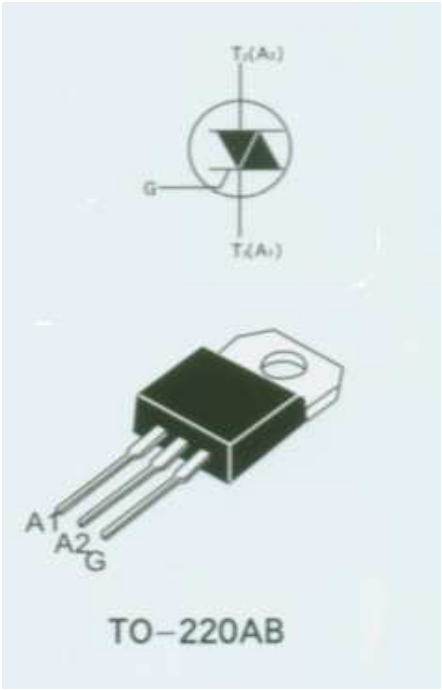
STANDARD

6A TRIACs

■ MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	6	A
$V_{(DRM)}/V_{RRM}$	600 to 800	V
$I_{GT(Q1)}$	5 to 50	mA



■ GENERAL DESCRIPTION

Suitable for AC switching operations, the BTA/BTB06 series can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits…or for phase control in light dimmers, motor speed controllers,…

The snubberless and logic level versions (BTA/BTB…W) are specially recommended for use on inductive loads, thanks to their high commutation performances. 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	Tc=110℃	6	A
		TO-220AB Ins.	Tc=105℃		A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial=25℃)	F=50Hz	t=20ms	60	A
		F=60Hz	t=16.7ms	63	
I^2T	I^2T Value for fusing	tp=10ms		21	A^2s
dI/dt	Critical rate of rise of on-state current I_G=2 × I_{GT}, tr≤100ns	F=120Hz	Tj=125℃	50	A/μs
I_{GM}	Peak gate current	tp=20μs	Tj=125℃	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj=125℃	1	W
T_{stg}	Storage junction temperature range			-40 to+150	℃
T_j	Operating junction temperature range			-40 to+125	

■ STATIC CHARACTERISTICS

Tj=25℃ unless otherwise stated

Symbol	Test Conditions	Quadrant		Value			Unit
				E	C	B	
I_{GT}(1)	V_D=12V R_L=30Ω	I-II-III	MAX.	10	25	50	mA
		IV		20	50	100	
V_{GT}		ALL	MAX.	1.5			V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ Tj=125℃	ALL	MIN.	0.2			V
I_H(2)	I_T=500mA		MAX.	10	25	50	mA
I_L	I_G=1.2I_{GT}	I-III-IV	MAX.	20	40	50	mA
		II		40	80	100	
V_{TM}(2)	I_{TM}=8.5A tp=380μs	Tj=25℃	MAX.	1.6			V
V_{t0}(2)	Threshold voltage	Tj=125℃	MAX.	0.85			V
R_d(2)	Dynamic resistance	Tj=125℃	MAX.	60			mΩ
I_{DRM}	V_{DRM}=V_{RRM}	Tj=25℃	MAX.	100			μA
I_{RRM}		Tj=125℃		1			mA

■ DYNAMIC CHARACTERISTICS

Symbol	Test Condition		E	C	B	Unit
dV/dt(2)	V_D=67% V_{DRM} gate open Tj=125℃	MIN.	100	200	400	V/μs
(dV/dt)c(2)	(dI/dt)c=2.7A/ms Tj=125℃	MIN.	5	5	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	1.8	℃/W
		TO-220AB Insulated	2.7	
$R_{th(j-a)}$	Junction to ambient	TO-220AB	60	℃/W
		TO-220AB Insulated		

PERFORMANCE CURVES

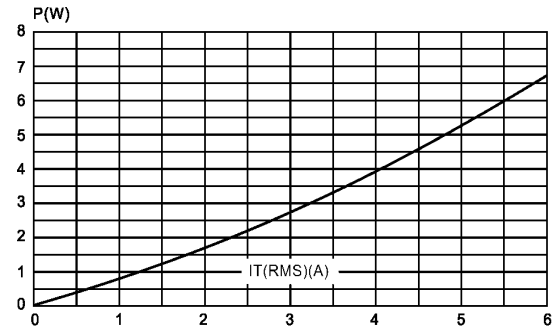


Fig.1. Maximum power dissipation versus RMS on-state current (full cycle)

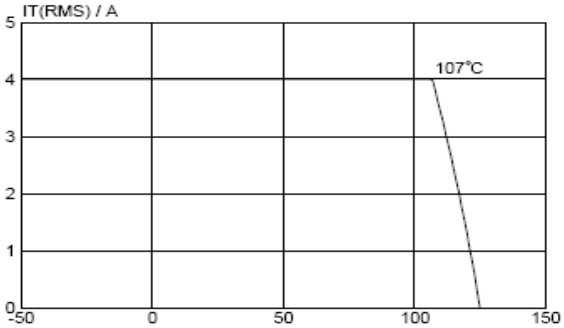


Fig.4. RMS on-state current versus ambient temperature (full cycle)

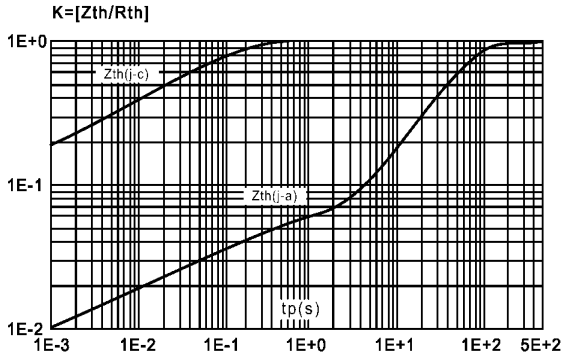


Fig.2. Relative variation of thermal impedance versus pulse duration

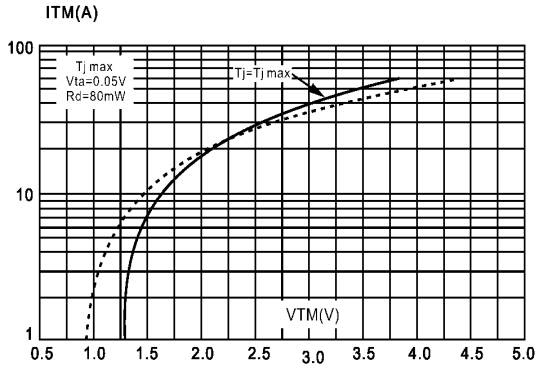


Fig.5. On-state characteristics (maximum values)

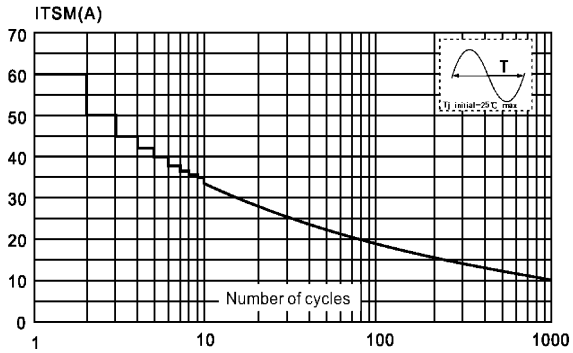


Fig.3. Surge peak on-state current versus number of cycles

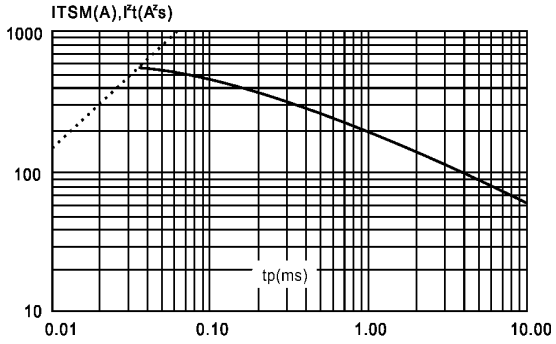


Fig.6. Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I^2t

PERFORMANCE CURVES

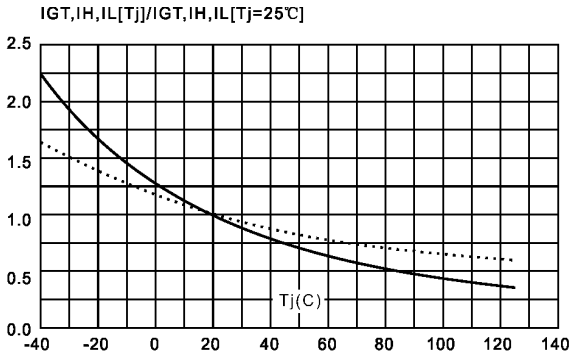


Fig.7. Relative variation of gate trigger current, holding current and latching current versus junction temperature T_j (typical values)

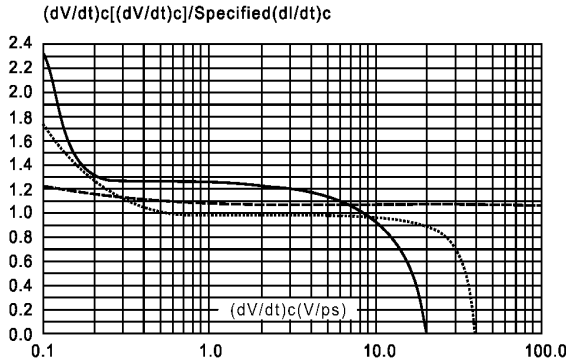


Fig.9. Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values), Snubberless & Logic Level Types

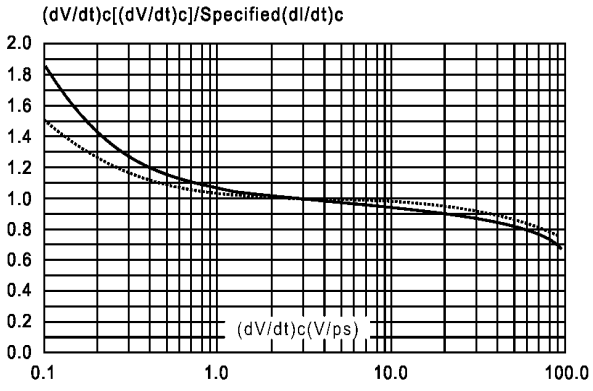


Fig.8. Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values), Standard Types

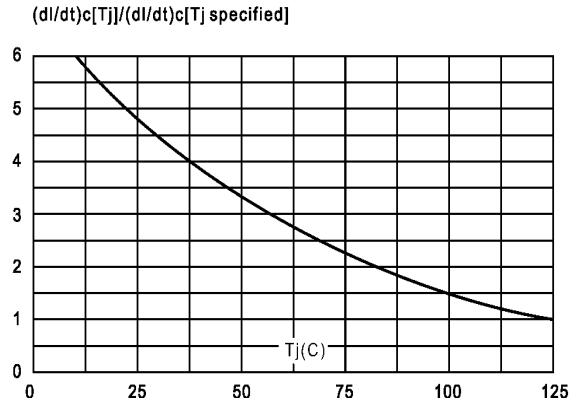
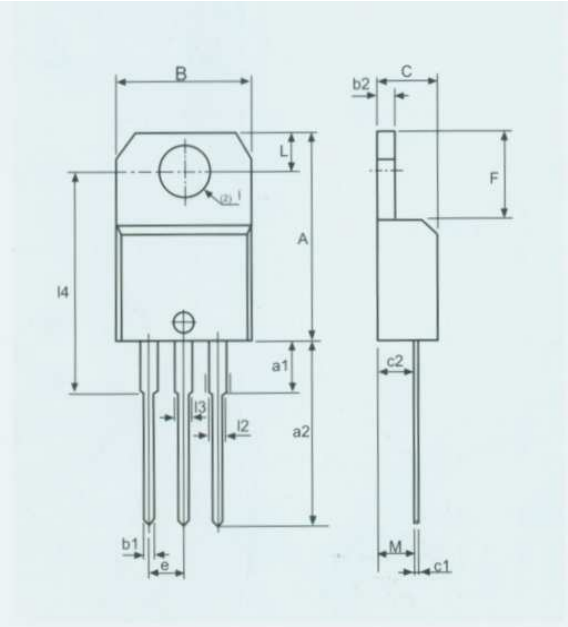


Fig.10. Relative variation of critical rate of decrease of main current versus junction temperature T_j

PACKAGE MECHANICAL DATA

TO-220AB/TO-220AB Ins.



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	