BTA20/BTB20 Series 20A TRIACs

DESCRIPTION：

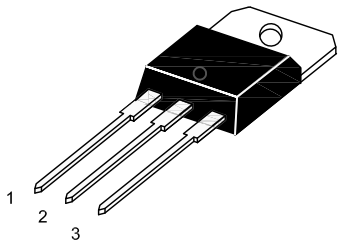
High current density due to double mesa technology, SIPOS and Glass Passivation.

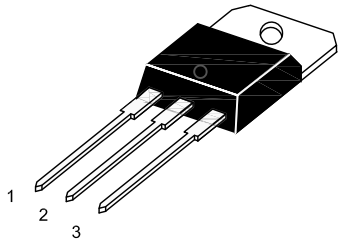
BTA20/BTB20 series triacs is suitable for general purpose AC switching.They can be used as an ON/OFF Function in applications such as static relays, heating regulation, induction motor stating circuits... or for phase contol operation light dimmers,motorspeed controllers.

BTA20/BTB20 -×××CW ,-×××BW are 3 Quadrants triacs,They are specially recommended for use on inductive loads.

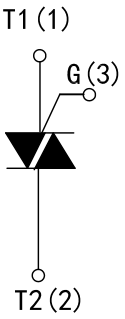
BTA20 are isolated internally,they provides a 2500V RMS isolation voltage from all three terminals to extemal heetsink.

TO-220AB(BTB20)





TO-220AB insulated
(BTA20)



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	20	A
V_{DRM}/V_{RRM}	600 and 800	V
V_{TM}	≤ 1.70	V

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40 to +150	℃
Operrating junction temperature range		Tj	-40 to +125	℃
Repetitive Peak Off-state Voltage	Tj=25℃	V_{DRM}	600and800	V
Repetitive Peak Reverse Voltage	Tj=25℃	V_{RRM}	600and800	
Non repetitive Surge Peak Off-state Voltage	tp=10ms,Tj=25℃	V_{DSM}	700and900	V
Non repetitive Peak Reverse Voltage		V_{RSM}	700and900	
RMS on-state current (full sine wave)	TO-220B Tc=90℃	$I_{T(RMS)}$	20	A
	TO-220AB Ins Tc=70℃			
Non repetitive surge peak on-state current (full cycle,Tj=25℃)	f = 60 Hz t=16.7ms	I_{TSM}	210	A
	f = 50 Hz t=20ms		200	
I^2t Value for fusing	tp=10ms	I^2t	200	A^2s
Critical rate of rise of on-state current $I_G=2\times I_{GT}$, tr≤100 ns, f=120Hz, Tj=125℃		dI/dt	100	A/μs
Peak gate current tp=20us,Tj=125℃		I_{GM}	4	A
Average gate power dissipation Tj=125℃		$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS(Tj=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant		BTA20/BTB20		Unit
				CW	BW	
I_{GT}	V_D=12V R_L=33Ω	I-II-III	MAX.	35	50	mA
V_{GT}		I-II-III	MAX.	1.5		V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ Tj =125℃	I-II-III	MIN.	0.2		V
I_L	I_G=1.2I_{GT}	I-III	MAX.	80	50	mA
		II	MAX.	80	90	mA
I_H	I_T =500mA		MAX.	50	75	mA
dV/dt	V_D=67%V_{DRM} gate open Tj=125℃		MIN.	250	500	V/μs
(dV/dt)c	(dI/dt)c=20A/ms Tj=125℃		MIN.	11	18	V/μs

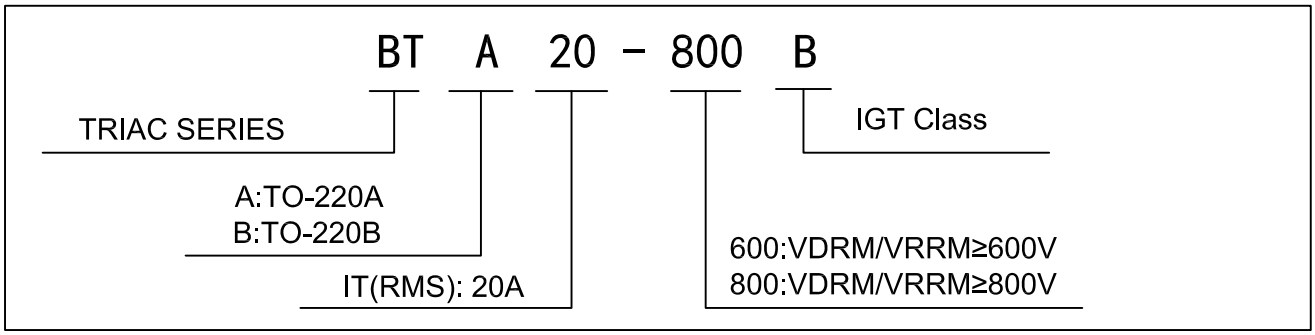
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=28A,tp=380μs	Tj=25℃	1.70	V
I_{DRM} I_{RRM}	V_D=V_{DRM} V_R=V_{RRM}	Tj=25℃	10	μA
		Tj=125℃	2	mA

THERMAL RESISTANCES

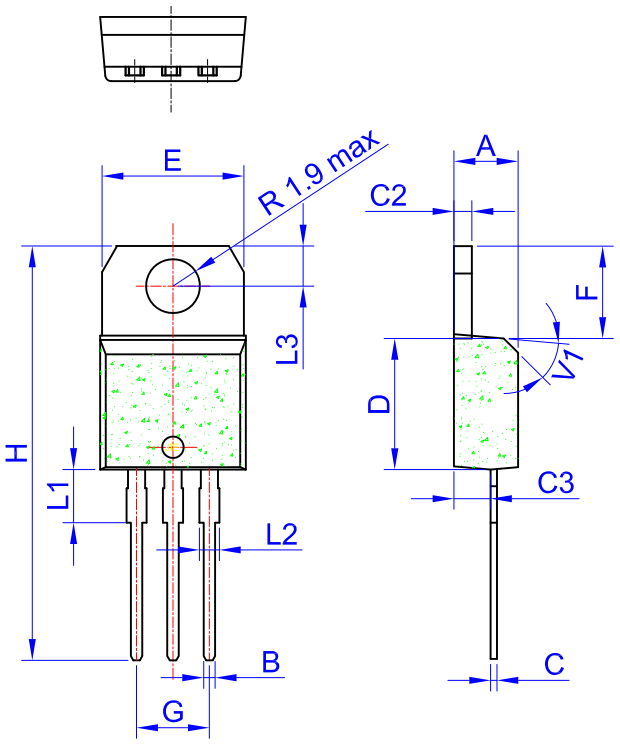
Symbol	Parameter		Value	Unit
$R_{th(J-C)}$	Junction to Case(AC)	TO-220AB	1.3	℃/W
		TO-220AB INSULATED	2.1	

ORDERING INFORMATION



PACKAGE MECHANICAL DATA

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(full cycle)

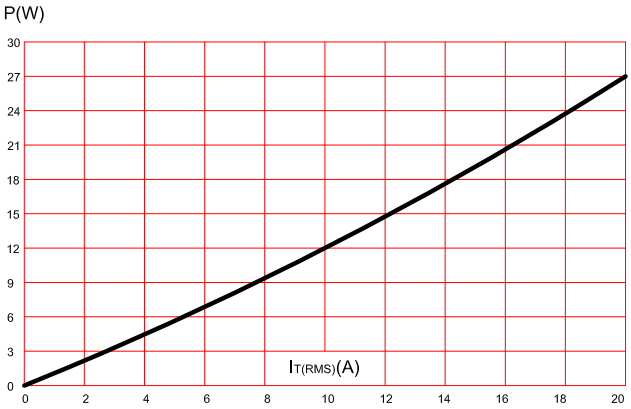


FIG.2: RMS on-state current versus case temperature(full cycle)

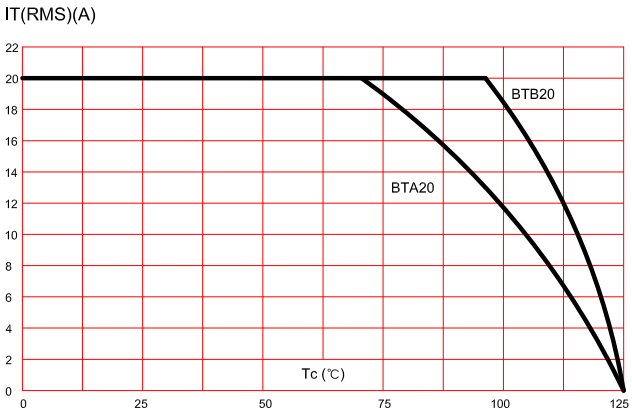


FIG.3: On-state characteristics (maximum values)

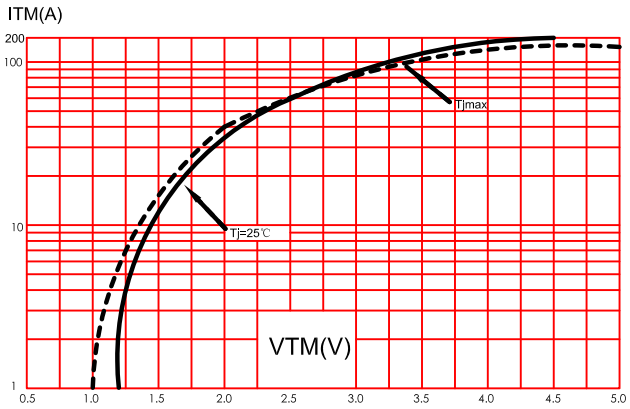


FIG.4: Surge peak on-state current versus number of cycles.

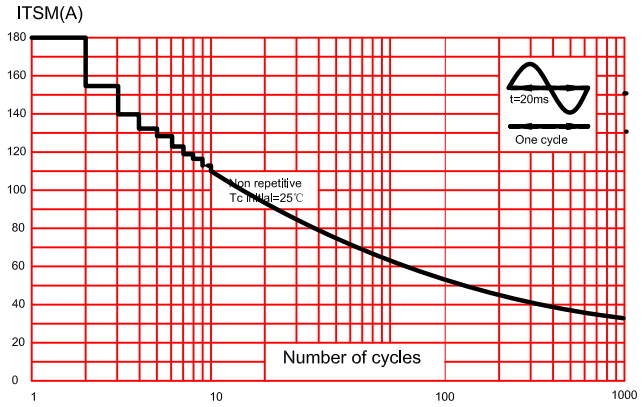


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I²t.

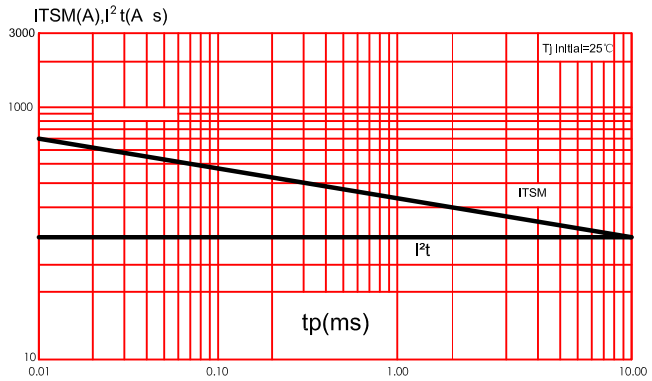


FIG.6: Relative variation of gate trigger current,holding current and latching current versus junction temperature(typical values).