

BTA06/BTB06 Series

Description:

High current density due to double mesa technology;
SIPOS and Glass Passivation.

Applications:

BTA06/BTB06 series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation light dimmers, motor speed controllers.

Features:

BTA06/BTB06-XXXTW / SW / CW / BW are 3 Quadrants TRIACS, They are specially recommended for use on inductive loads.

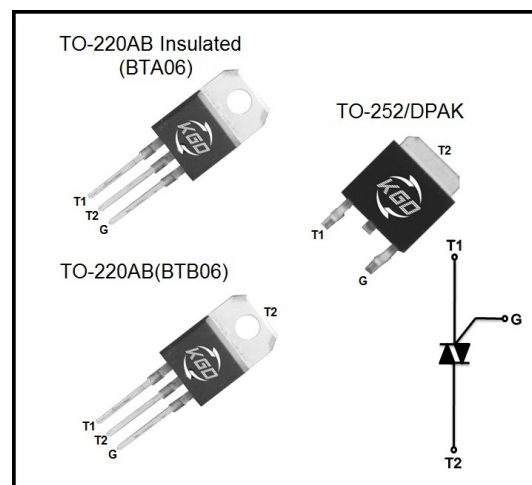
BTA06 are isolated internally, they provide a 2500V RMS isolation voltage from all three terminals to external heatsink.

Blocking voltage to 600/800V

On-state RMS current to 6A

Non-repetitive peak on-state current to 60A

Absolute Maximum Ratings



Symbol	Parameter	Conditions	Min	Max	Unit
V_{DRM}	Repetitive peak off-state voltage	$T_J=25^{\circ}\text{C}$	600	800	V
V_{RRM}	Repetitive peak Reverse voltage	$T_J=25^{\circ}\text{C}$	600	800	V
$I_{T(RMS)}$	RMS on-state current (full sine wave)	DPAK/TO-220AB $T_c=110^{\circ}\text{C}$	-	6	A
		TO-220AB Ins $T_c=105^{\circ}\text{C}$	-		
I_{TSM}	Non-repetitive peak On-state current (full cycle, $T_J=25^{\circ}\text{C}$)	$F=50\text{Hz}$, $t=20\text{ms}$	-	60	A
		$F=60\text{Hz}$, $t=16.7\text{ms}$	-	63	A
I^2t	I^2t Value for fusing	$T_p=10\text{ms}$	-	21	A^2S
di/dt	Rate of rise of on-state current	$I_G=2 \times I_{GT}$, $t_r \leq 100\text{ns}$, $T_J=125^{\circ}\text{C}$	-	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p=20\mu\text{s}$, $T_J=125^{\circ}\text{C}$	-	4	A
$P_{G(AV)}$	Average gate power		-	1	W
T_{STG}	Storage temperature		-40	150	$^{\circ}\text{C}$
T_J	Junction temperature		-40	125	$^{\circ}\text{C}$

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Electrical Characteristics

■ 3 Quadrants

Symbol	Conditions	Quadrant		BTA06/BTB06				Unit
				TW	SW	CW	BW	
I _{GT}	V _D =12V,R _L =33Ω	I-II-III	MAX	5	10	35	50	mA
V _{GT}		I-II-III	MAX		1.3			V
V _{GD}	V _D =V _{DRM} ,R _L =3.3KΩ, T _j =125℃	I-II-III	MIN		0.2			V
I _L	I _T =1.2I _{GT}	I-III	MAX	10	25	50	70	mA
		II	MAX	15	30	60	80	mA
I _H	I _T =100mA		MAX	10	15	35	50	mA
dv/dt	V _{DM} =67%V _{DRM} ,gate open,T _j =125℃		MIN	20	40	400	1000	V/μs
	(dv/dt)c=0.1 V/μs ,T _j =125℃			3.5	6.5	/	/	
(di/dt)c	(dv/dt)c=10 V/μs ,T _j =125℃		MIN	1.0	2.9	/	/	A/ms
	Without snubber , T _j =125℃			/	/	35	5.3	

■ 4 Quadrants

Symbol	Conditions	Quadrant		BTA06BTB06		Unit
				C	B	
I _{GT}	V _D =12V,R _L =33Ω	I-II-III	MAX	25	50	mA
		IV		50	100	
V _{GT}		ALL	MAX	1.3		V
V _{GD}	V _D =V _{DRM} ,R _L =3.3KΩ, T _j =125℃	ALL	MIN	0.2		V
I _L	I _T =1.2I _{GT}	I-III-IV	MAX	40	50	mA
		II	MAX	80	100	mA
I _H	I _T =100mA		MAX	25	50	mA
dv/dt	V _{DM} =67%V _{DRM} ,gate open,T _j =125℃		MIN	200	400	V/μs

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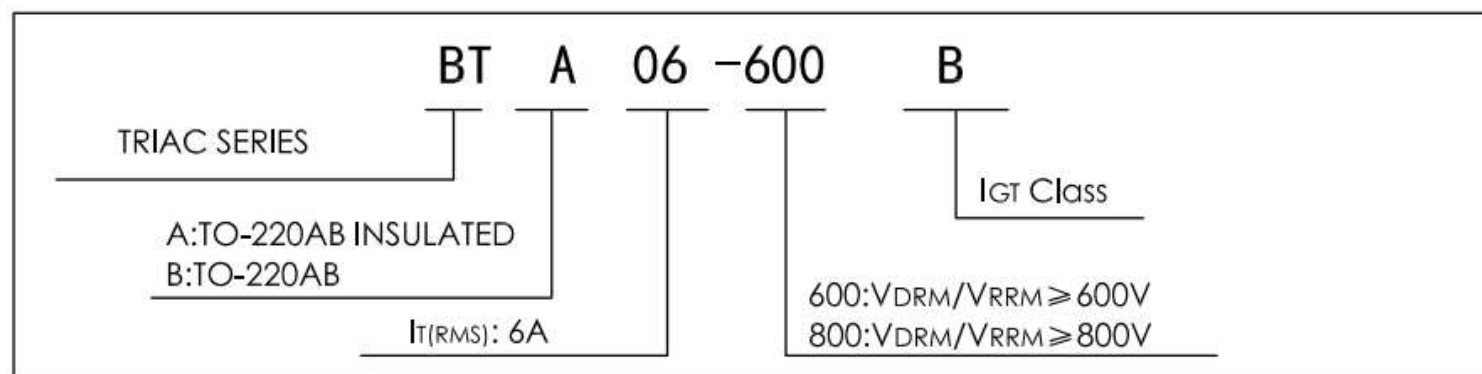
● Static Characteristics

Symbol	Conditions	Quadrant		Value	Unit
V_{TM}	$I_T=5.5p=380\mu s$	$T_J=25^\circ C$	MAX	1.55	V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_J=25^\circ C$	MAX	5	μA
I_{RRM}		$T_J=125^\circ C$	MAX	1	mA

● Thermal Characteristics

Symbol	Parameter		Value	Unit
$R_{th(j-mb)}$	Junction to Case(AC)	DPAK/TO-220AB	1.8	$^\circ C/W$
		TO-220AB Insulated	2.7	
$R_{th(j-a)}$	Junction to am bient	DPAK/TO-220AB	60	$^\circ C/W$
		TO-220AB Insulated		

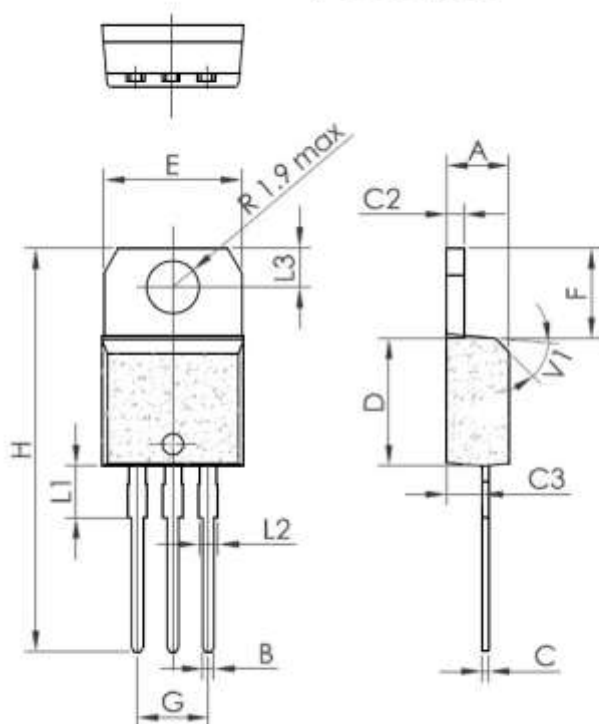
● Ordering Information



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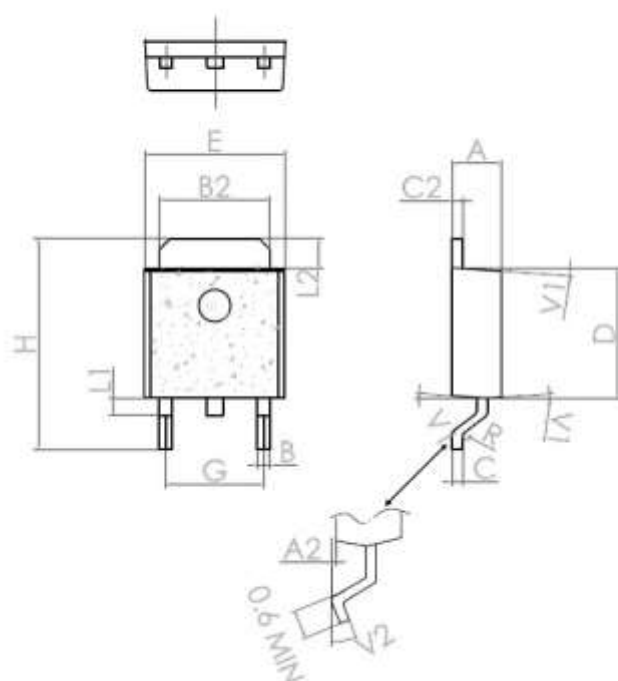
Package Outline Dimensions

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	0.49		0.70	0.019		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	10		10.4	0.393		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°	

TO-252 / DPAK



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.2		5.4	0.204		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.6	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.1	0.368		0.397
L1		0.8			0.031	
L2	1.37		1.5	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

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

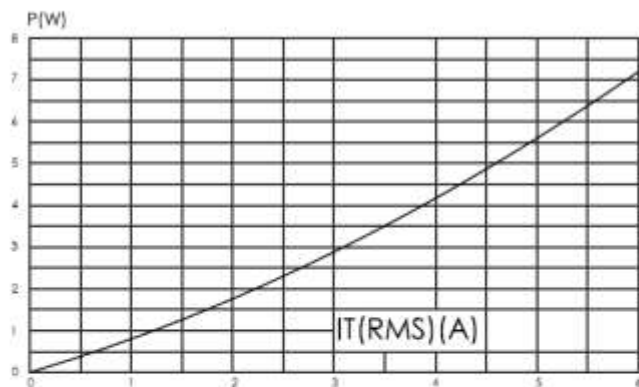


FIG.2: RMS on-state current versus case temperature(full cycle)

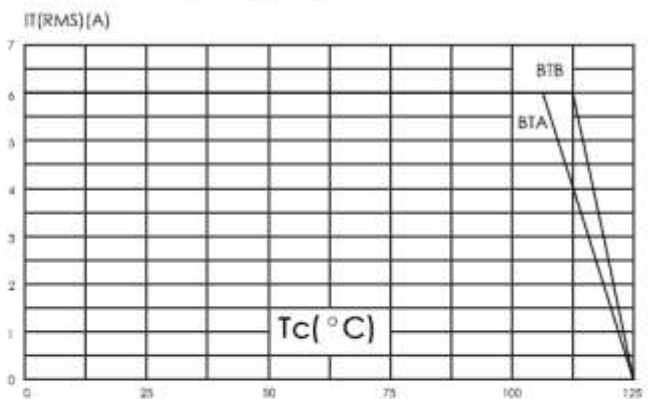


FIG.3: On-state characteristics (maximum values)

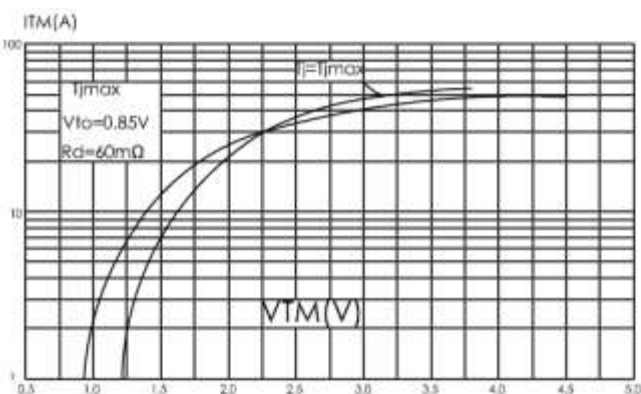


FIG.4: Surge peak on-state current versus number of cycles

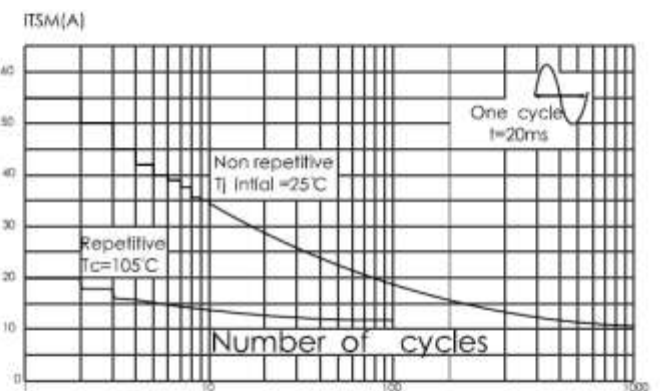


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t .

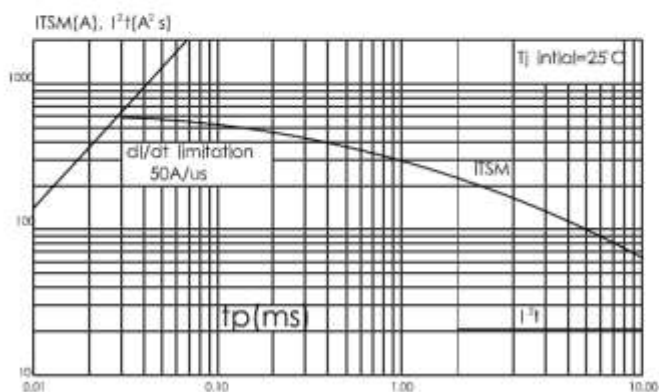


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)

