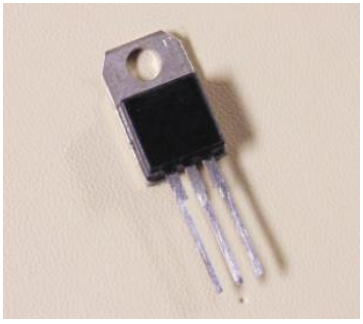
JST20A / JST20B

High Voltage TRIAC



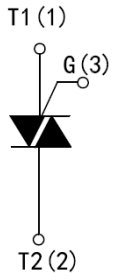
NOTE:
IMAGE SERVES AS A VISUAL REPRESENTATION OF THE PRODUCT ONLY.

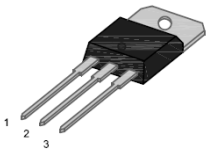
ABSTRACT

The JST20A/20B are high voltage TRIACs with high current density, SIPOS, and are glass passivated. These components are suitable for general purpose AC switching and can be used as an ON/OFF function in applications such as static relays, heating regulation, and so on. This design is specifically recommended for use on inductive loads.

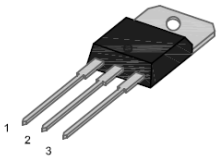
FEATURES

- 2500V RMS isolation voltage from all three terminals to external heatsink
- $I_{T(RMS)}$ = 20A
- V_{DRM}/V_{RRM} = 1200V
- V_{TM} = 1.65V





JST20B(TO-220B:non-insulated)



JST20A(TO-220A:insulated)
UL file:E252906

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		Tstg	-40 to +150	˚C
Operrating junction temperature range		Tj	-40 to +125	˚C
Repetitive Peak Off-state Voltage	Tj=25˚C	V_{DRM}	1200	V
Repetitive Peak Reverse Voltage	Tj=25˚C	V_{RRM}	1200	
Non repetitive Surge Peak Off-state Voltage	tp=10ms,Tj=25˚C	V_{DSM}	1300	V
Non repetitive Peak Reverse Voltage		V_{RSM}	1300	
RMS on-state current (full sine wave)	JST20B Tc=88˚C	$I_{T(RMS)}$	20	A
	JST20A Tc=67˚C			
Non repetitive surge peak on-state current (full cycle,Tj=25˚C)	f=60Hz、t=16.7ms	I_{TSM}	210	A
	f=50Hz、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˚C		dI /dt	100	A/µs
Peak gate current (tp=20us,Tj=125˚C)		I_{GM}	4	A
Peak Gate Power Dissipation (tp=20us,Tj=125˚C)		P_{GM}	10	W
Average gate power dissipation (Tj=125˚C)		$P_{G(AV)}$	1	W

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ELECTRICAL CHARACTERISTICS

Symbol	Test Condition	Quadrant		Limit BW	Unit
I_{GT}	V_D=12V R_L=33Ω	I-II-III	MAX.	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.	90	mA
		II	MAX.	120	mA
I_H	I_T =100mA		MAX.	75	mA
dV/dt	V_D=67%V_{DRM} gate open Tj=125℃		MIN.	500	V/μs
(dV/dt)c	(dI/dt)c=8.8A/ms Tj=125℃		MIN.	12.5	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=28A,tp=380μs	Tj=25℃	1.65	V
I_{DRM} I_{RRM}	V_D=V_{DRM} V_R=V_{RRM}	Tj=25℃	5	μA
		Tj=125℃	2.5	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(J-C)}$	Junction to Case(AC)	JST20B	1.35	℃/W
		JST20A	2.15	

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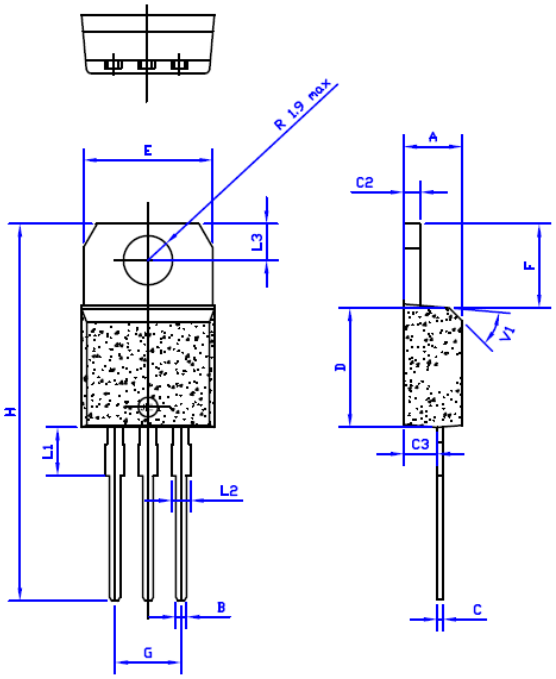
DIMENSIONAL INFORMATION



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	0.46		0.70	0.018		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	9.8		10.4	0.386		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)

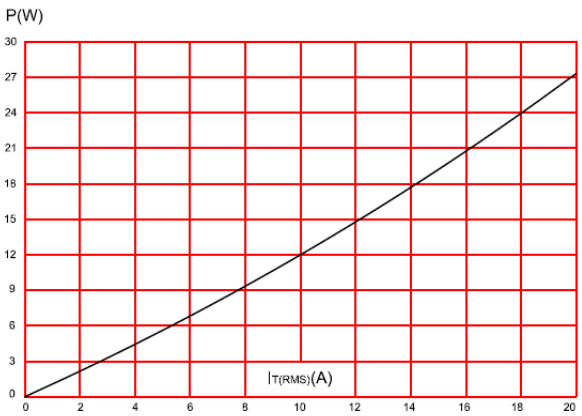


FIG.2: RMS on-state current versus case temperature(full cycle)

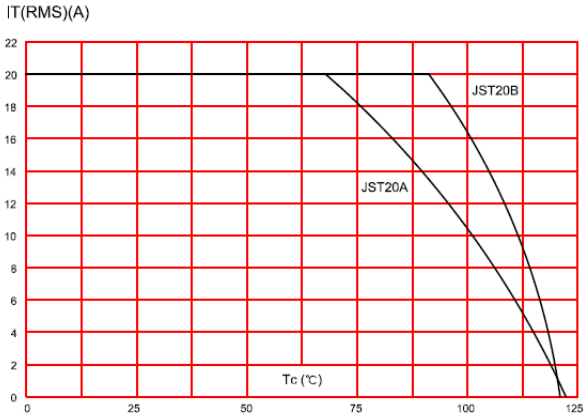


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FIG.3:On-state characteristics (maximum values).

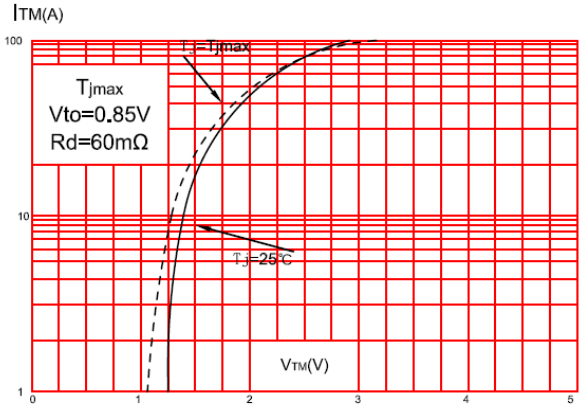


FIG.4:Surge peak on-state current versus number of cycles.

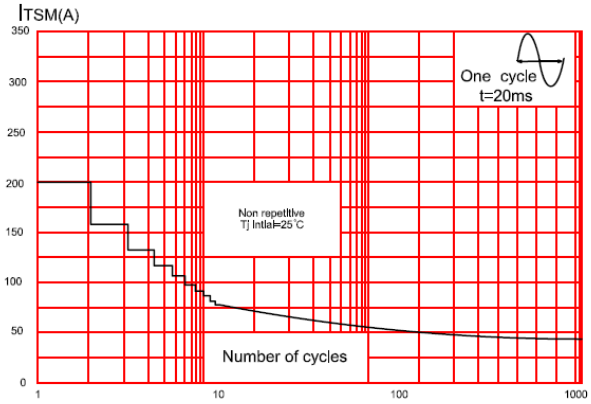


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms,and corresponding value of I²t.

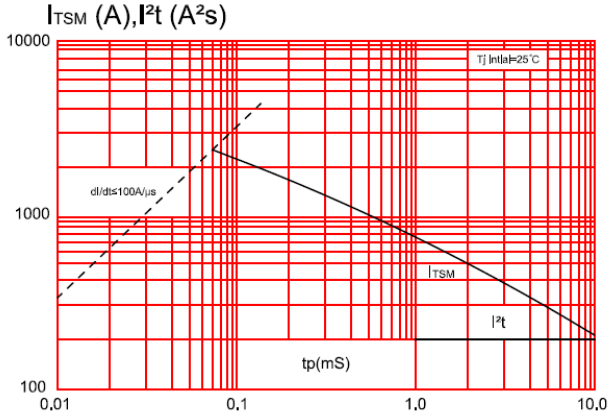
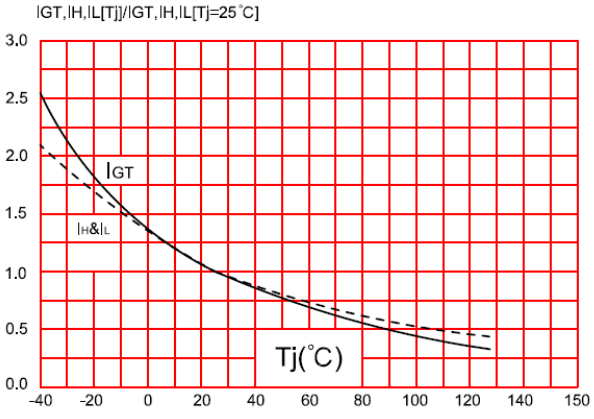


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)



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