass Passivation. BTB41 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 stating circuits..or for phase control operation light dimmers, motor speed controllers, etc.



Main Features:

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

Absolute Ratings(limiting values) :

Symbol	Parameter		Value	Unit
T_{stg}	Storage junction temperature range		- 40 to + 150	℃
T_j	Operating junction temperature range		- 40 to + 125	℃
$I_{T(RMS)}$	RMS on-state current	TO-247(Non-Ins) (TC=90℃)	40	A
I_{TSM}	Non repetitive surge peak on-state current (tp=10ms)		400	A
V_{DRM}	Repetitive peak off-state voltage(Tj =25℃)		600/800/1200/1600	V
V_{RRM}	Repetitive peak reverse voltage(Tj =25℃)		600/800/1200/1600	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		880	A^2s
dI/dt	Critical rate of rise of on-state current (I_G =2×I_{GT})		50	A/μs

I_{GM}	Peak gate current	4	A
$P_{G(AV)}$	Average gate power dissipation	1	W
P_{GM}	Peak gate power	10	W

Electrical Characteristics : (Tj=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant	Range	Value	Unit
I_{GT}	V_D=12V R_L=33Ω	I-II-III	MAX	50	mA
V_{GT}		I-II-III	MAX	1.3	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ T_j=125°C	I-II-III	MIN	0.2	V
I_L	I_G=1.2 I_{GT}	I-III	MAX	80	mA
		II		100	
I_H	I_{TM}= 100mA		MAX	60	mA
dV/dt	V_D=2/3V_{DRM} Gate Open T_j=125°C		MIN	1000	V/μs
(dV/dt)c	Without snubber T_j=125℃		MIN	20	V/μs

Static Characteristics

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM}=60A tp= 380μs	T_j=25°C	1.55	V
I_{DRM} I_{RRM}	V_D=V_{DRM} ,V_R=V_{RRM}	T_j=25°C	10	μA
		T_j=125°C	5	mA

Thermal Resistances :

Symbol	Parameter		Value	Unit
Rth(j-c)	Junction to case for AC	TO-247(Non-Ins)	0.8	°C/W

FIG.1 Maximum power dissipation versus RMS on-state current

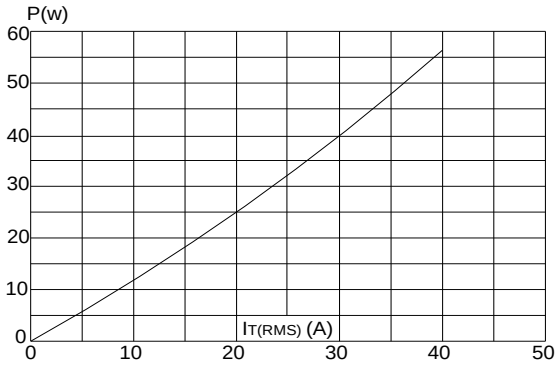


FIG.2: RMS on-state current versus case temperature

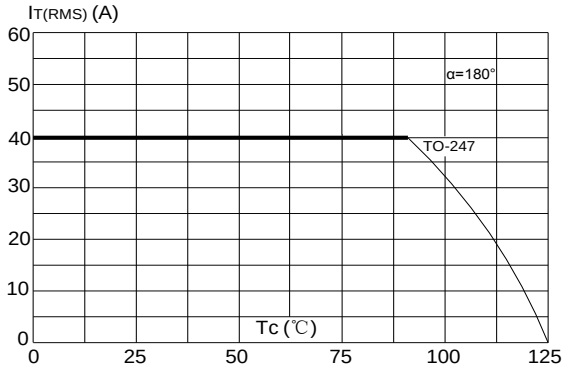


FIG.3: Surge peak on-state current versus number of cycles

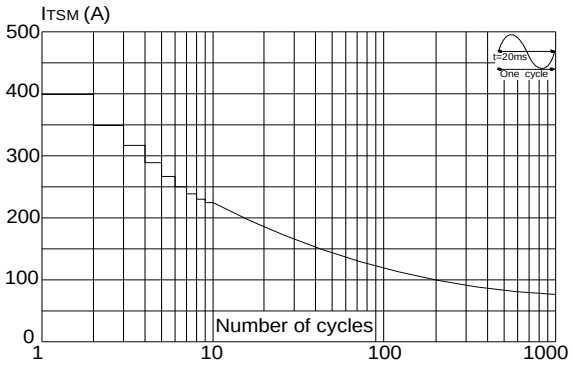


FIG.4: On-state characteristics (maximum values)

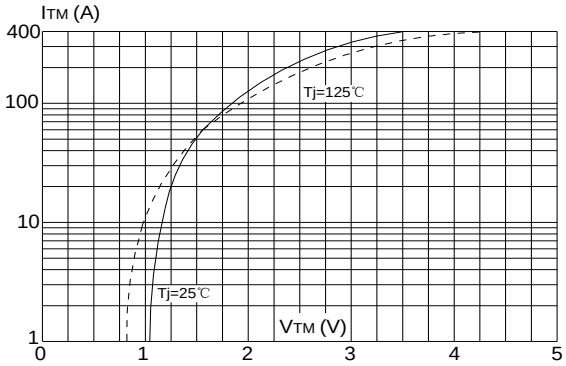


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 50A/μs)

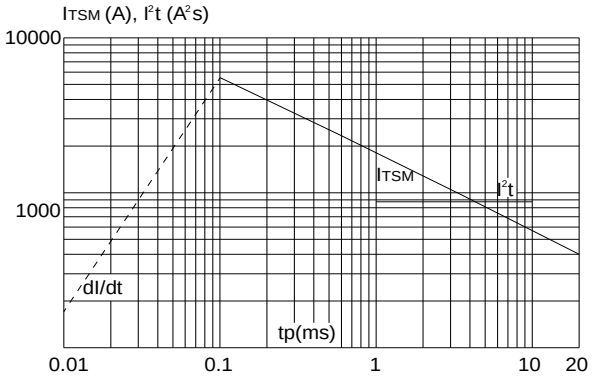
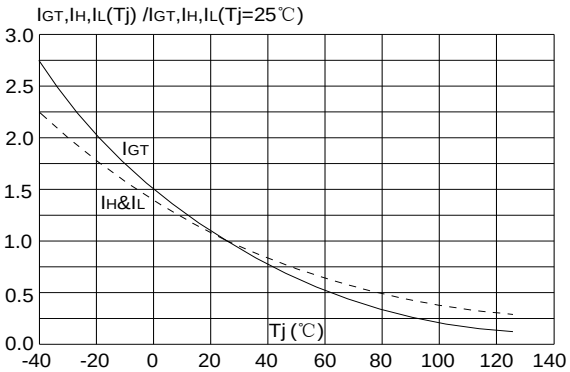
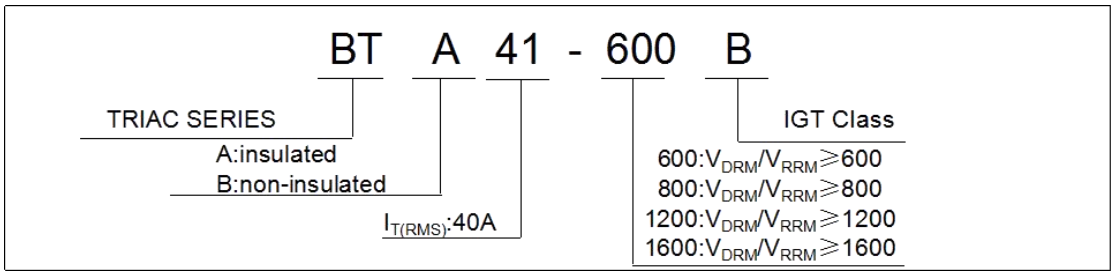


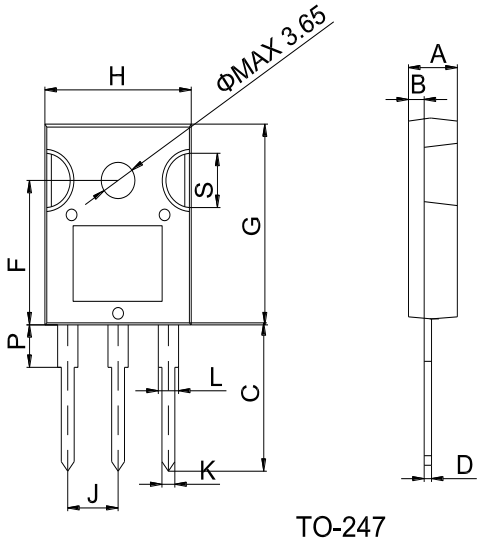
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Ordering Information:



Package Mechanical Data :



TO-247

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