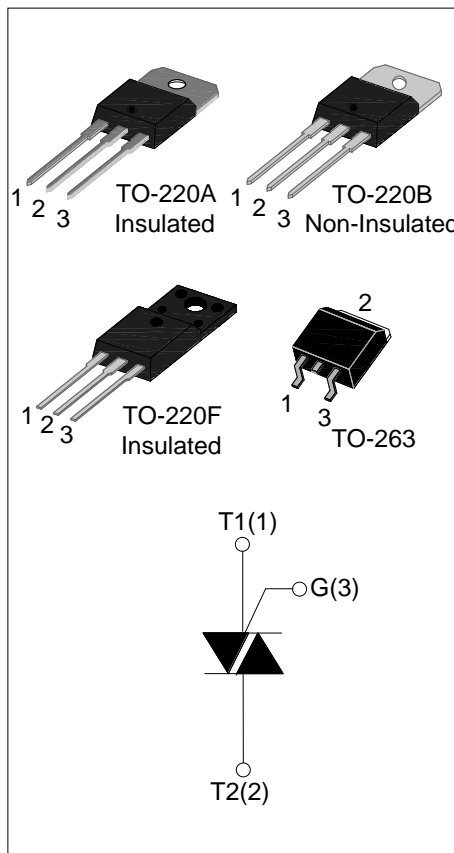




### DESCRIPTION:

JST20 series triacs, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

JST20A provides insulation voltage rated at 2500V RMS and JST20F provides insulation voltage rated at 2000V RMS from all three terminals to external heatsink complying with UL standards (File ref: E252906).



### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	20	A
$V_{DRM}/V_{RRM}$	600 and 800 and 1200	V

### ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		$T_{stg}$	-40-150	°C
Operating junction temperature range		$T_j$	-40-125	°C
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )		$V_{DRM}$	600/800/1200	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )		$V_{RRM}$	600/800/1200	V
Non repetitive surge peak Off-state voltage		$V_{DSM}$	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		$V_{RSM}$	$V_{RRM} + 100$	V
RMS on-state current	TO-220A(Ins) ( $T_C=70^\circ\text{C}$ )	$I_{T(RMS)}$	20	A
	TO-220B(Non-Ins) ( $T_C=90^\circ\text{C}$ )			
	TO-220F(Ins) ( $T_C=75^\circ\text{C}$ )			
	TO-263 ( $T_C=100^\circ\text{C}$ )			

Non repetitive surge peak on-state current (full cycle, F=50Hz)	$I_{TSM}$	200	A
$I^2t$ value for fusing ( $t_p=10ms$ )	$I^2t$	200	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	$di/dt$	100	$A/\mu s$
Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	10	W

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^\circ C$  unless otherwise specified)

$V_{DRM}/V_{RRM}$ : 600/800V

Symbol	Test Condition	Quadrant		JST20-600/800V		Unit
				BW	CW	
$I_{GT}$	$V_D=12V R_L=33\Omega$	I - II -III	MAX	50	35	mA
$V_{GT}$		I - II -III	MAX	1.5		V
$V_{GD}$	$V_D=V_{DRM} T_j=125^\circ C$ $R_L=3.3K\Omega$	I - II -III	MIN	0.2		V
$I_L$	$I_G=1.2I_{GT}$	I -III	MAX	70	50	mA
		II		80	60	
$I_H$	$I_T=100mA$		MAX	60	40	mA
$dV/dt$	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	500	250	$V/\mu s$
$(dV/dt)_c$	$(di/dt)_c=8.8A/ms T_j=125^\circ C$		MIN	12.5	7	$V/\mu s$

$V_{DRM}/V_{RRM}$ : 1200V

Symbol	Test Condition	Quadrant		JST20-1200V		Unit
				BW	CW	
$I_{GT}$	$V_D=12V R_L=33\Omega$	I - II -III	MAX	50		mA
$V_{GT}$		I - II -III	MAX	1.5		V
$V_{GD}$	$V_D=V_{DRM} T_j=125^\circ C$ $R_L=3.3K\Omega$	I - II -III	MIN	0.2		V
$I_L$	$I_G=1.2I_{GT}$	I -III	MAX	80		mA
		II		100		
$I_H$	$I_T=100mA$		MAX	70		mA
$dV/dt$	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$		MIN	200		$V/\mu s$

(dV/dt) <sub>c</sub>	(dI/dt) <sub>c</sub> =8.8A/ms T <sub>j</sub> =125°C	MIN	7	V/μs
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**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
V <sub>TM</sub>	I <sub>TM</sub> =28A tp=380μs	T <sub>j</sub> =25°C	1.55	V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	5	μA
I <sub>RRM</sub>		T <sub>j</sub> =125°C	2.5	mA

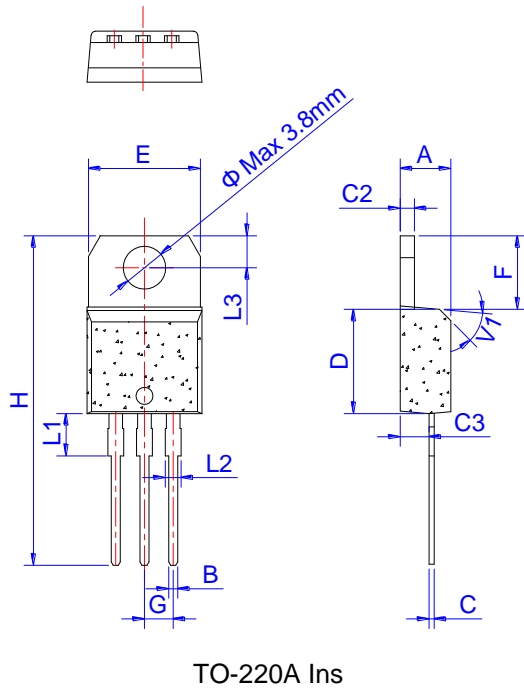
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub>	junction to case(AC)	TO-220A(Ins)	3.9	°C/W
		TO-220B(Non-Ins)	1.2	
		TO-220F(Ins)	3.3	
		TO-263	0.85	

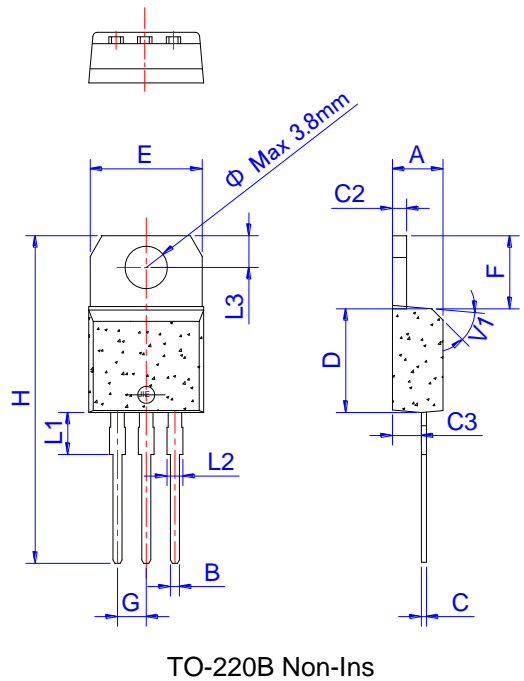
**ORDERING INFORMATION**

<p>JieJie Microelectronics Co.,Ltd</p>	<p><b>J</b></p> <p>Triacs</p>	<p><b>ST</b></p> <p>I<sub>T(RMS)</sub>:20A</p> <p>E:TO-263 A:TO-220A(Ins) F:TO-220F(Ins) B:TO-220B(Non-Ins)</p>	<p><b>20</b></p>	<p><b>A</b></p>	<p><b>-600</b></p> <p>600:V<sub>DRM</sub> /V<sub>RRM</sub> ≥600V 800:V<sub>DRM</sub> /V<sub>RRM</sub> ≥800V 1200:V<sub>DRM</sub> /V<sub>RRM</sub> ≥1200V</p>	<p><b>BW</b></p> <p>BW:I<sub>GT3</sub> ≤50mA CW:I<sub>GT3</sub> ≤35mA</p>
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PACKAGE MECHANICAL DATA

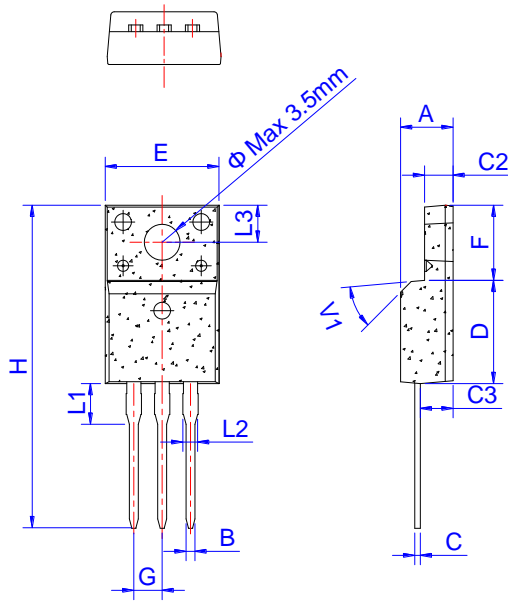


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



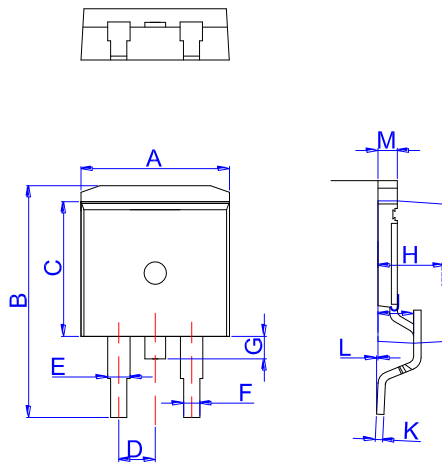
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

PACKAGE MECHANICAL DATA



TO-220F Ins

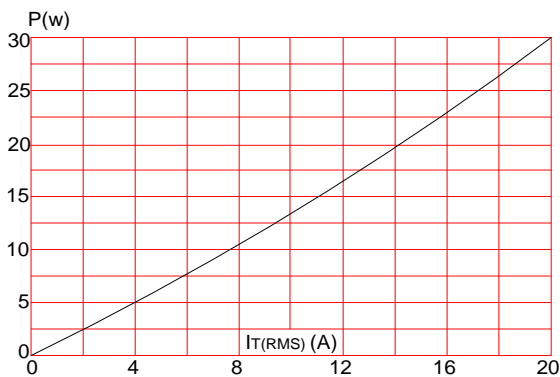
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48		0.75	0.019		0.030
C2	2.40		2.70	0.094		0.106
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.70		10.3	0.382		0.406
F	6.40		7.00	0.252		0.276
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	



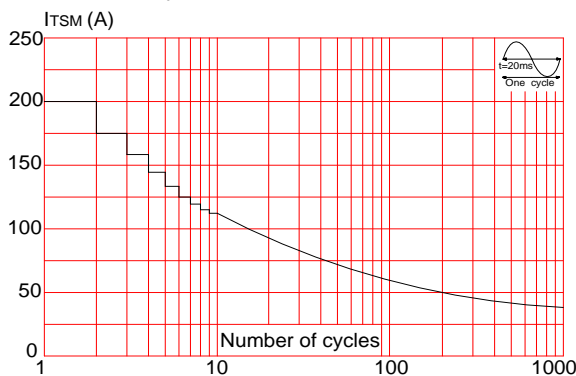
TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053

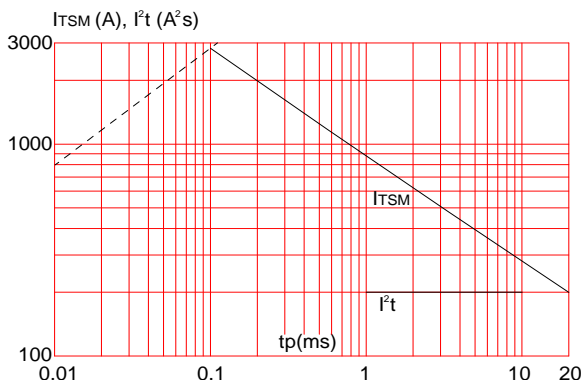
**FIG.1** Maximum power dissipation versus RMS on-state current



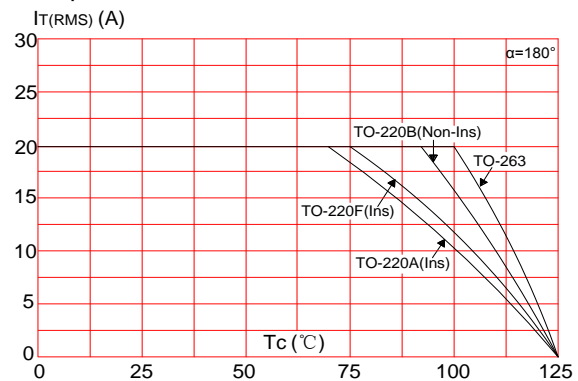
**FIG.3:** Surge peak on-state current versus number of cycles



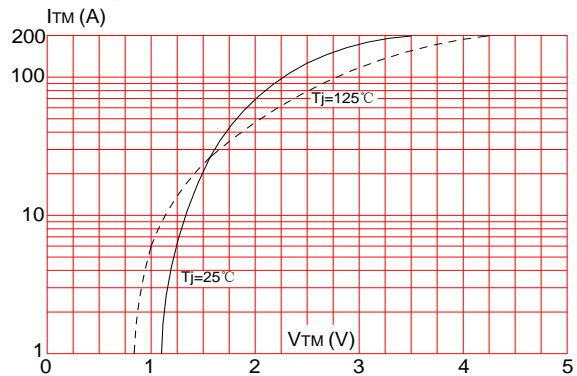
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 100\text{A}/\mu\text{s}$ )



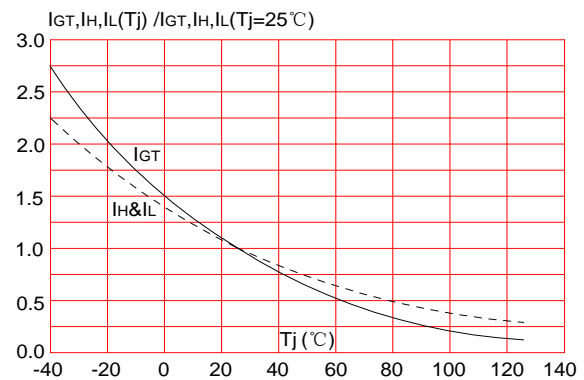
**FIG.2:** RMS on-state current versus case temperature



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



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



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