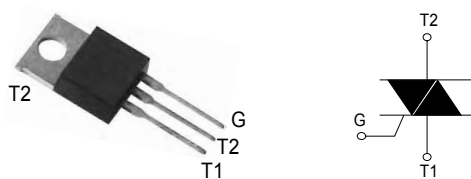
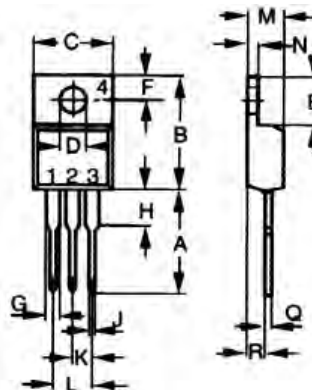


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Discrete Triacs(Isolated)



Dimensions TO-220AB



Dim.	Inches		Millimeter	
	Min.	Max.	Min.	Max.
A	0.500	0.550	12.70	13.97
B	0.580	0.630	14.73	16.00
C	0.390	0.420	9.91	10.66
D	0.139	0.161	3.54	4.08
E	0.230	0.270	5.85	6.85
F	0.100	0.125	2.54	3.18
G	0.045	0.065	1.15	1.65
H	0.110	0.230	2.79	5.84
J	0.025	0.040	0.64	1.01
K	0.100	BSC	2.54	BSC
M	0.170	0.190	4.32	4.82
N	0.045	0.055	1.14	1.39
Q	0.014	0.022	0.35	0.56
R	0.090	0.110	2.29	2.79

	V_{DRM}/V_{RRM}	V_{DSM}/V_{RSM}
	V	V
BTA10-200	200	300
BTA10-400	400	500
BTA10-600	600	700
BTA10-800	800	900
BTA10-1000	1000	1100
BTA10-1200	1200	1300

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			V	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB	$T_c = 105^\circ\text{C}$	10	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	F = 60 Hz	t = 16.7 ms	100	A
		F = 50 Hz	t = 20 ms	105	
I^2t	I^2t Value for fusing	tp = 10 ms		55	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, tr ≤ 100 ns	F = 120 Hz	$T_j = 125^\circ\text{C}$	50	A/μs
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	tp = 10 ms	$T_j = 25^\circ\text{C}$	$V_{DRM}/V_{RRM} + 100$	V
I_{GM}	Peak gate current	tp = 20 μs	$T_j = 125^\circ\text{C}$	4	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 $+125$

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

■ SNUBBERLESS and LOGIC LEVEL(3 Quadrants)

Symbol	Test Conditions	Quadrant		BTA		Unit
				CW	BW	
I_{GT}	$V_D = 12\text{ V}$ $R_L = 33\ \Omega$	I - II - III	MAX.	35	50	mA
V_{GT}		I - II - III	MAX.	1.3		V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $T_j = 125^\circ\text{C}$	I - II - III	MIN.	0.2		V
I_H	$I_T = 500\text{ mA}$		MAX.	35	50	mA
I_L	$I_G = 1.2\ I_{GT}$	I - III	MAX.	50	70	mA
		II		60	80	
dV/dt	$V_D = 67\ \% V_{DRM}$ gate open $T_j = 125^\circ\text{C}$		MIN.	500	1000	V/μs
(di/dt)c	Without snubber $T_j = 125^\circ\text{C}$		MIN.	5.5	9.0	A/ms

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Discrete Triacs(Isolated)

■ STANDARD (4 Quadrants)

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT}	$V_D = 12\text{ V}$ $R_L = 33\ \Omega$	I - II - III IV	MAX.	50 100	mA
V_{GT}		ALL	MAX.	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\ \Omega$ $T_j = 125^\circ\text{C}$	ALL	MIN.	0.2	V
I_H	$I_T = 500\text{ mA}$		MAX.	50	mA
I_L	$I_G = 1.2\ I_{GT}$	I - III - IV	MAX.	50	mA
		II		100	
dV/dt	$V_D = 67\ \% V_{DRM}$ gate open $T_j = 125^\circ\text{C}$		MIN.	400	V/ μs
(dV/dt)c	(dI/dt)c = 4.4 A/ms $T_j = 125^\circ\text{C}$		MIN.	10	V/ μs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM}	$I_{TM} = 10\text{ A}$ $t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.55	V
V_{to}	Threshold voltage	$T_j = 125^\circ\text{C}$	MAX.	0.85	V
R_d	Dynamic resistance	$T_j = 125^\circ\text{C}$	MAX.	40	m Ω
I_{DRM}	$V_{DRM} = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX.	5	μA
I_{RRM}		$T_j = 125^\circ\text{C}$		1	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	1.5	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient	60	$^\circ\text{C/W}$

PRODUCT SELECTOR

Part Number	Voltage (xxx)	Sensitivity	Type	Package
	200 V ~ 1200 V			
BTA10	X X	50 mA	Standard	TO-220AB

OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTA10	BTA10	2.3 g	250	Bulk

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Discrete Triacs(Isolated)

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

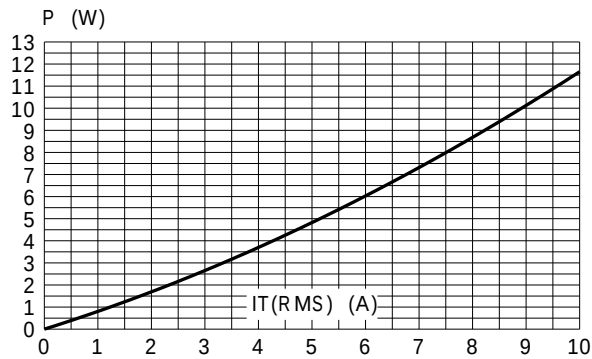


Fig.2: RMS on-state current versus case temperature (full cycle).

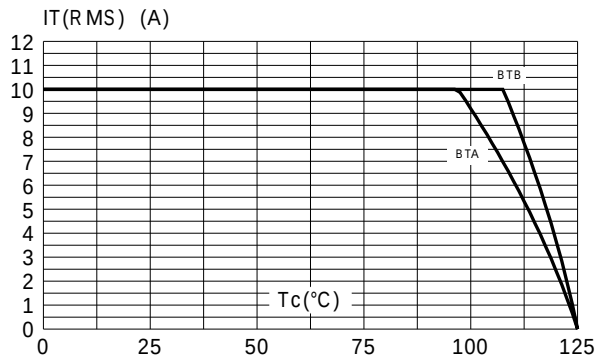


Fig.3: Relative variation of thermal impedance versus pulse duration.

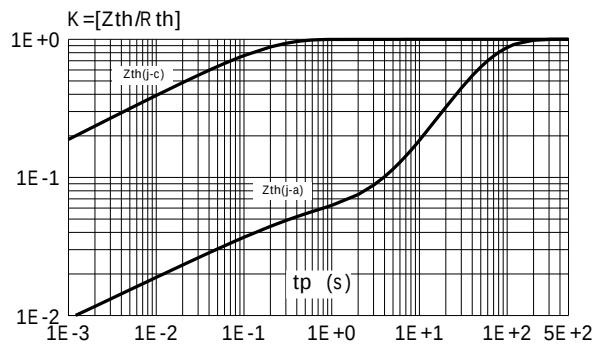


Fig.4: On-state characteristics (maximum values).

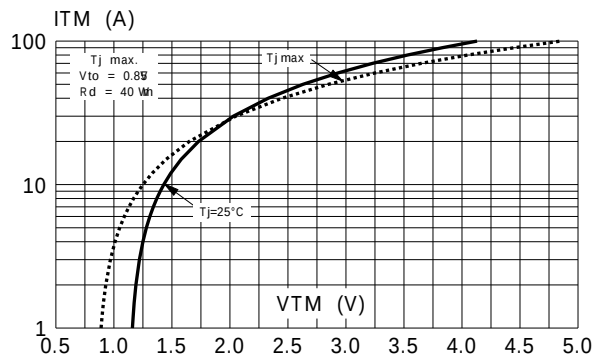


Fig.5: Surge peak on-state current versus number of cycles.

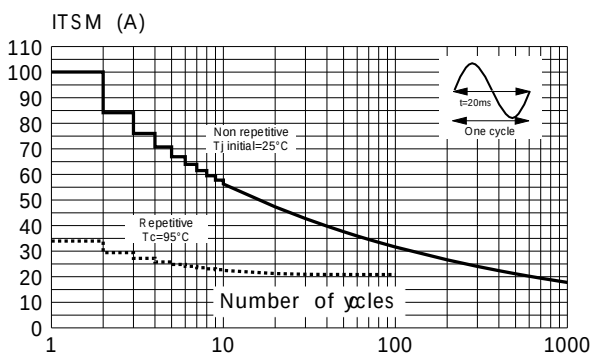
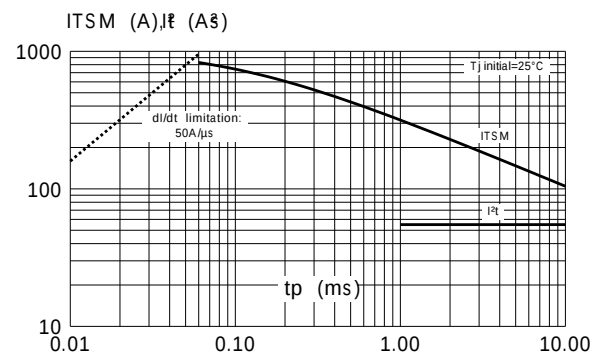


Fig.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10 \text{ ms}$, and corresponding value of I^2t .



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Discrete Triacs(Isolated)

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

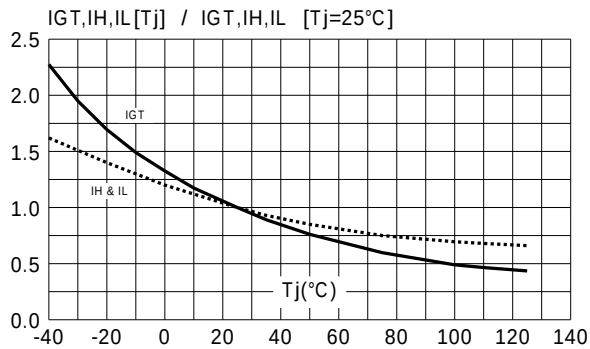


Fig.8 : Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values).

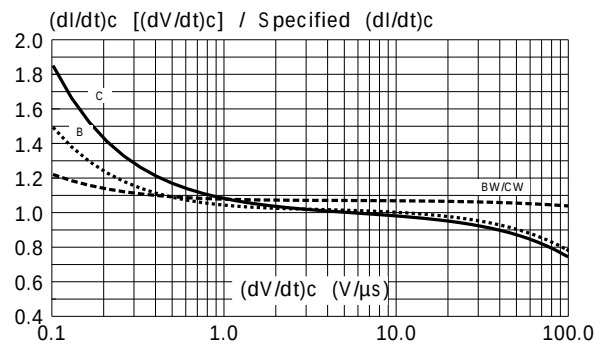
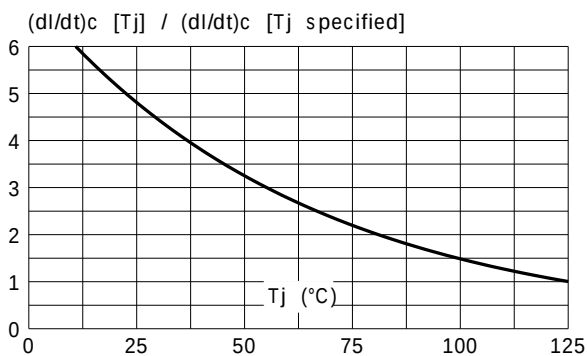


Fig.9 : Relative variation of critical rate of decrease of main current versus junction temperature.



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