BTA12

Discrete Triacs(Isolated)

Dimensions TO-220AB
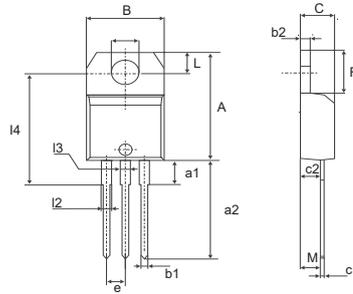
REF.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
Øl	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	

	$V_{DRM/RRM}$ V	$V_{DSM/RSM}$ V
BTA12-200	200	300
BTA12-400	400	500
BTA12-600	600	700
BTA12-800	800	900
BTA12-1000	1000	1100
BTA12-1200	1200	1300

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB	Tc = 100°C	12	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	F = 60 Hz	t = 16.7 ms	160	A
		F = 50 Hz	t = 20 ms	168	
I^2t	I²t 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	T_j=125°C	50	A/µs
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	tp = 10 ms	T_j=25°C	V_{DRM}/V_{RRM} + 100	V
I_{GM}	Peak gate current	tp = 20 µs	T_j=125°C	4	A
$P_{G(AV)}$	Average gate power dissipation		T_j=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 (T_j = 25°C, unless otherwise specified)

■ SNUBBERLES and LOGICLEVEL(3 Quadrants)

Symbol	Test Conditions	Quadrant		BTA		Unit
				CW	BW	
I_{GT}	V_D=12V R_L=33 Ω	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 kΩ T_j=125°C	I - II - III	MIN.	0.2		V
I_H	I_T=500mA		MAX.	35	50	mA
I_L	I_G=1.2I_{GT}	I - III	MAX.	50	70	mA
		II		60	80	
dV/dt	V_D=67 % V_{DRM} gate open T_j=125°C		MIN.	500	1000	V/µs
(dI/dt)c	Without snubber T_j=125°C		MIN.	8.5	14	A/ms

V_{ISO}>2500VAC 1min

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■ **STANDARD (4Quadrants)**

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT}	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 T_j=125°C	ALL	MIN.	0.2	V
I_H	I_T=500mA		MAX.	50	mA
I_L	I_G=1.2I_{GT}	I - III - IV	MAX.	60	mA
		II		120	
dV/dt	V_D=67 % V_{DRM} gate open T_j = 125°C		MIN.	400	V/μs
(dV/dt)c	(dI/dt)c=7A/ms T_j =125°C		MIN.	10	V/μs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM}	I_{TM} =16 A t_p =380 μs	T_j = 25°C	MAX.	1.55	V
V_{to}	Threshold voltage	T_j = 125°C	MAX.	0.85	V
R_d	Dynamic resistance	T_j = 125°C	MAX.	60	mΩ
I_{DRM}	V_{DRM}=V_{RRM}	T_j = 25°C	MAX.	5	μA
I_{RRM}		T_j = 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				
BTA12	X	X	50 mA	Standard	TO-220AB

OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
BTA12	BTA12	2 g	250	Bulk

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www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com
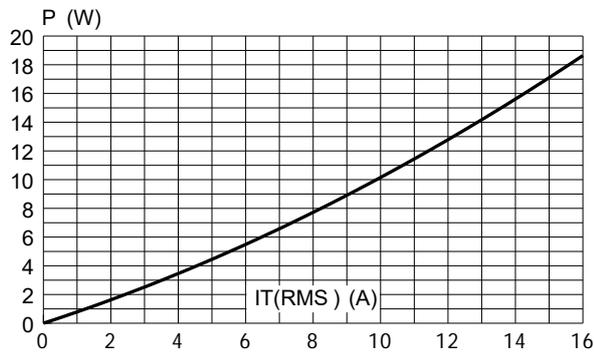
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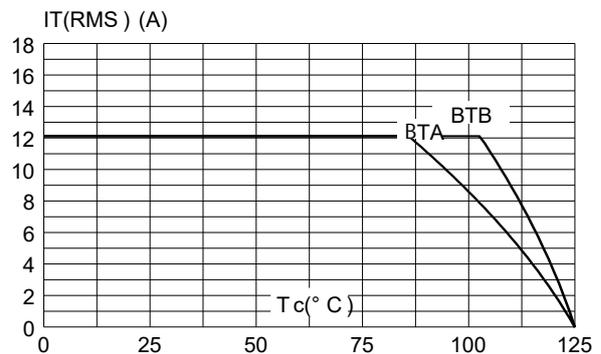Fig.1:Maximum power dissipation versus RMS on-state current (full cycle).

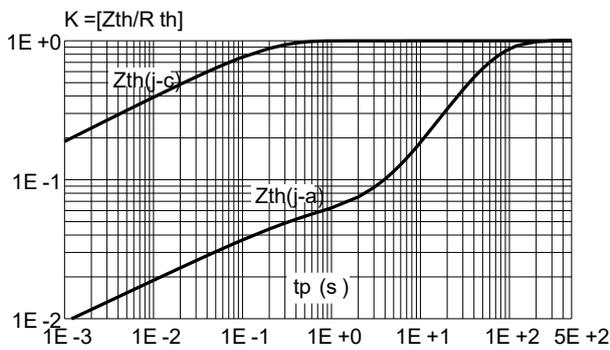Fig.2-1:RMS on-state current versus case temperature (full cycle).

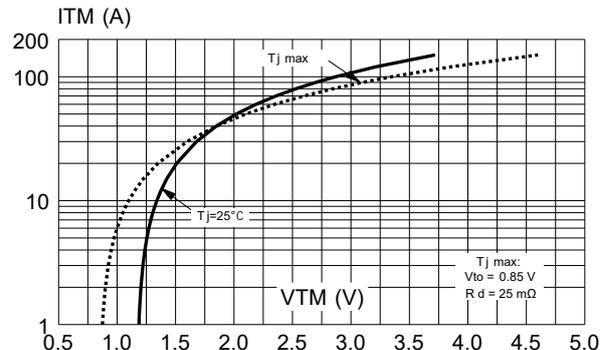Fig.3:Relative variation of thermal impedance versus pulse duration.

Fig.4:On-state characteristics(maximumvalues)

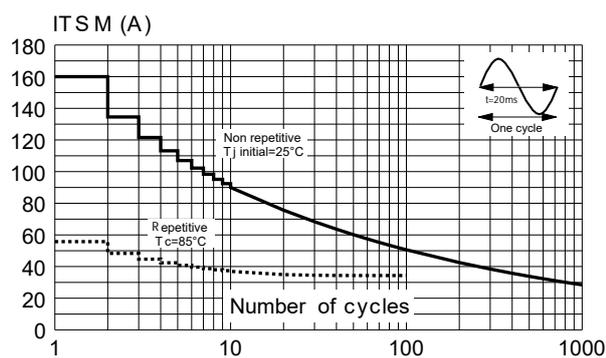Fig.5:Surge peak on-state current versus number of cycles.
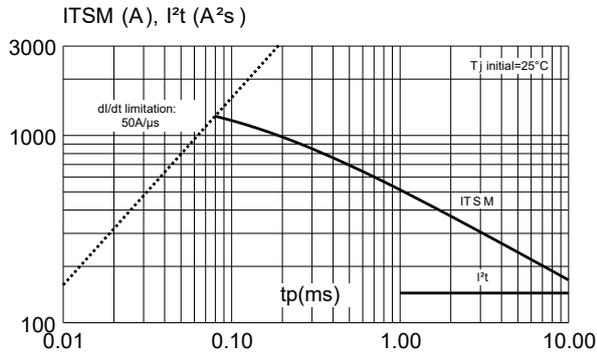
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ITSM (A), I²t (A²s)

Fig.6:Non-repetitive surge peak on-state current for a sinus oidal puls e with width tp<10ms, and corres ponding value of I²t.
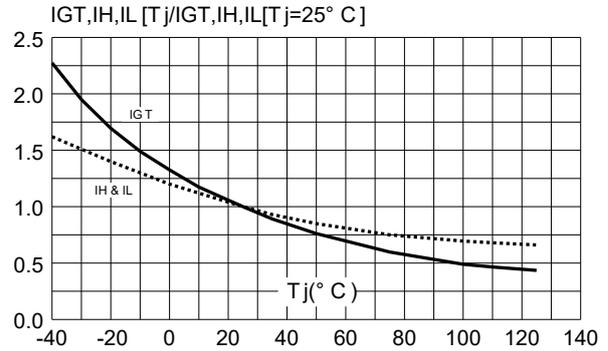
IGT,IH,IL [T j/IGT,IH,IL[T j=25° C]

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

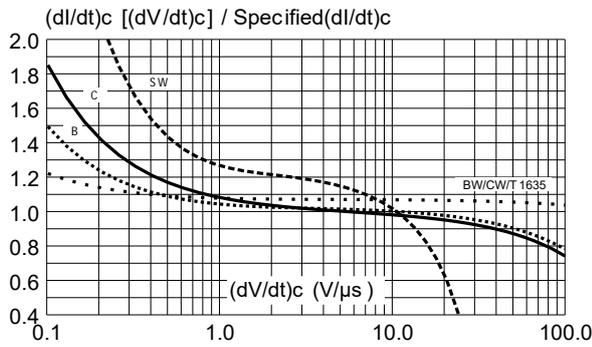(dI/dt)c [(dV/dt)c] / Specified(dI/dt)c

Fig.8:Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).
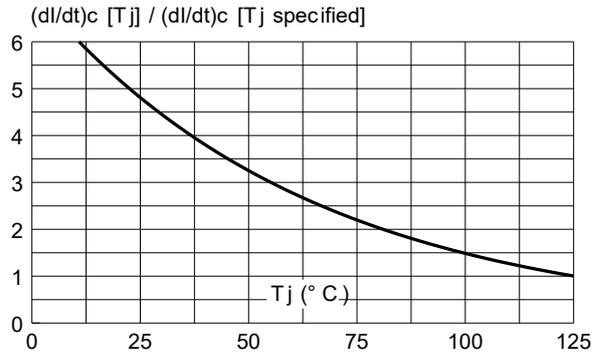
(dI/dt)c [T j] / (dI/dt)c [T j specified]

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

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