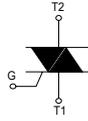
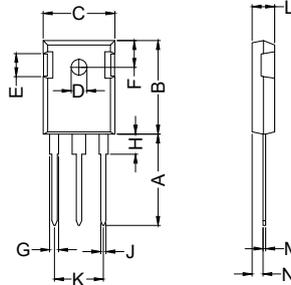


# BTB41

## Discrete Triacs(Non-Isolated)



Dimensions TO-247AD



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.620	0.640
ØD	3.15	3.65	0.124	0.144
E	4.32	5.49	0.170	0.216
F	5.40	6.30	0.213	0.248
G	1.65	2.18	0.065	0.086
H	3.80	4.50	0.150	0.177
J	1.00	1.40	0.039	0.055
K	10.80	11.10	0.425	0.437
L	4.70	5.30	0.185	0.209
M	0.40	0.80	0.016	0.031
N	1.50	2.49	0.059	0.098

	$V_{DRM}/V_{RRM}$	$V_{DSM}/V_{RSM}$
	V	V
<b>BTB41-200</b>	200	220
<b>BTB41-400</b>	400	450
<b>BTB41-600</b>	600	700
<b>BTB41-800</b>	800	900
<b>BTB41-1000</b>	1000	1100
<b>BTB41-1200</b>	1200	1300



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave) TO-247AD $T_c=80^\circ\text{C}$	41	A
$I_{TSM}$	Non repetitive surge peak on-state current (full cycle, $T_j$ initial= $25^\circ\text{C}$ )	F=60Hz t=16.7ms	420
		F=50 Hz t=20ms	400
$I_t^2$	$I_t^2$ Value for fusing tp=10ms	880	A <sup>2</sup> s
di/dt	Critical rate of rise of on-state current $I_G = 2x I_{GT}$ , $tr \leq 100\text{ns}$ F=120Hz $T_j=125^\circ\text{C}$	50	A/ $\mu\text{s}$
$V_{DSM}/V_{RSM}$	Non repetitive surge peak off-state voltage tp=10ms $T_j=25^\circ\text{C}$	$V_{DRM}/V_{RRM} + 100$	V
$I_{GM}$	Peak gate current tp=20 $\mu\text{s}$ $T_j=125^\circ\text{C}$	8	A
$P_{G(AV)}$	Average gate power dissipation $T_j=125^\circ\text{C}$	1	W
$T_{stg}$ $T_j$	Storage junction temperature range Operating junction temperature range	- 40 to + 150 - 40 to + 125	$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$ , unless otherwise specified)

Symbol	Test Conditions	Quadrant	Value	Unit
$I_{GT}$ (1)	$V_D=12\text{V}$ $R_L=3\Omega$	I - II - III IV	50 100	mA
		MAX.		
$V_{GT}$		ALL	1.3	V
$V_{GD}$	$V_D=V_{DRM}$ $R_L=3.3\text{k}\Omega$ $T_j=125^\circ\text{C}$	ALL	0.2	V
$I_H$ (2)	$I_T=500\text{ mA}$		80	mA
$I_L$	$I_G=1.2 I_{GT}$	I-III-IV	70	
		II	160	
dV/dt (2)	$V_D=67\% V_{DRM}$ gate open $T_j=125^\circ\text{C}$	MIN.	500	V/ $\mu\text{s}$
(di/dt) <sub>c</sub> (2)	Without snubber $T_j=125^\circ\text{C}$	MIN.	10	A/ms



# BTB41

## Discrete Triacs(Non-Isolated)

### STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
$V_{TM}(2)$	$I_{TM}=60A$ $t_p=380\mu s$	$T_j = 25^{\circ}C$	MAX.	1.55	V
$V_{to}(2)$	Threshold voltage	$T_j = 125^{\circ}C$	MAX.	0.85	V
$R_d(2)$	Dynamic resistance	$T_j = 125^{\circ}C$	MAX.	10	$m\Omega$
$I_{DRM}$	$V_{DRM}=V_{RRM}$	$T_j = 25^{\circ}C$	MAX.	5	$\mu A$
$I_{RRM}$		$T_j = 125^{\circ}C$		5	$mA$

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

Note 2: for both polarities of A2 referenced to A1

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	0.6	$^{\circ}C/W$
$R_{th(j-a)}$	Junction to ambient	50	$^{\circ}C/W$

### PRODUCT SELECTOR

Part Number	Voltage (xxx)		Sensitivity	Type	Package
	200 V	~ 1000 V			
BTB41	X	X	50 mA	Standard	TO-247AD

### OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTB41	BTB41	6 g	120	Bulk

# BTB41

## Discrete Triacs(Non-Isolated)

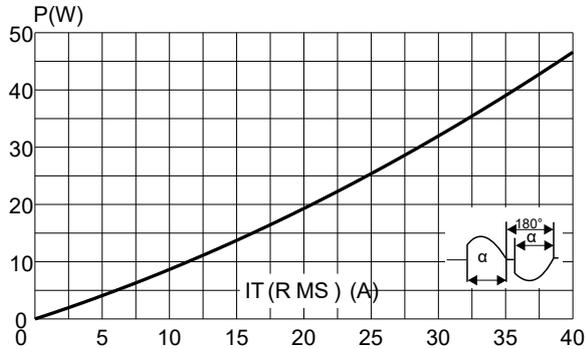


Fig. 1: Maximum power dissipation versus RMS on-state current (full cycle).

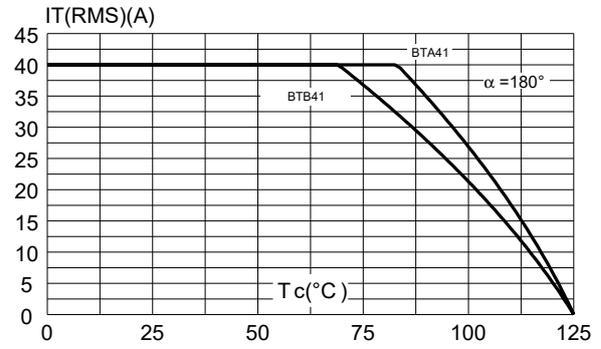


Fig. 2: RMS on-state current versus case temperature (full cycle).

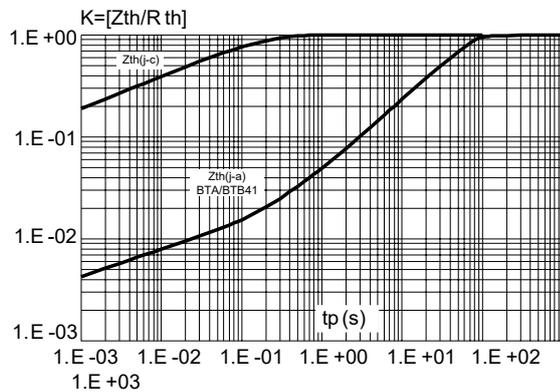


Fig. 3: Relative variation of thermal impedance versus pulse duration.

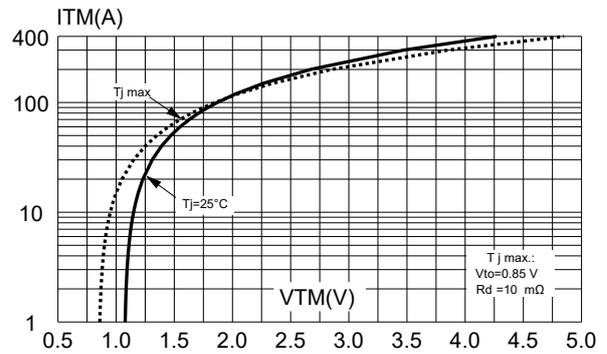


Fig. 4: On-state characteristics (maximum values).

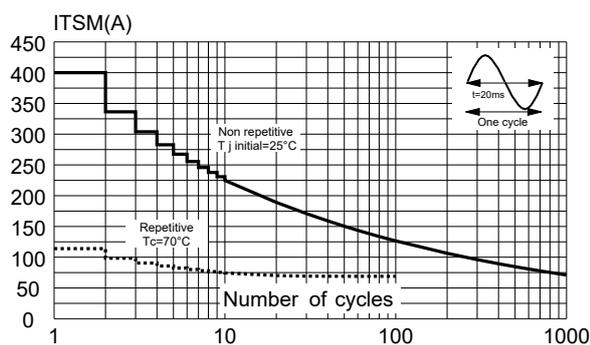


Fig. 5: Surge peak on-state current versus number of cycles .

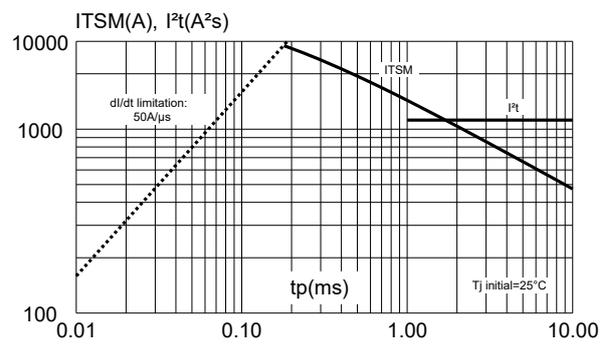


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $tp < 10ms$ , and corresponding value of  $I^2t$ .

# BTB41

## Discrete Triacs(Non-Isolated)

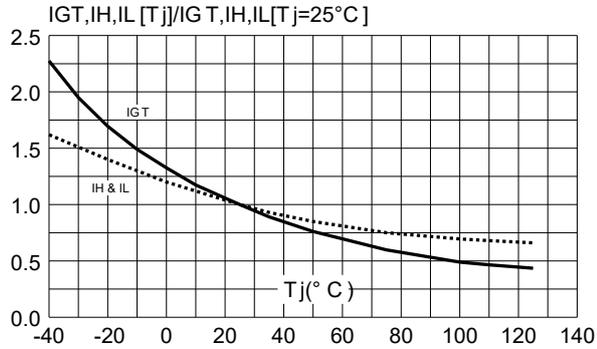


Fig.7:Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

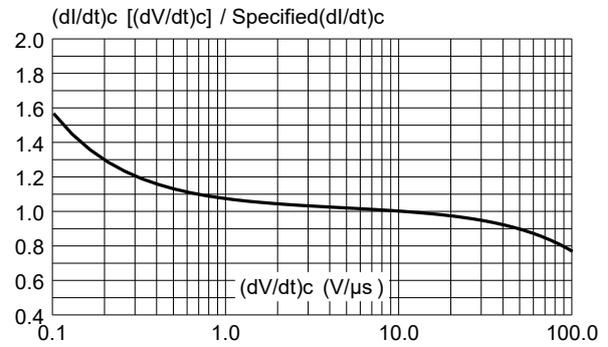


Fig. 8:Relative variation of critical rate of decrease of main current versus (dV /dt)<sub>c</sub> (typical values).

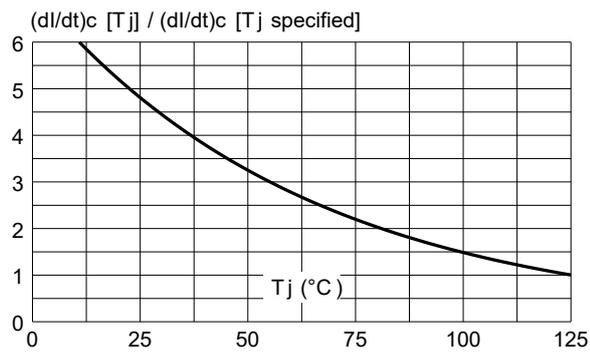


Fig.9:Relative variation of critical rate of decrease of main current versus junction temperature.