

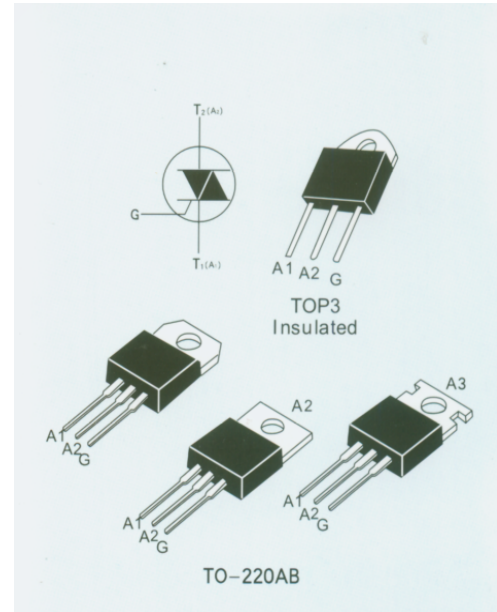
MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	26	A
$V_{(DRM)}/V_{RRM}$	600 to 800	V
$I_{GT(Q1)}$	20 to 50	mA

GENERAL DESCRIPTION

Available either in through-hole or surface and T25 mount packages, the BTA/BTB 24-25-26 triac series is suitable for general purpose AC power switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, water heaters, induction motor starting circuits...or for phase control operation in high power motor speed controllers, soft start circuits...

By using an internal ceramic pad, the BTA series provides voltage insulated tab (rated at 2500V RMS).



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB	$T_c=100^{\circ}\text{C}$	26	A
		TOP3 Ins.	$T_c=90^{\circ}\text{C}$		A
		TO-220AB Ins.	$T_c=75^{\circ}\text{C}$		A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial= 25°C)	F=50Hz	t=20ms	250	A
		F=60Hz	t=16.7ms	260	
I^2T	I^2T Value for fusing	tp=10ms		340	A^2s
di/dt	Critical rate of rise of on-state current $I_G=2 \times I_{GT}$, $t_r \leq 100\text{ns}$	F=120Hz	$T_j=125^{\circ}\text{C}$	50	$\text{A}/\mu\text{s}$
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state Voltage	tp=10ms	$T_j=25^{\circ}\text{C}$	$V_{DSM}/V_{RSM} + 100$	V
I_{GM}	Peak gate current	tp=20μs	$T_j=125^{\circ}\text{C}$	4	A
$P_{G(AV)}$	Average gate power dissipation		$T_j=125^{\circ}\text{C}$	1	W
T_{stg}	Storage junction temperature range				-40 to +150
T_j	Operating junction temperature range				-40 to +125

■ STATIC CHARACTERISTICS

T_j=25°C unless otherwise stated

Symbol	Test Conditions	Quadrant		Value		Unit	
				C	B		
I _{GT} ⁽¹⁾	V _D =12V R _L =30Ω	I-II-III	MAX.	25	50	mA	
		IV		50	100		
V _{GT}		ALL	MAX.	1.5		V	
V _{GD}	V _D =V _{DRM} R _L =3.3KΩ T _j =125℃	ALL	MIN.	0.2		V	
I _H ⁽²⁾	I _T =500mA		MAX.	20	80	mA	
I _L	I _G =1.2I _{GT}	I-III-IV	MAX.	40	70	mA	
		II		80	160		
V _{TM} ⁽²⁾	I _{TM} =35A tp=380μs	T _j =25℃	MAX.	1.6		V	
V _{t0} ⁽²⁾	Threshold voltage		T _j =125℃	MAX.	0.85		V
R _d ⁽²⁾	Dynamic resistance		T _j =125℃	MAX.	16		mΩ
I _{DRM} I _{RRM}	V _{DRM} =V _{RRM}	T _j =25℃	MAX.	500		μA	
		T _j =125℃		3		mA	

■ DYNAMIC CHARACTERISTICS

Symbol	Test Condition		Value	Unit
dV/dt ⁽²⁾	V _D =67% V _{DRM} gate open T _j =125°C	MIN.	500	V/μs
(dV/dt) _c ⁽²⁾	(dI/dt) _c =13.3A/ms T _j =125°C	MIN.	10	V/μs

Note1: minimum I_{GT} is guaranteed at 5% of I_{GT} max.

Note2: for both polarities of A2 referenced to A1.

■ THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-l)}	Junction to case (AC)	TO-220AB	0.8	°C/W
		TOP3 Insulated	1.1	
		TO-220AB Insulated	1.7	
R _{th(j-a)}	Junction to ambient	TOP3 Insulated	50	°C/W
		TO-220AB	60	
		TO-220AB Insulated		

PERFORMANCE CURVES

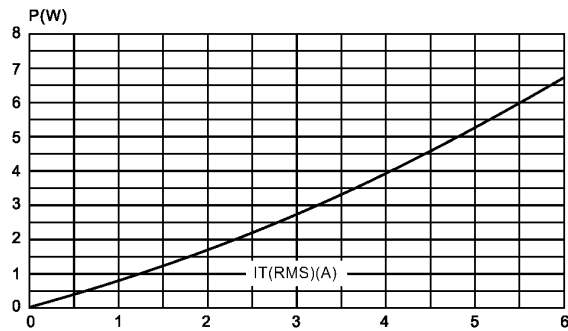


Fig.1. Maximum power dissipation versus RMS on-state current (full cycle)

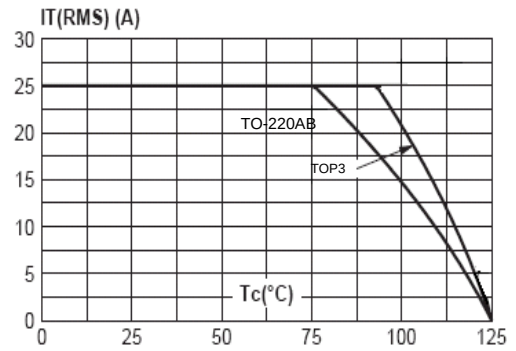


Fig.4. RMS on-state current versus ambient temperature (full cycle)

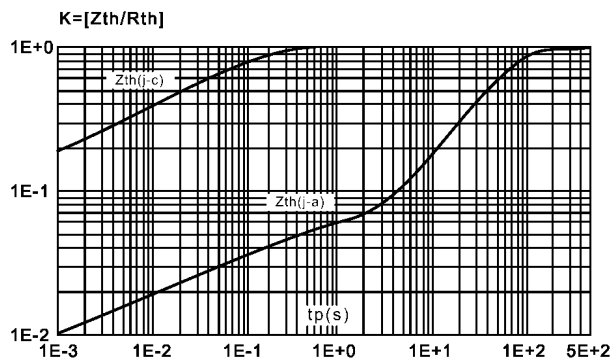


Fig.2. Relative variation of thermal impedance versus pulse duration

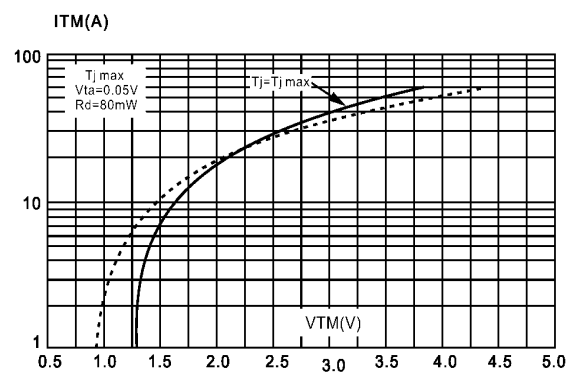


Fig.5. On-state characteristics (maximum values)

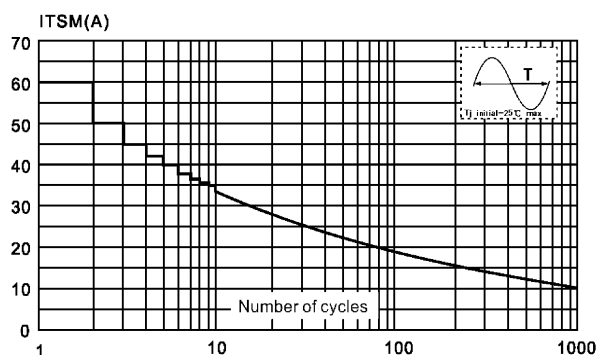


Fig.3. Surge peak on-state current versus number of cycles

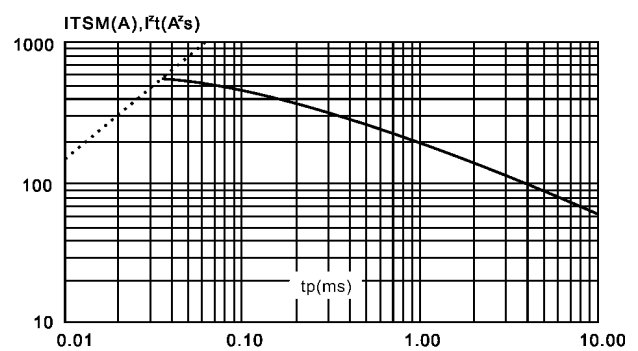


Fig.6. Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t

PERFORMANCE CURVES

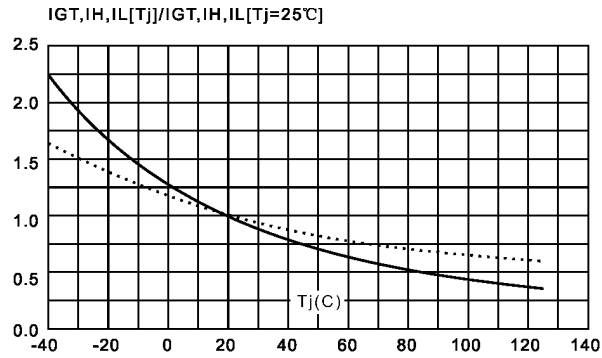


Fig.7. Relative variation of gate trigger current, holding current and latching current versus junction temperature T_j (typical values)

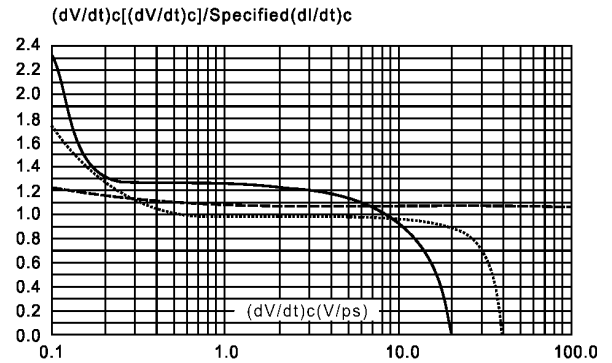


Fig.9. Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values), Snubberless & Logic Level Types

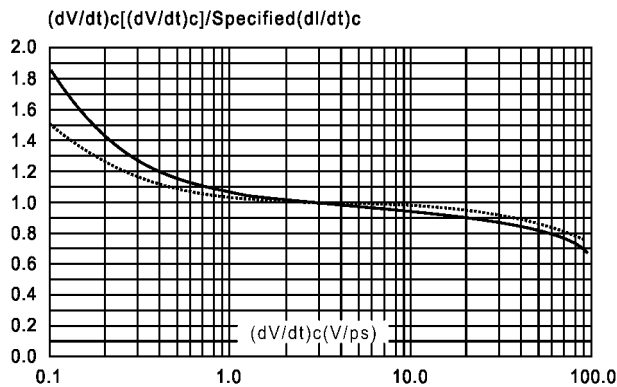


Fig.8. Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values), Standard I Types

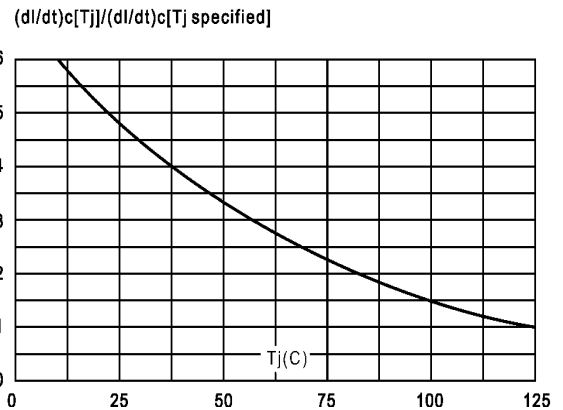
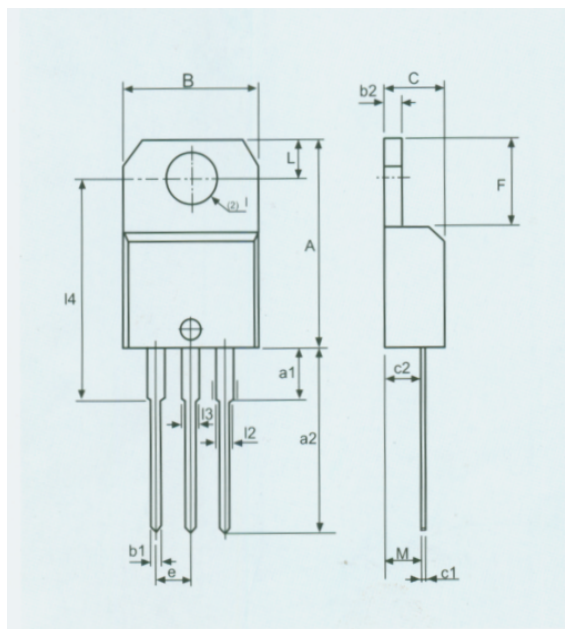


Fig.10. Relative variation of critical rate of decrease of main current versus junction temperature T_j

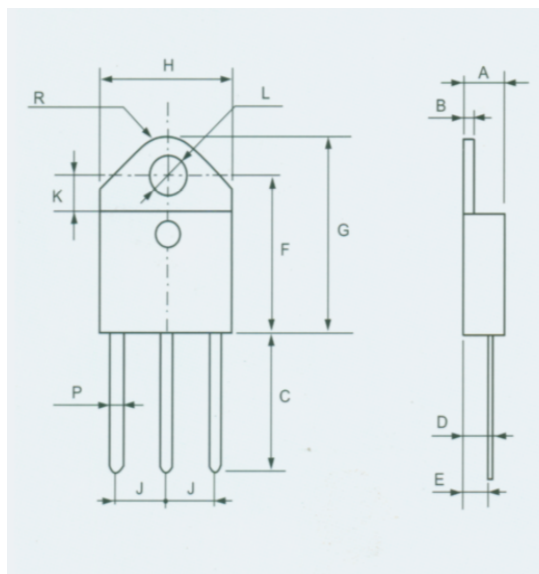
PACKAGE MECHANICAL DATA

TO-220A



REF.	DIMENSIONS					
	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
I	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	

TOP3 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.5		0.7	0.020		0.028
E	2.7		2.9	0.106		0.114
F	15.8		16.5	0.622		0.650
G	20.4		21.1	0.815		0.831
H	15.1		15.5	0.594		0.610
J	5.4		5.65	0.213		0.222
K	3.4		3.65	0.134		0.144
L	4.08		4.17	0.161		0.164
P	1.20		1.40	0.047		0.055
R		4.60			0.181	