

BTA20/BTB20 Series

- Description:**

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

- Applications:**

BTA20/BTB20 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:**

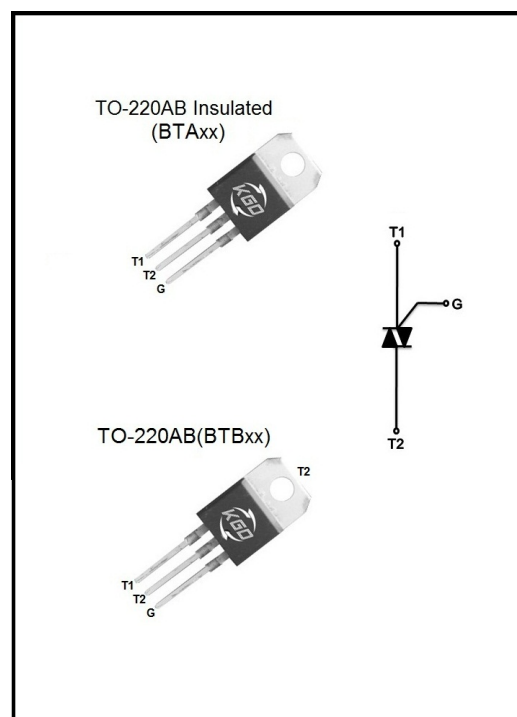
BTA20/BTB20-XXXSW/CW/BW are 3 Quadrants TRIACS, They are specially recommended for use on inductive loads. BTA16 are isolated internally, they provide a 2500V RMS isolation voltage from all three terminals to external heatsink.

Blocking voltage to 600/1200V

On-state RMS current to 20A

Non-repetitive peak on-state current to 200A

- Absolute Maximum Ratings**



Symbol	Parameter	Conditions	Min	Max	Unit
V_{DRM}	Repetitive peak off-state voltage	$T_J=25^{\circ}C$	600	1200	V
V_{RRM}	Repetitive peak Reverse voltage	$T_J=25^{\circ}C$	600	1200	V
$I_{T(RMS)}$	RMS on-state current (full sine wave)	TO-220AB $T_c=100^{\circ}C$	-	20	A
		TO-220AB Ins $T_c=86^{\circ}C$	-		
I_{TSM}	Non-repetitive peak On-state current (full cycle, $T_J=25^{\circ}C$)	$F=50Hz, t=20ms$	-	200	A
		$F=60Hz, t=16.7ms$	-	210	A
I^2t	I^2t Value for fusing	$T_p=10ms$	-	200	A^2S
di/dt	Rate of rise of on-state current	$I_G=2 \times I_{GT}, t_r \leq 100ns, T_J=125^{\circ}C$	-	50	$A/\mu s$
I_{GM}	Peak gate current	$t_p=20\mu s, T_J=125^{\circ}C$	-	4	A
$P_{G(AV)}$	Average gate power		-	1	W
T_{STG}	Storage temperature		-40	150	$^{\circ}C$
T_J	Junction temperature		-40	125	$^{\circ}C$

BTA20/BTB20 Series

● Electrical Characteristics

■ 3 Quadrants

Symbol	Conditions	Quadrant		BTA20/BTB20			Unit
				SW	CW	BW	
I _{GT}	V _D =12V,R _L =33Ω	I-II-III	MAX	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	20	50	70	mA
		II	MAX	35	60	80	
I _H	I _T =100mA		MAX	15	40	60	mA
dv/dt	V _{DM} =67%V _{DRM} ,gate open,T _J =125℃		MIN	40	400	1000	V/μs
	(dv/dt) _c =0.1 V/μs ,T _J =125℃			8.5	/	/	
(di/dt) _c	(dv/dt) _c =10 V/μs ,T _J =125℃		MIN	3.0	/	/	A/ms
	Without snubber , T _J =125℃			/	8.5	14	

■ 4 Quadrants

Symbol	Conditions	Quadrant		BTA20/BTB20		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
(dv/dt)c	(di/dt)c=7A /ms ,T _j =125℃		MIN	5	10	V/μs

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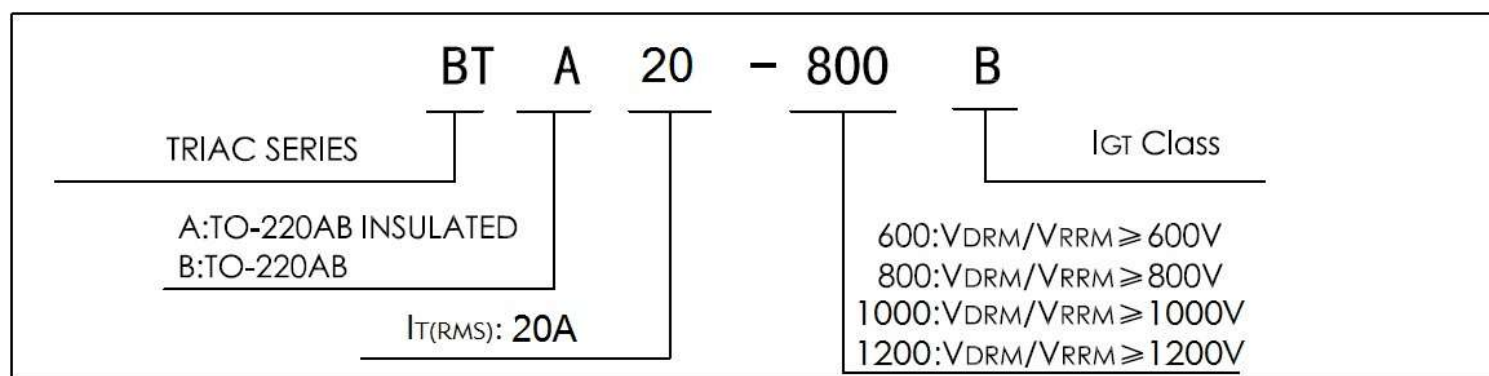
● Static Characteristics

Symbol	Conditions	Quadrant		Value	Unit
V_{TM}	$I_T=25A, t_p=380\mu s$	$T_J=25^\circ C$	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	2	mA

● Thermal Characteristics

Symbol	Parameter		Value	Unit
$R_{th(j-mb)}$	Junction to Case(AC)	TO-220AB	1.2	$^\circ C/W$
		TO-220AB Insulated	2.1	
$R_{th(j-a)}$	Junction to am bient	TO-220AB	60	$^\circ C/W$
		TO-220AB Insulated		

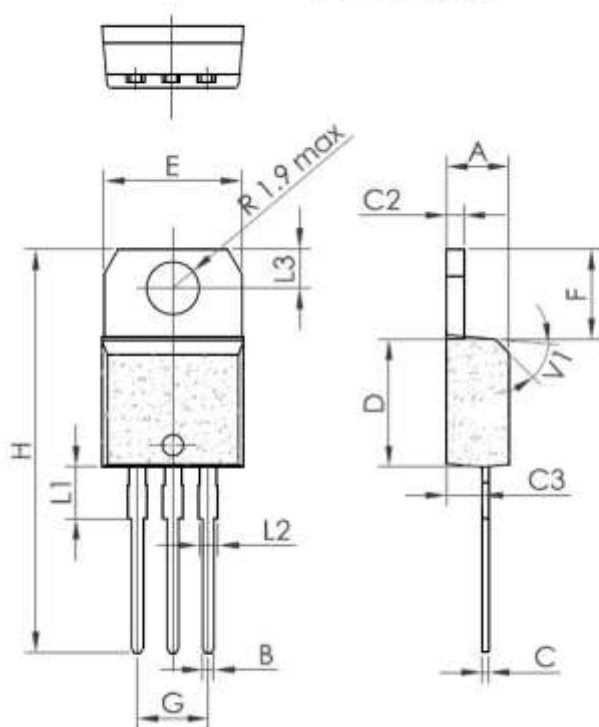
● Ordering Information



BTA20/BTB20 Series

● 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°	

FIG.1 Maximum power dissipation versus RMS on-state current

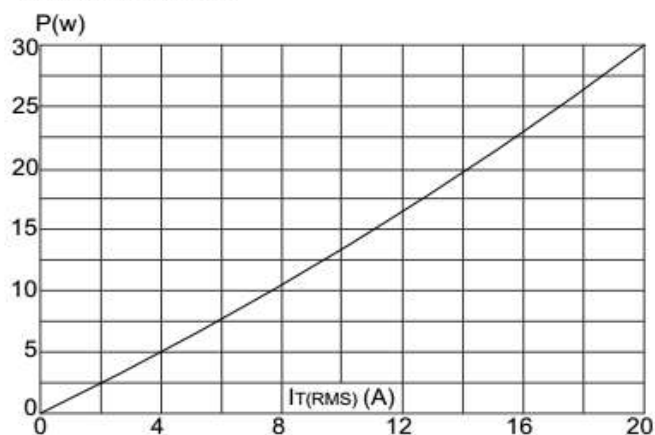


FIG.3: Surge peak on-state current versus number of cycles

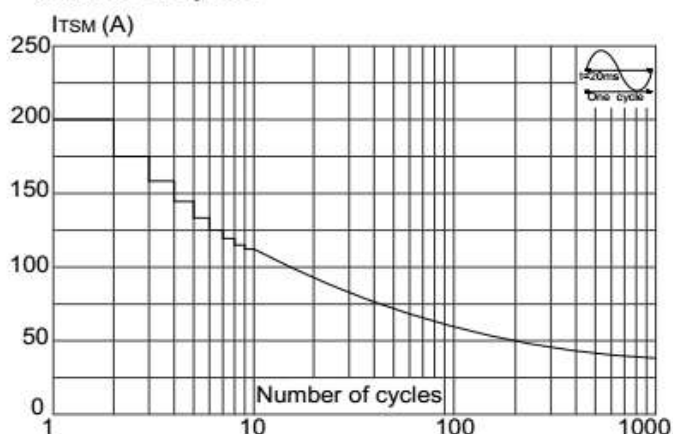


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

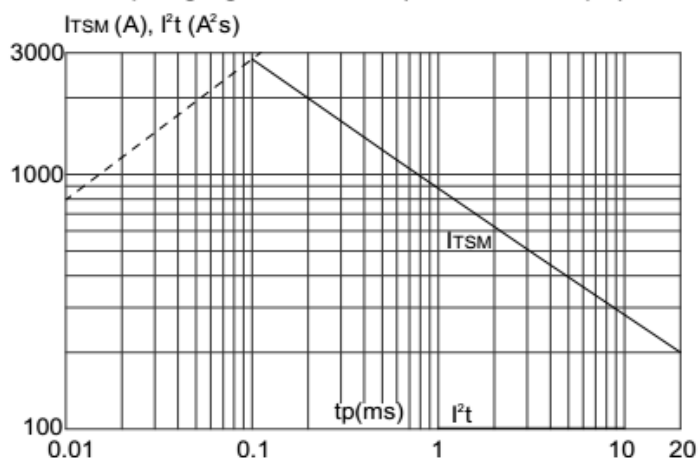


FIG.2: RMS on-state current versus case temperature

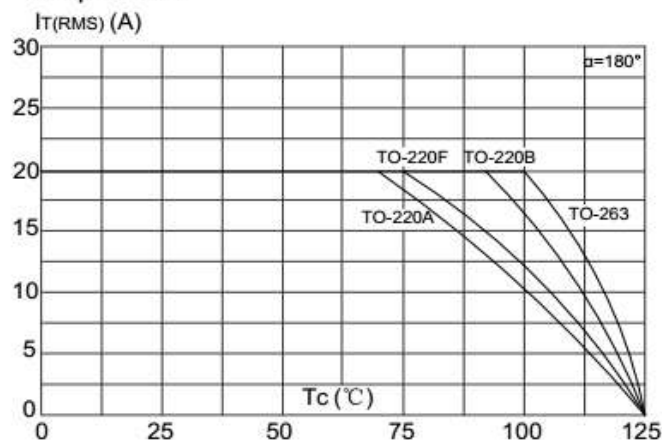


FIG.4: On-state characteristics (maximum values)

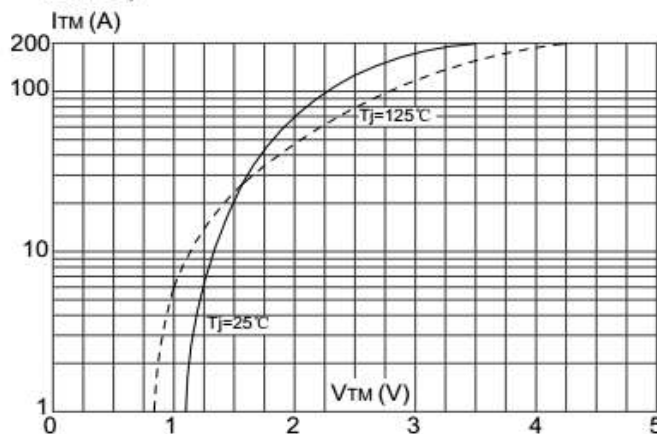


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

