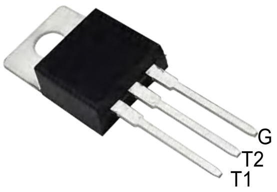
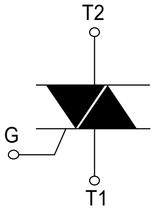
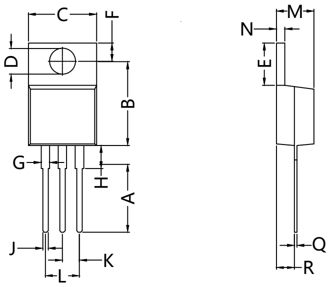
BTB16

Discrete Triacs(Non-Isolated)





Dimensions TO-220AB



Dim.	Millimeter	
	Min.	Max.
A	12.70	13.97
B	14.73	16.00
C	9.91	10.66
ØD	3.54	4.08
E	5.85	6.85
F	2.54	3.18
G	1.15	1.65
H	2.79	5.84
J	0.64	1.01
K	2.45BSC	
L	5.05BSC	
M	4.32	4.82
N	1.14	1.39
Q	0.35	0.56
R	2.29	2.79

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB	Tc=100°C	16	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial=25°C)	F=60Hz	t=16.7ms	168	A
		F=50Hz	t=20ms	160	
I^2t	I^2t Value for fusing	tp=10ms		144	A^2s
dI/dt	Critical rate of rise of on-state current I_G=2 xI_{GT} , tr≤ 100 ns	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			- 40to+150 - 40to+125	°C

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

■ SNUBBERLESS™and LOGIC LEVEL(3Quadrants)

Symbol	Test Conditions	Quadrant		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} R_L=3.3kΩ Tj=125°C	I - II - III	MIN.	0.2		V
I_H (2)	I_T=500 mA		MAX.	35	50	mA
I_L	I_G=1.2I_{GT}	I - III	MAX.	50	70	mA
		II		60	80	
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.	8.5	14	A/ms

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■ 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 = 500 mA		MAX.	50	mA
I_L	I_G = 1.2 I_{GT}	I - III - IV	MAX.	60	mA
		II		120	
dV/dt (2)	V_D = 67% V_{DRM} gate open Tj =125°C		MIN.	400	V/μs
(dV/dt)c(2)	(dI/dt)c=7A/ms Tj =125°C		MIN.	10	V/μs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM}(2)	I_{TM}=5.5A 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.	60	mΩ
I_{DRM} I_{RRM}	V_{DRM}=V_{RRM}	Tj=25°C	MAX.	5	μA
		Tj=125°C		1	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)	1.2	°C/W
$R_{th(j-a)}$	Junction to ambient	60	°C/W

PRODUCT SELECTOR

Part Number	Voltage (xxx)		Sensitivity	Type	Package
	200 V	1200 V			
BTB16	X	X	50 mA	Standard	TO-220AB

OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTB16	BTB16	2 g	250	Bulk

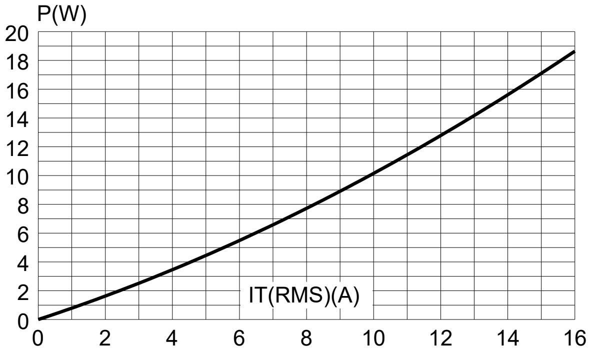

Fig.1:Maximum power dissipation versus RMS on-state current (full cycle).

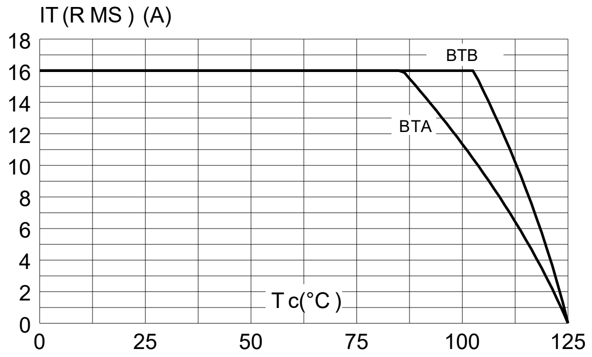

Fig.2:RMS on-state current versus case temperature (full cycle).

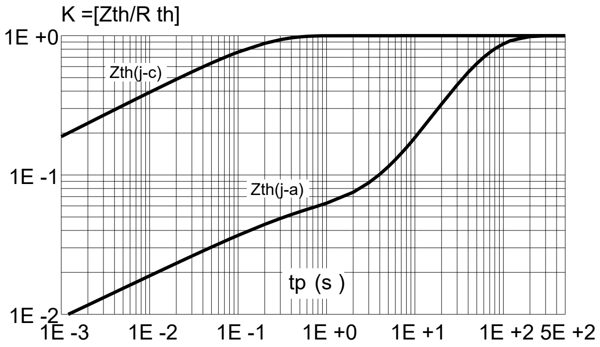

Fig.3:Relative variation of thermal impedance versus pulse duration.

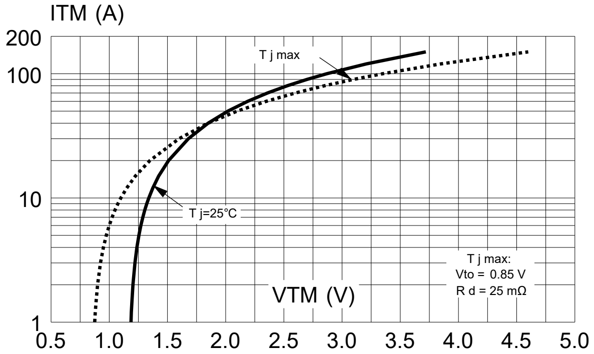

Fig.4:On-state characteristics (maximum values).

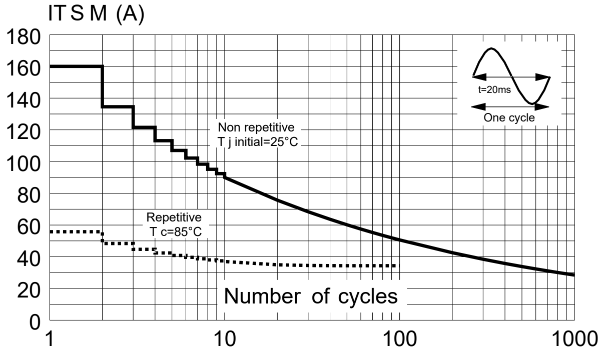

Fig.5:Surge peak on-state current vers us number of cycles .

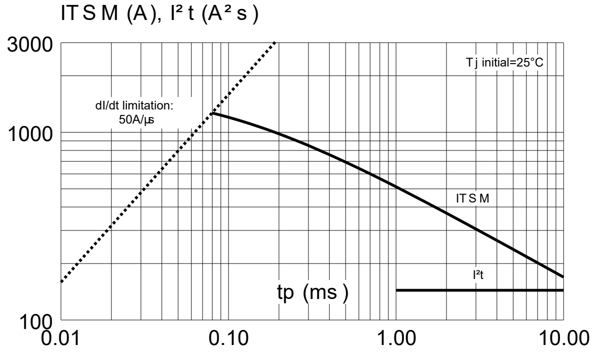

Fig.6:Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I²t.

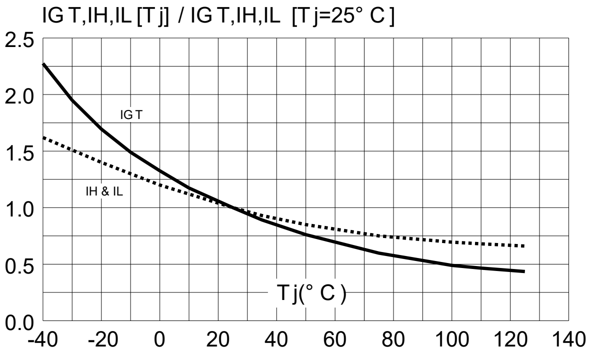

Fig.7:Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

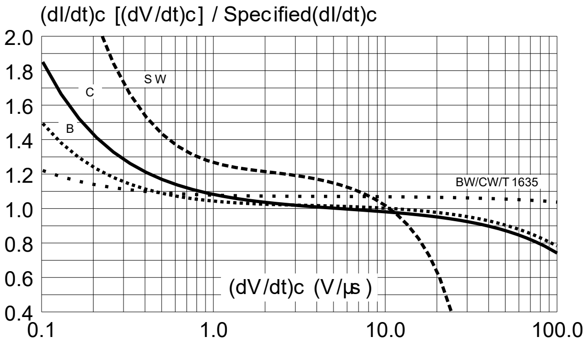

Fig.8:Relative variation of critical rate of decrease of main current versus (dV /dt)c (typical values).

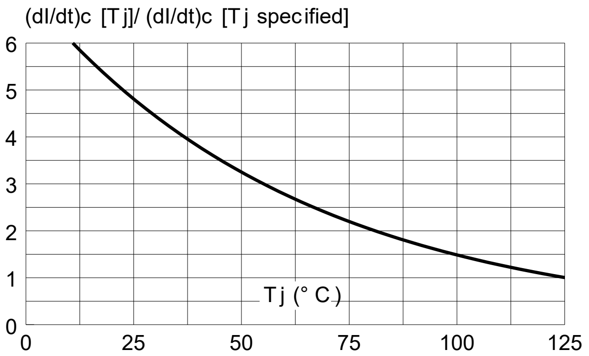

Fig.9:Relative variation of critical rate of decrease of main current versus junction temperature.