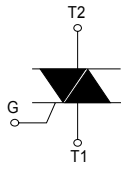
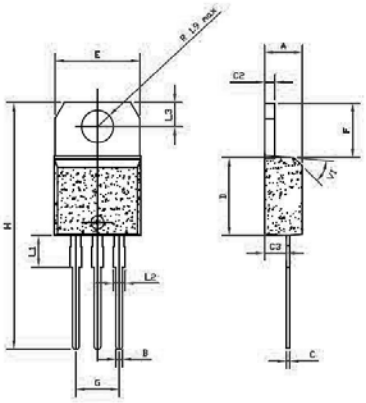
BTA24

Discrete Triacs(Isolated)



	$V_{DRM/RRM}$ V	$V_{DSM/RSM}$ V
BTA24-200	200	300
BTA24-400	400	500
BTA24-600	600	700
BTA24-800	800	900
BTA24-1000	1000	1100
BTA24-1200	1200	1300

Dimensions TO-220AB



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.61		0.88	0.024		0.034
C	0.46		0.70	0.018		0.027
C2	1.23		1.32	0.048		0.051
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.338		0.382
E	9.8		10.4	0.386		0.409
F	6.2		6.6	0.244		0.259
G	4.8		5.4	0.189		0.213
H	28.0		29.8	11.0		11.7
L1		3.75			0.147	
L2	1.14		1.7	0.044		0.066
L3	2.65		2.95	0.104		0.116
V1		40°			40°	

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 = 60 Hz	t = 16.7 ms	250	A
		F = 50 Hz	t = 20 ms	260	
I^2t	I^2t Value for fusing	tp = 10 ms		340	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		BTA24		Unit
				CW	BW	
I_{GT} (1)	V_D = 12 V 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 Tj = 125°C	I - II - III	MIN.	0.2		V
I_H (2)	I_T = 500 mA		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

© 2012 Sirectifier Electronics Technology Corporation All Rights Reserved

Sirectifier®

BTA24

Discrete Triacs(Isolated)

■ STANDARD (4 Quadrants)

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT} (1)	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 (2)	I_T = 500 mA		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 =13.3 A/ms Tj = 125°C		MIN.	10	V/µs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM} (2)	I_{TM} = 24A tp = 380 µs	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 ~~ 1200 V				
BTA24	X	X	50 mA	Standard	TO-220AB

OTHER INFORMATION

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

© 2012 Sirectifier Electronics Technology Corporation All Rights Reserved

BTA24

Discrete Triacs(Isolated)

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

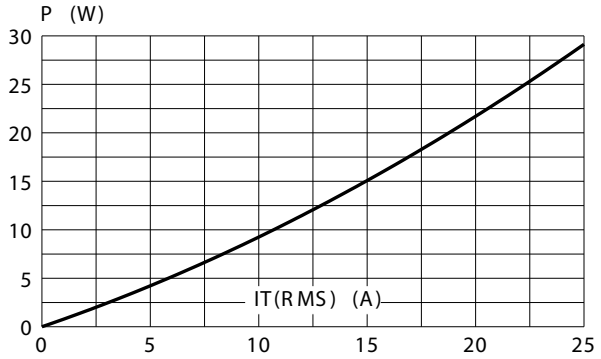


Fig. - 2 : RMS on-state current versus case temperature (full cycle).

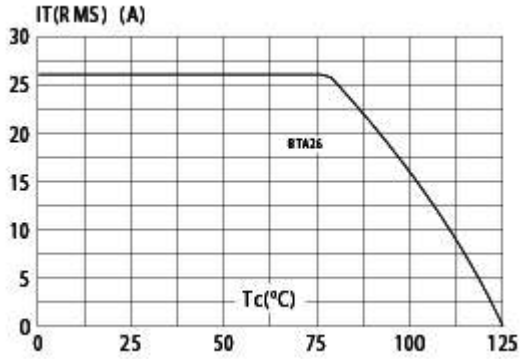


Fig. 3: Relative variation of thermal impedance versus pulse duration.

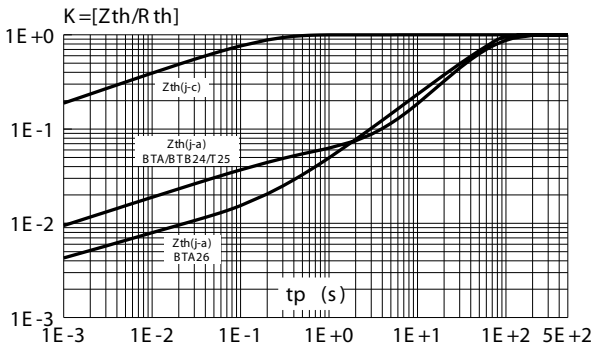


Fig. 4 : On-state characteristics (maximum values).

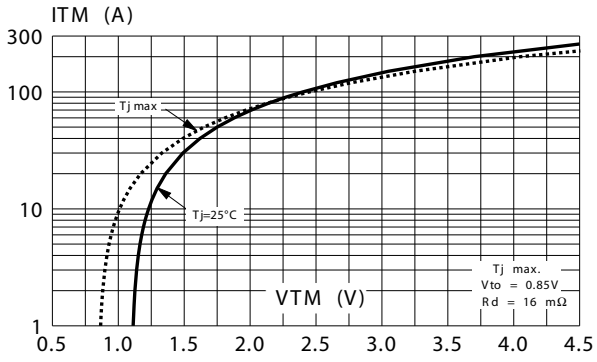
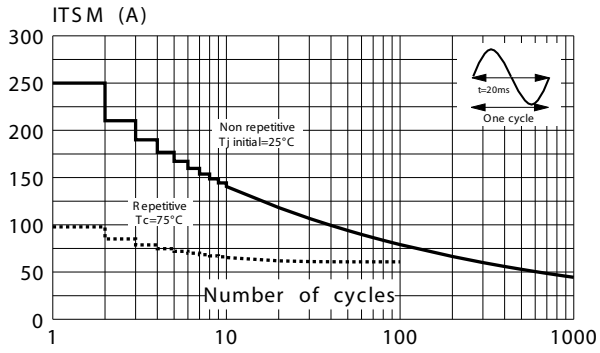


Fig. 5 : Surge peak on-state current versus number of cycles.



© 2012 Sirectifier Electronics Technology Corporation All Rights Reserved

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

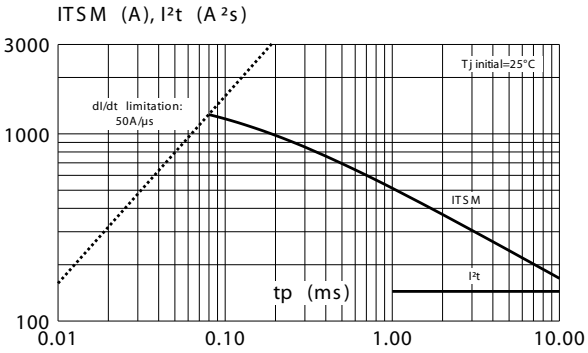


Fig. 7: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

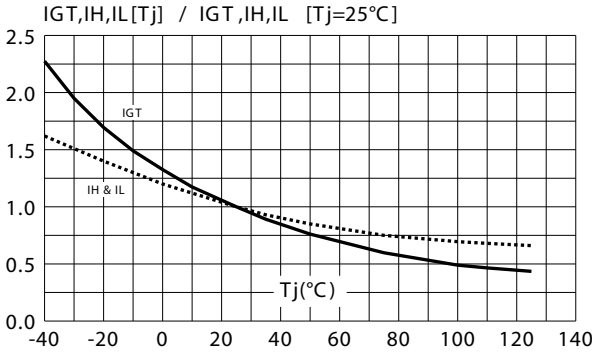


Fig.8 : Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).

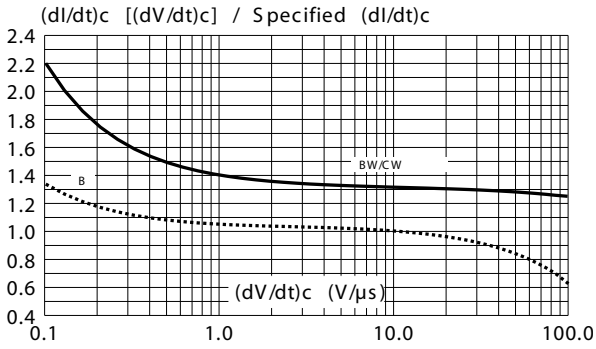
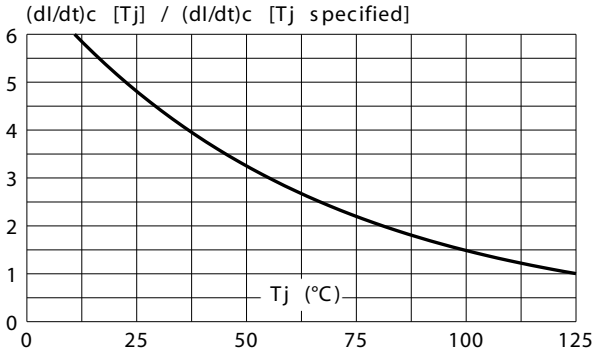


Fig. 9 : Relative variation of critical rate of decrease of main current versus junction temperature.



© 2012 Sirectifier Electronics Technology Corporation All Rights Reserved