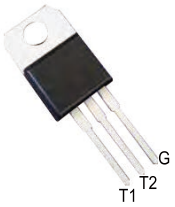
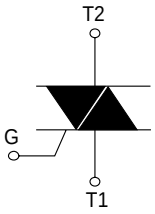
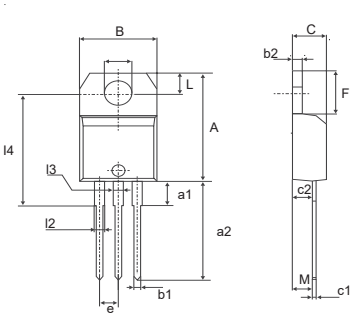
BTB/BTA24

Discrete Triacs(Non-Isolated/Isolated)





Dimensions TO-220AB



REF.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
ØI	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB	Tc=100°C	24	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial = 25°C)	F=60Hz	t =16.7ms	260	A
		F=50Hz	t=20 ms	250	
I^2t	I²t Value for fusing	tp = 10 ms		340	A^2s
dI/dt	Critical rate of rise of on-state current I_G=2x I_{GT} , tr≤100ns	F=120Hz	Tj=125°C	50	A/µs
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	tp=10ms	Tj=25°C	V_{DRM}/V_{RRM} + 100	V
I_{GM}	Peak gate current	tp=20µs	Tj=125°C	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj=125°C	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to+150 - 40 to+125	°C

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

■ **SNUBBERLESS™ and LOGIC LEVEL(3 Quadrants)**

Symbol	Test Conditions	Quadrant		BTA/BTB		Unit
				CW	BW	
I_{GT} (1)	V_D=12V R_L=33Ω	I - II - III	MAX.	35	50	mA
V_{GT}		I - II - III	MAX.	1.3		V
V_{GD}	V_D=V_{DRM} RL=3.3kΩ Tj=125°C	I - II - III	MIN.	0.2		V
I_H (2)	I_T=500mA		MAX.	50	75	mA
I_L	I_G=1.2 I_{GT}	I - III	MAX.	70	80	mA
		II		80	100	
dV/dt (2)	V_D=67% V_{DRM} gate open Tj=125°C		MIN.	500	1000	V/µs
(dI/dt)c (2)	Without snubber Tj=125°C		MIN.	13	22	A/ms

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BTB/BTA24

Discrete Triacs(Non-Isolated/Isolated)

■ STANDARD (4 Quadrants)

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT} (1)	V_D=12V R_L=33Ω	I - II - III IV	MAX.	50 100	mA
V_{GT}		ALL	MAX.	1.3	V
V_{GD}	V_D=V_{DRM} R_L=3.3Ω Tj = 125°C	ALL	MIN.	0.2	V
I_H (2)	I_T=500mA		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 Tj=125°C		MIN.	500	V/µs
(dV/dt)c (2)	(dI/dt)c =13.3A/ms Tj =125°C		MIN.	10	V/µs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM} (2)	I_{TM}=35A tp=380µs	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.	16	mΩ
I_{DRM}	V_{DRM} = V_{RRM}	Tj = 25°C	MAX.	5	µA
I_{RRM}		Tj = 125°C		3	mA

Note 1: minimum IGT is guaranted 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)	0.8	°C/W
$R_{th(j-a)}$	Junction to ambient	60	°C/W

PRODUCT SELECTOR

Part Number	Voltage (xxx)		Sensitivity	Type	Package
	200 V ~~ 1000 V				
BTBV/BTA24	X	X	50 mA	Standard	TO-220AB

OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTB/BTA24	BTB/BTA24	2 g	250	Bulk

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BTB/BTA24

Discrete Triacs(Non-Isolated/Isolated)

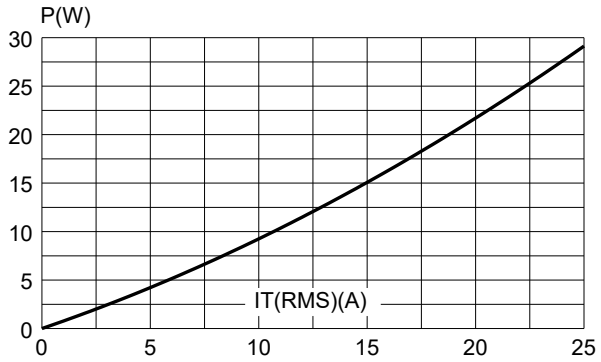

Fig.1: Maximum power dissipation versus RMS on-state current(full cycle).

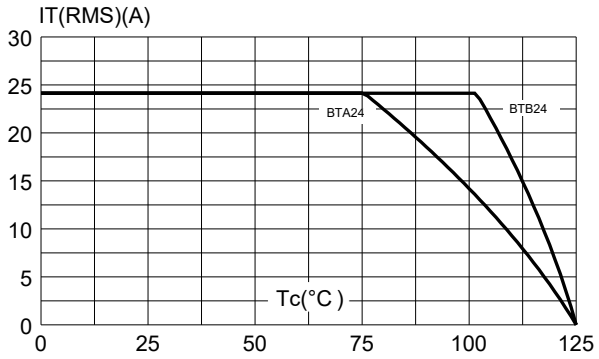

Fig.2-1:RMS on-state current versus case temperature (full cycle).

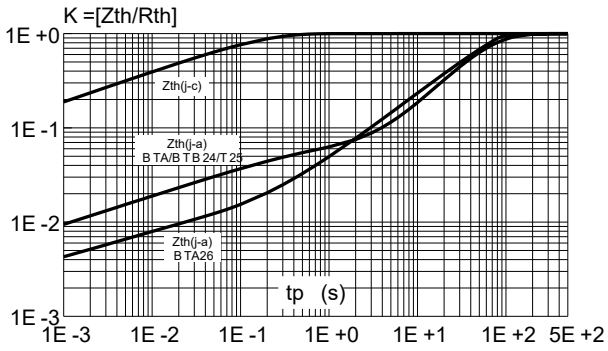

Fig.3:Relative variation of thermal impedance versus pulse duration.

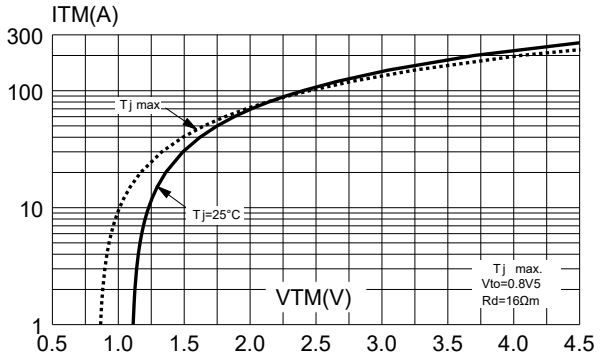

Fig.4:On-state characteris tics(maximumvalues).

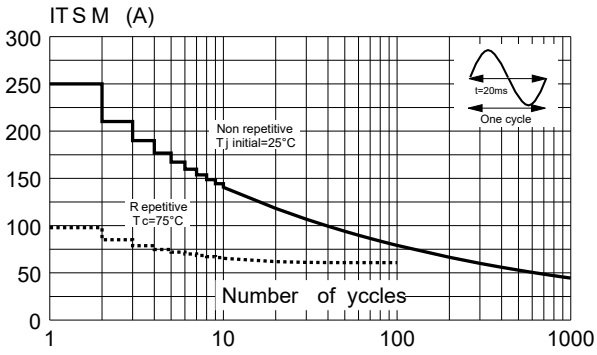

Fig.5: Surge peak on-state current versus number of cycles.

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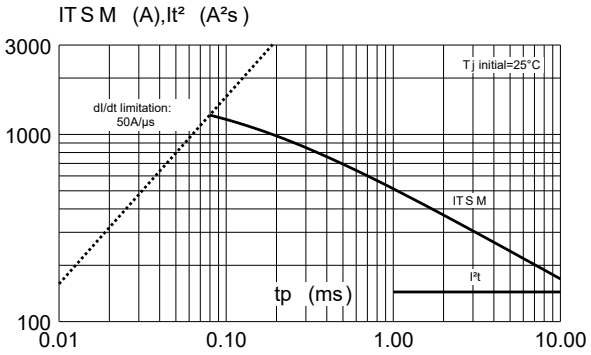

Fig.6: Non-repetitive s urge peak on-s tate current for a s inus oidal puls e with width tp < 10ms, and corres ponding value of I²t.

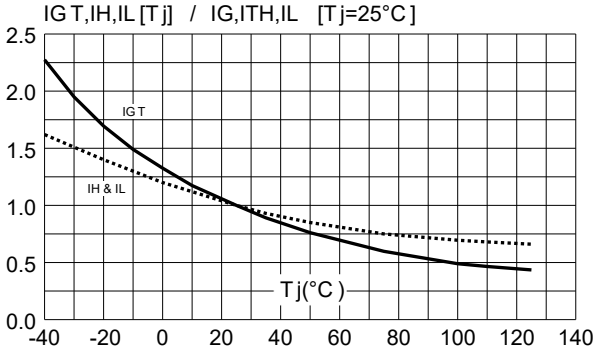

Fig.7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

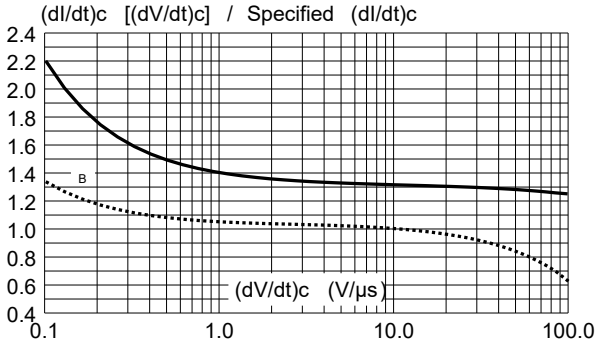

Fig.8:R elative variation of critical rate of decreas e of main current vers us (dV/dt)c (typical values).

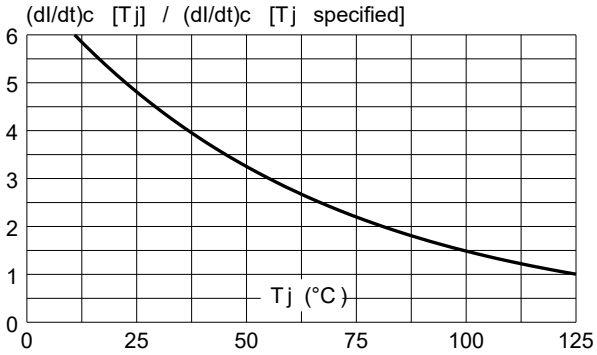

Fig.9:Relative variation of critical rate of decreas e of main current vers us junction temperature.

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