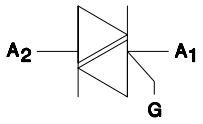
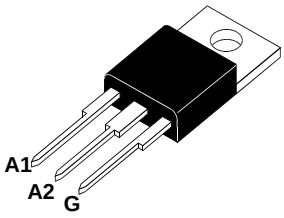
BTB24 B

STANDARD TRIACS

FEATURES

- HIGH SURGE CURRENT CAPABILITY
- COMMUTATION : (dV/dt)c > 10V/µs





TO220AB
(Plastic)

DESCRIPTION

The BTB24 B triac family are high performance glass passivated PNPN devices.
These parts are suitables for general purpose applications where high surge current capability is required. Application such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	Tc = 90 °C	25	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3 ms	260	A
		tp = 10 ms	250	
I^2t	I^2t value	tp = 10 ms	312	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply : I_G = 2 . I_{GT} tr ≤ 100ns	Repetitive F = 100 Hz	50	A/µs
Tstg Tj	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C °C
Tl	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	°C

Symbol	Parameter	BTB24-... B				Unit
		400	600	700	800	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage Tj = 125 °C	400	600	700	800	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient	60	°C/W
Rth (j-c) DC	Junction to case for DC	1.5	°C/W
Rth (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G\ (AV)}$ = 1W P_{GM} = 10W (tp = 20 µs) I_{GM} = 4A (tp = 20 µs) V_{GM} = 16V (tp = 20 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Suffix	Unit
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	I-II-III-IV	MIN	5	mA
			I-II-III	MAX	50	
			IV	MAX	100	
V_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	I-II-III-IV	MAX	1.3	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj=125°C	I-II-III-IV	MIN	0.2	V
I_L	I_G=1.2 I_{GT}	Tj=25°C	I-III-IV	MAX	70	mA
			II		150	
I_H *	I_T= 500mA gate open	Tj=25°C		MAX	50	mA
V_{TM} *	I_{TM}= 35A tp= 380µs	Tj=25°C		MAX	1.6	V
I_{DRM}	V_{DRM} Rated	Tj=25°C		MAX	5	µA
I_{RRM}	V_{RRM} Rated	Tj=125°C		MAX	2	mA
dV/dt *	Linear slope up to V_D=67%V_{DRM} gate open	Tj=125°C		MIN	750	V/µs
(dV/dt)c *	(dI/dt)c = 11.1A/ms	Tj=125°C		MIN	10	V/µs

* For either polarity of electrode A_2 voltage with reference to electrode A_1.

Fig. 1: Maximum power dissipation versus RMS on-state current.

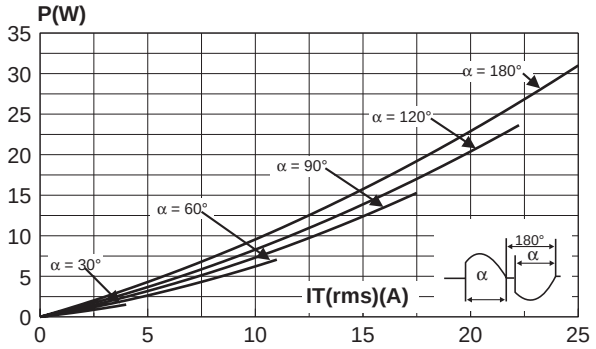


Fig. 2: Correlation between maximum power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

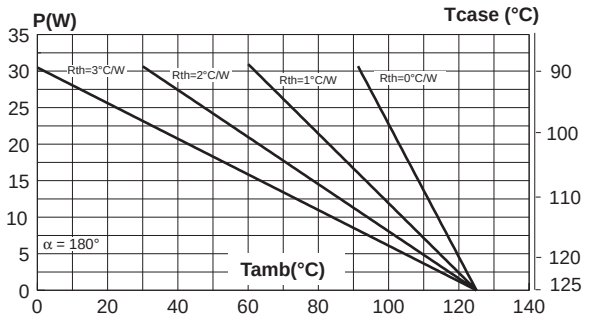


Fig. 3: RMS on-state current versus case temperature.

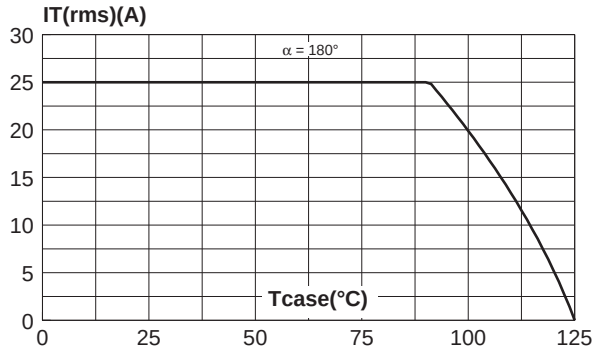


Fig. 4: Relative variation of thermal impedance versus pulse duration.

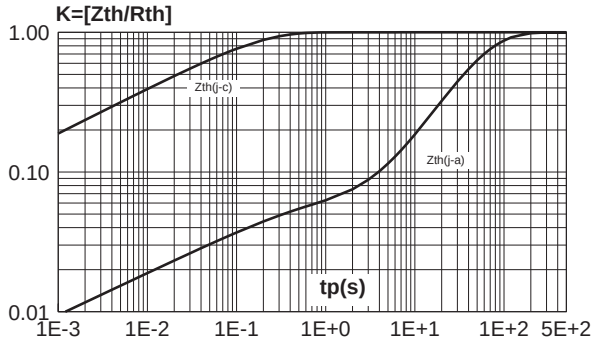


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature (typical values).

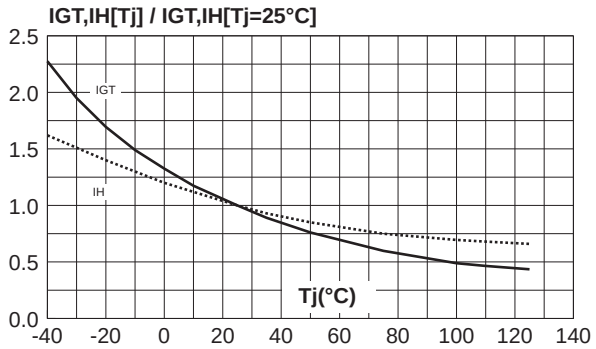


Fig. 6: Non Repetitive surge peak on-state current versus number of cycles.

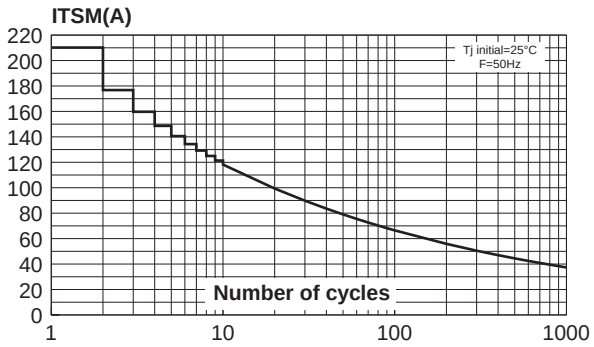


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10ms, and corresponding value of I^2t.

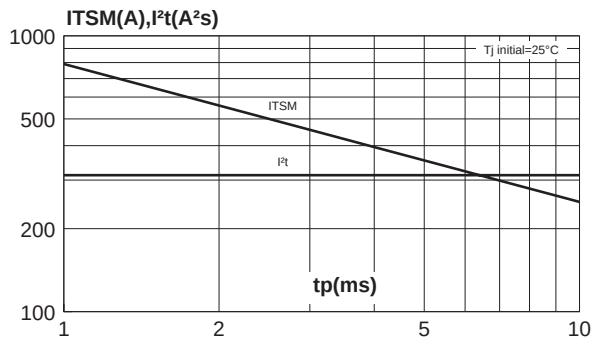
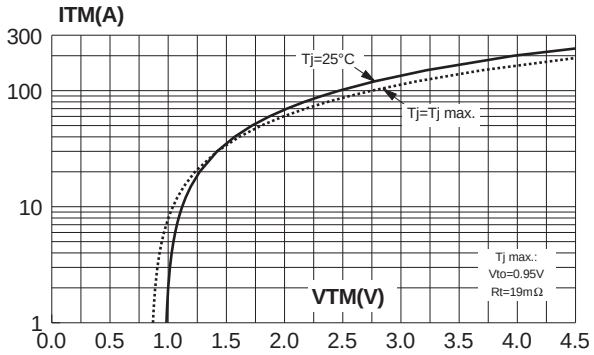
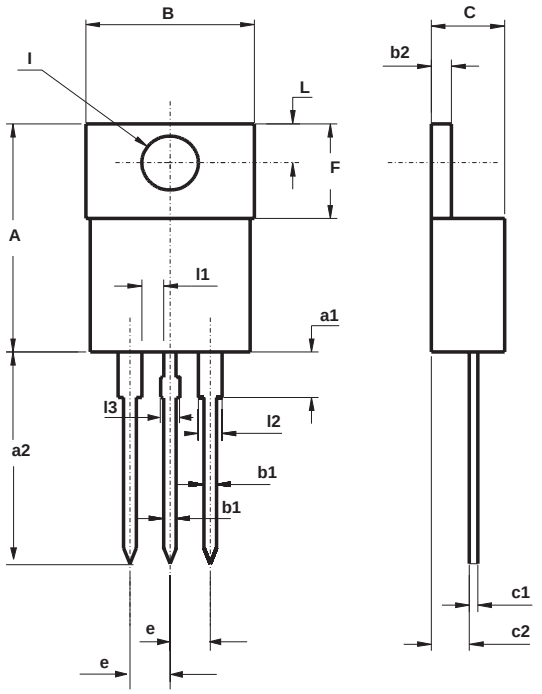


Fig. 8: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO220AB Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	14.23	15.87	0.560	0.625
a1		4.50		0.177
a2	12.70	14.70	0.500	0.579
B	10.20	10.45	0.402	0.411
b1	0.64	0.96	0.025	0.038
b2	1.15	1.39	0.045	0.055
C	4.48	4.82	0.176	0.190
c1	0.35	0.65	0.020	0.026
c2	2.10	2.70	0.083	0.106
e	2.29	2.79	0.090	0.110
F	5.85	6.85	0.230	0.270
I	3.55	4.00	0.140	0.157
L	2.54	3.00	0.100	0.118
l1	1.30		0.051	
l2	1.45	1.75	0.057	0.069
l3	0.80	1.20	0.031	0.047

Cooling method : C
Marking : type number
Weight : 2.25 g
Recommended torque value : 0.8 m.N.
Maximum torque value : 1 m.N.