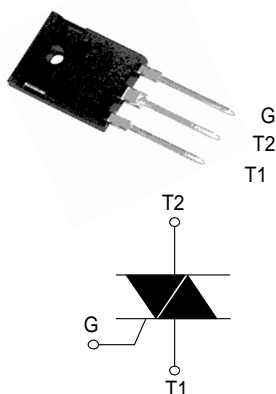


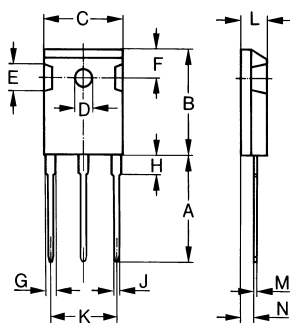
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Discrete Triacs(Non-Isolated/Isolated)



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	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

ABSOLUTE MAXIMUM RATINGS

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

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

Symbol	Test Conditions	Quadrant		Value	Unit
$I_{GT} (1)$	$V_D = 12 V$ $R_L = 33 \Omega$	I - II - III IV	MAX.	50 100	mA
V_{GT}		ALL	MAX.	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3 k\Omega$ $T_j = 125^\circ C$	ALL	MIN.	0.2	V
$I_H (2)$	$I_T = 500 mA$		MAX.	80	mA
I_L	$I_G = 1.2 I_{GT}$	I-III-IV	MAX.	70	mA
		II		160	
dV/dt (2)	$V_D = 67 \% V_{DRM}$ gate open $T_j = 125^\circ C$		MIN.	500	V/μs
(di/dt)c (2)	Without snubber $T_j = 125^\circ C$		MIN.	10	A/ms

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Discrete Triacs(Non-Isolated/Isolated)

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V _{TM} (2)	I _{TM} = 60 A tp = 380 μs	Tj = 25°C	MAX.	1.55	V
V _{to} (2)	Threshold voltage	Tj = 125°C	MAX.	0.85	V
R _d (2)	Dynamic resistance	Tj = 125°C	MAX.	10	mΩ
I _{DRM}	V _{DRM} = V _{RRM}	Tj = 25°C	MAX.	5	μA
I _{RRM}		Tj = 125°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	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient	50	$^\circ\text{C/W}$

PRODUCT SELECTOR

Part Number	Voltage (xxx)		Sensitivity	Type	Package
	200 V	~ 1000 V			
BTB/BTA41	X	X	50 mA	Standard	TO-247AD

OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTB/BTA41	BTB/BTA41	4.5 g	120	Bulk

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Discrete Triacs(Non-Isolated/Isolated)

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

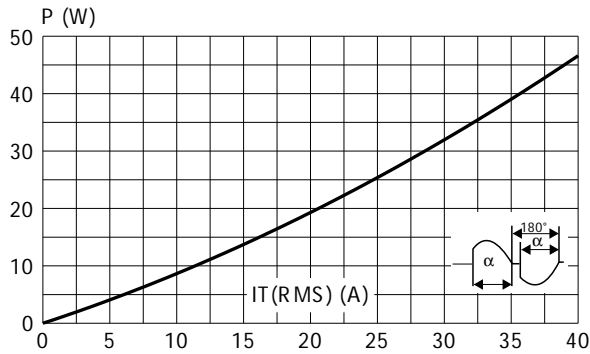


Fig. 2: RMS on-state current versus case temperature (full cycle).

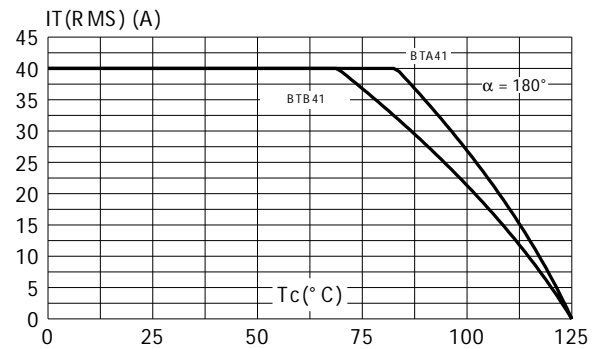


Fig. 3: Relative variation of thermal impedance versus pulse duration.

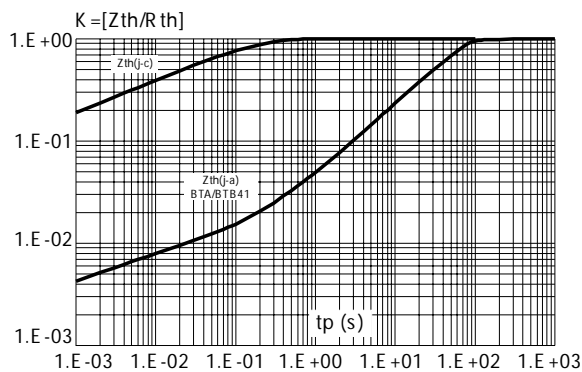


Fig. 4: On-state characteristics (maximum values).

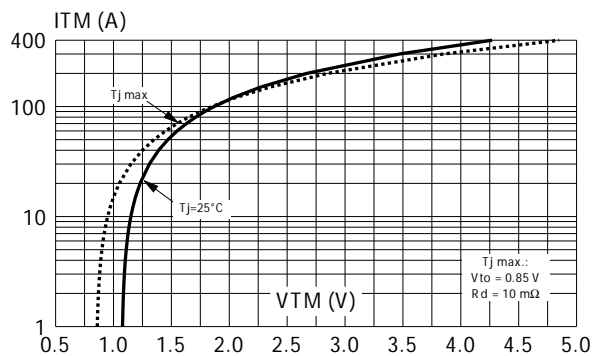


Fig. 5: Surge peak on-state current versus number of cycles.

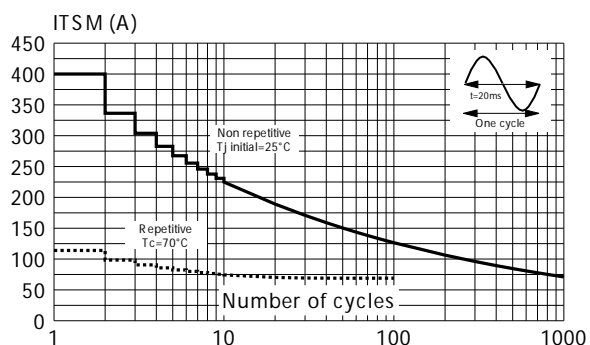
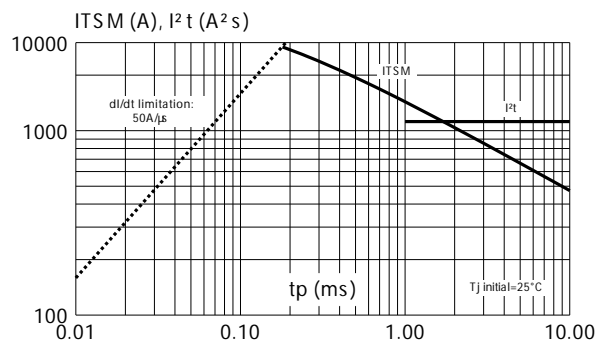


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10 \text{ ms}$, and corresponding value of $I^2 t$.



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Discrete Triacs(Non-Isolated/Isolated)

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

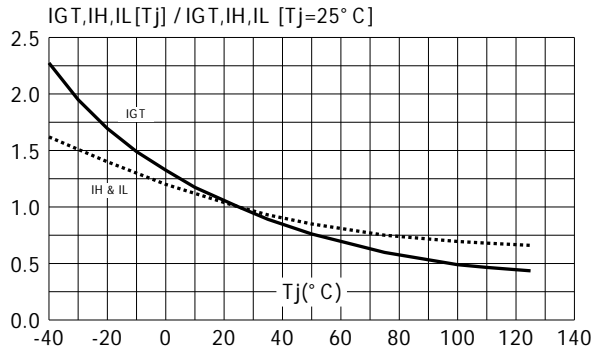


Fig. 8: Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values).

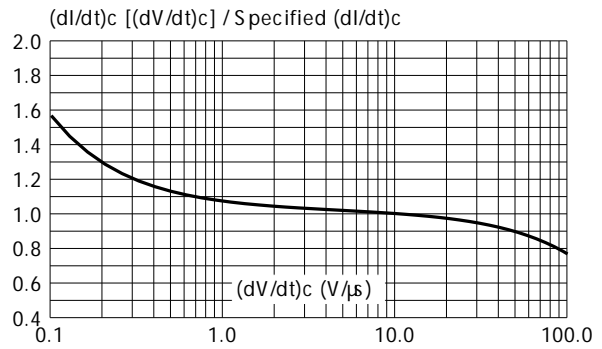


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.

