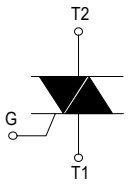
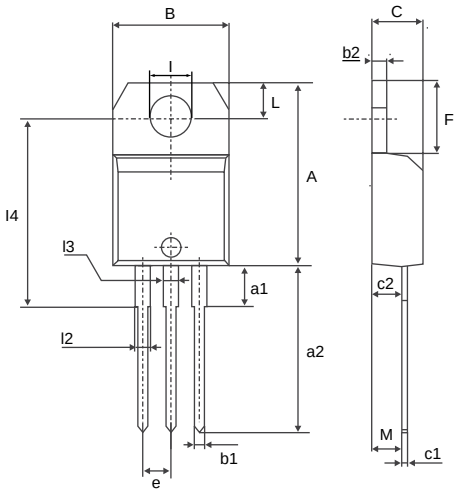
BTA16

Discrete Triacs(Isolated)





Ref.	Dimensions Millimeters		
	Min.	Typ.	Max.
A	15.20		15.90
a1		3.75	
a2	13.00		14.00
B	10.00		10.40
b1	0.61		0.88
b2	1.23		1.32
C	4.40		4.60
c1	0.49		0.70
c2	2.40		2.72
e	2.40		2.70
F	6.20		6.60
I	3.73		3.88
L	2.65		2.95
I2	1.14		1.70
I3	1.14		1.70
I4	15.80	16.40	16.80
M		2.6	

	V_{DRM}/V_{RRM}	V_{DSM}/V_{RSM}
	V	V
BTA16-200	200	300
BTA16-400	400	500
BTA16-600	600	700
BTA16-800	800	900
BTA16-1000	1000	1100
BTA16-1200	1200	1300

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 = 60 Hz	t = 16.7 ms	160	A
		F = 50 Hz	t = 20 ms	168	
I^2t	I^2t Value for fusing	tp = 10 ms		144	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT}, tr ≤ 100 ns	F = 120 Hz	Tj = 125°C	50	A/µs
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	tp = 10 ms	Tj = 25°C	V_{DRM}/V_{RRM} + 100	V
I_{GM}	Peak gate current	tp = 20 µs	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			Unit
				SW	CW	BW	
I_{GT}	V_D = 12 V R_L = 33 Ω	I - II - III	MAX.	10	35	50	mA
V_{GT}	V_D = 12 V R_L = 33 Ω	I - II - III	MAX.	1.3			V
V_{GD}	V_D = V_{DRM} R_L = 3.3 kΩ Tj = 125°C	I - II - III	MIN.	0.2			V
I_H	I_T = 500 mA		MAX.	15	35	50	mA
I_L	I_G = 1.2 I_{GT}	I - III	MAX.	25	50	70	mA
		II		30	60	80	
dV/dt	V_D = 67 % V_{DRM} gate open Tj = 125°C		MIN.	400	500	1000	V/µs
(di/dt)c	Without snubber Tj = 125°C		MIN.		8.5	14	A/ms

V_{ISO}>2500VAC 1min

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■ STANDARD (4 Quadrants)

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT}	V_D = 12 V R_L = 33 Ω	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 Ω Tj = 125°C	ALL	MIN.	0.2	V
I_H	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	V_D = 67 % V_{DRM} gate open Tj = 125°C		MIN.	400	V/µs
(dV/dt)c	(dI/dt)c =7A/ms Tj = 125°C		MIN.	10	V/µs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM}	I_{TM} = 16 A tp = 380 µs	Tj = 25°C	MAX.	1.55	V
V_{TO}	Threshold voltage	Tj = 125°C	MAX.	0.85	V
R_d	Dynamic resistance	Tj = 125°C	MAX.	60	mΩ
I_{DRM}	$V_{DRM} = V_{RRM}$	Tj = 25°C	MAX.	5	µA
I_{RRM}		Tj = 125°C		1	mA

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				
BTA16	X	X	10~50 mA	Standard	TO-220AB

OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTA16	BTA16	2 g	250	Bulk

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

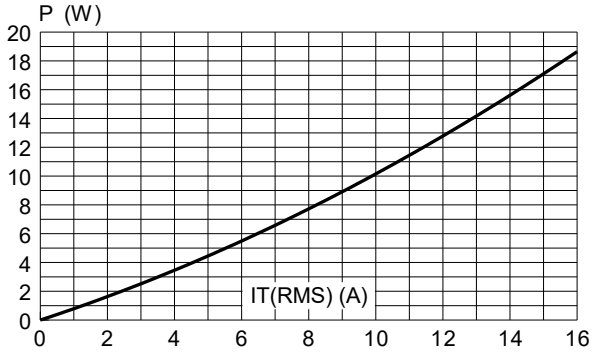

Fig.2: RMS on-state current versus case temperature (full cycle).

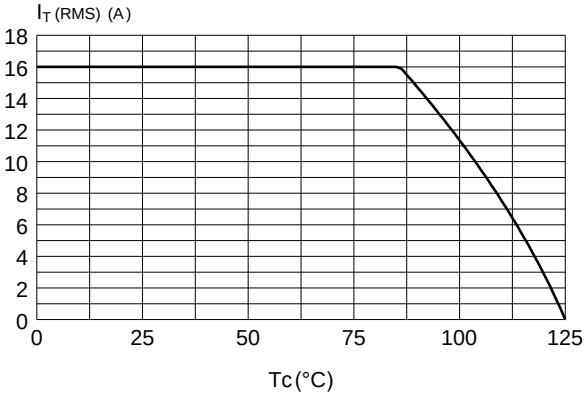

Fig.3: Relative variation of thermal impedance versus pulse duration.

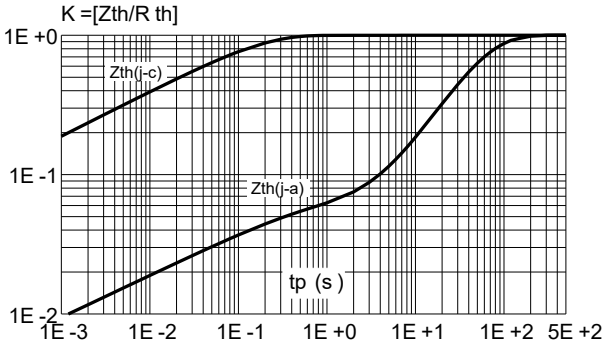

Fig.4: On-state characteristics (maximum values)

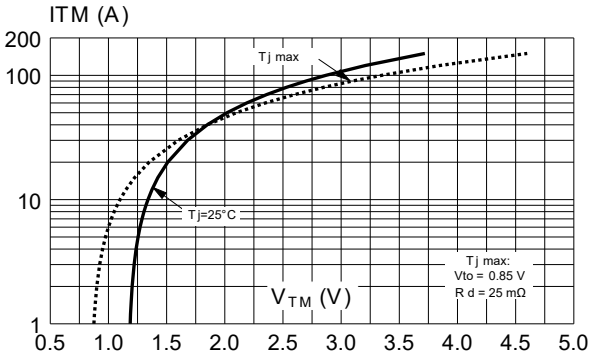

Fig.5: Surge peak on-state current versus number of cycles.

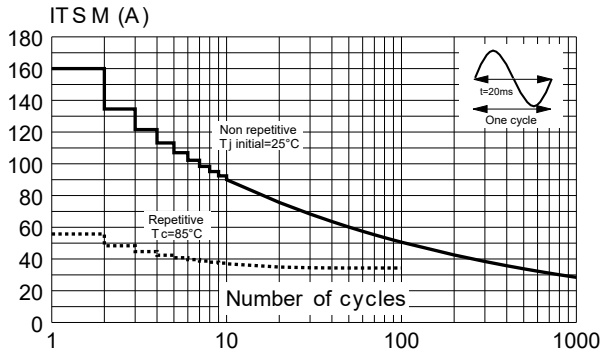

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Fig.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I²t.

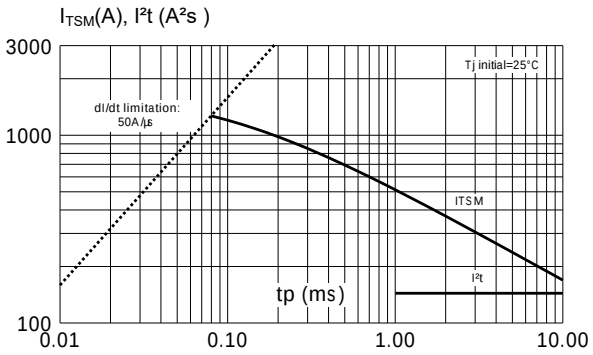


Fig.7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

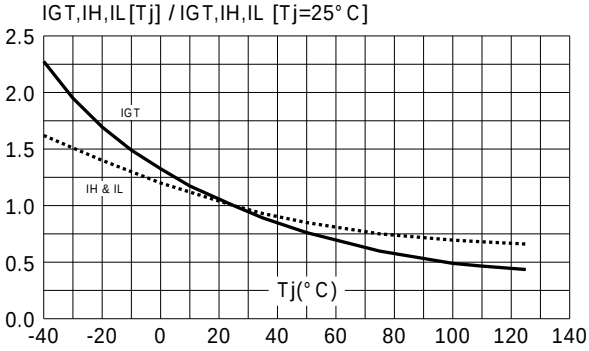


Fig.8: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).

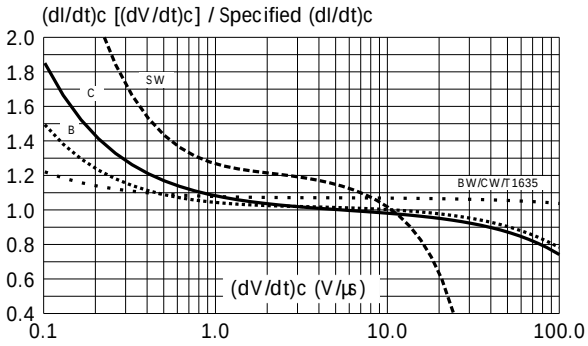
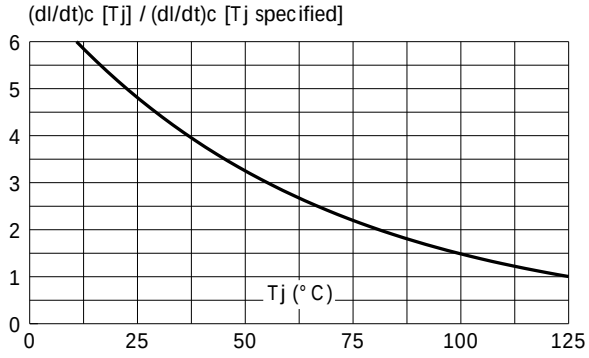


Fig.9: Relative variation of critical rate of decrease of main current versus junction temperature



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