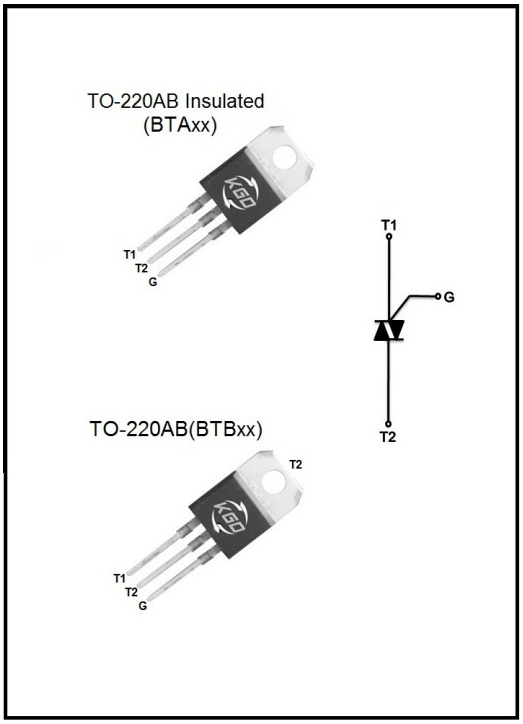
BTA20/BTB20 Series

- **Description:**
  High current density due to double mesa trchnology;
  SIPOS and Glass Passivation.

- **Applications:**
  BTA20/BTB20 series triacs is suiable for general purpose AC switching.
  They can be used as an ON/OFF function in applications such
  as static relays,heating regulation,induction motor stating circuits...
  or for phase contol operation light dimmers,motorspeed controllers.

- **Features:**
  BTA20/BTB20-XXXSW/CW/BW are 3 Quandrants TRIACS,
  They are specially recommended for use on inductive loads.
  BTA16 are isolated internally,they providesa 2500V RMS isolation
  voltage from all three terminals to extemal heetsink.
  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℃	600	1200	V
V_{RRM}	Repetitive peak Reverse voltage		T_J=25℃	600	1200	V
$I_{T(RMS)}$	RMSon-statecurrent (full sine wave)	TO-220AB	Tc=100℃	-	20	A
		TO-220AB Ins	Tc=86℃	-		
I_{TSM}	Non-repetitive peak On-state current (full cycle, T_J=25℃)		F=50Hz, t=20ms	-	200	A
			F=60Hz, t=16.7ms	-	210	A
I^2t	I^2t Value for fusing		Tp=10ms	-	200	A^2S
di/dt	Rate of rise of on-state current		I_G=2×I_{GT},t_r≤100ns, T_j=125℃	-	50	A/μs
I_{GM}	Peak gate current		t_p=20μs, T_j=125℃	-	4	A
$P_{G(AV)}$	Average gate power			-	1	W
T_{STG}	Storage temperature			-40	150	℃
T_J	Junction temperature			-40	125	℃

Electrical Characteristics

3 Quadrants

Symbol	Conditions	Quadrant		BTA20/BTB20 SW	BTA20/BTB20 CW	BTA20/BTB20 BW	Unit
I_{GT}	V_D=12V,R_L=33Ω	I-II-III	MAX	10	35	50	mA
V_{GT}	V_D=12V,R_L=33Ω	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
(di/dt)c	(dv/dt)c=0.1 V/μs ,T_j=125℃		MIN	8.5	/	/	A/ms
	(dv/dt)c=10 V/μs ,T_j=125℃			3.0	/	/	
	Without snubber , T_j=125℃			/	8.5	14	

4 Quadrants

Symbol	Conditions	Quadrant		BTA20/BTB20 C	BTA20/BTB20 B	Unit
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

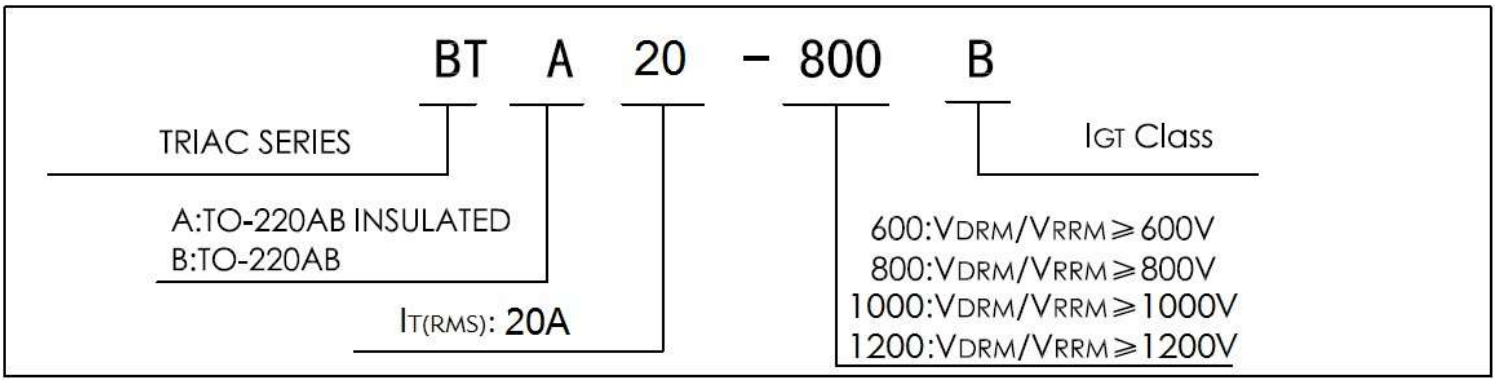
- **Static Characteristics**

Symbol	Conditions	Quadrant		Value	Unit
V_{TM}	I_T=25A,tp=380μs	T_J=25℃	MAX	1.55	V
I_{DRM} I_{RRM}	$V_D=V_{DRM}$,$V_R=V_{RRM}$	T_J=25℃	MAX	5	μA
		T_J=125℃	MAX	2	mA

- **Thermal Characteristics**

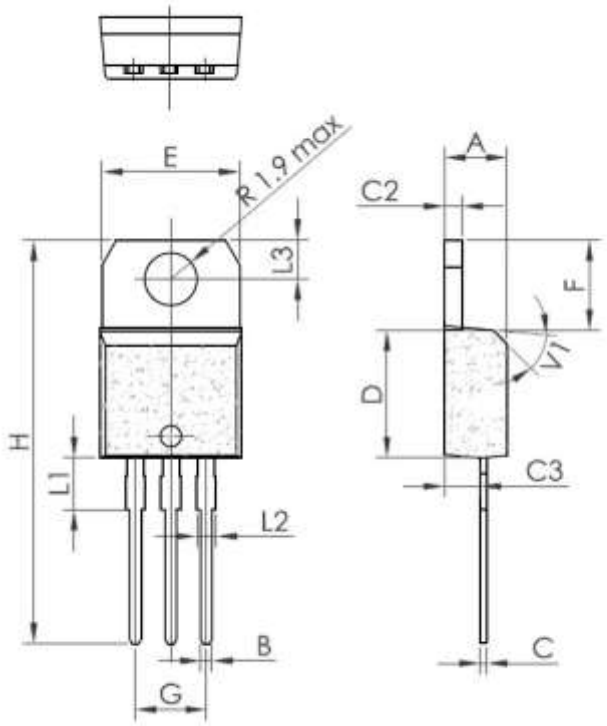
Symbol	Parameter		Value	Unit
$R_{th(j-mb)}$	Junction to Case(AC)	TO-220AB	1.2	℃/W
		TO-220AB Insulated	2.1	
$R_{th(j-a)}$	Junction to am bient	TO-220AB	60	℃/W
		TO-220AB Insulated		

- **Ordering Information**



- **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

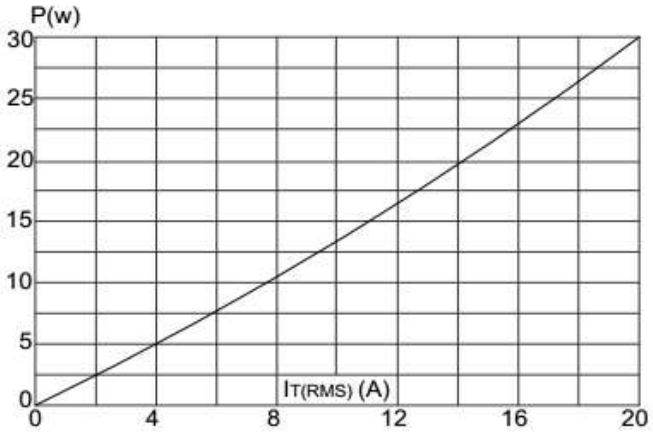


FIG.2: RMS on-state current versus case temperature

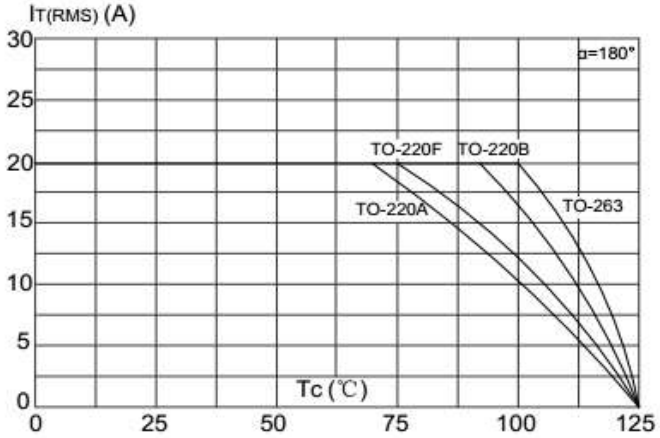


FIG.3: Surge peak on-state current versus number of cycles

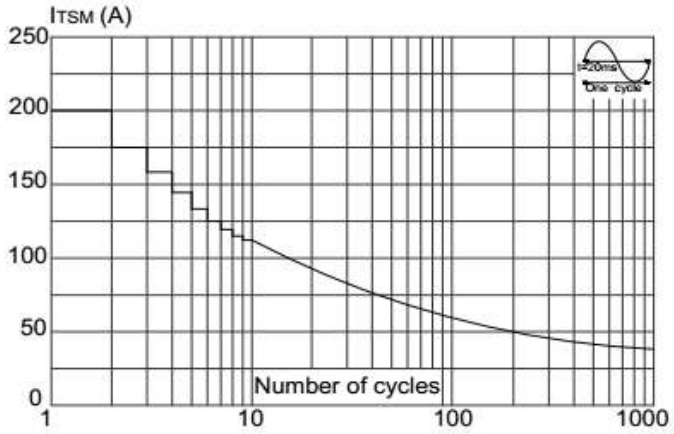


FIG.4: On-state characteristics (maximum values)

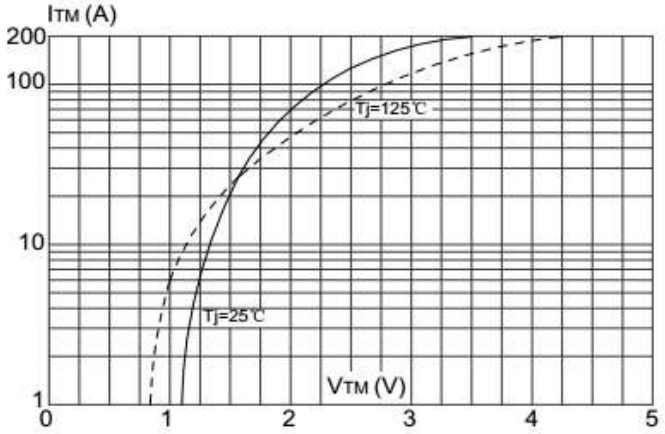


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 100A/μs)

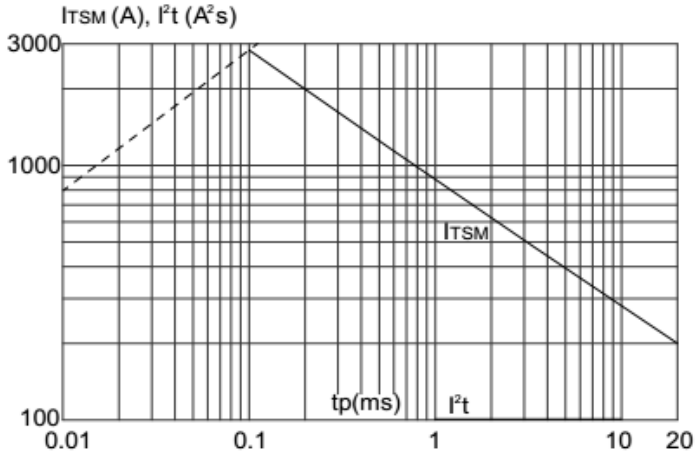


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature