



JST08 Series 8A TRIACs

Rev.3.0

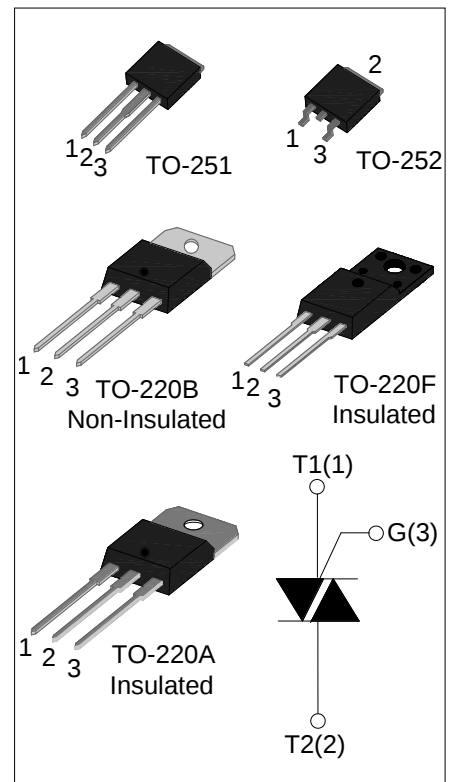
DESCRIPTION:

JST08 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.

JST08A provides insulation voltage rated at 2500V RMS and JST08F 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
$I_{T(RMS)}$	8	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 ($T_j=25^{\circ}C$)		V_{DRM}	600/800/1200	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)		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-251/ TO-252/ TO-220B(Non-Ins) ($T_C=107^{\circ}C$)	$I_{T(RMS)}$	8	A
	TO-220A(Ins) ($T_C=100^{\circ}C$)			
	TO-220F(Ins) ($T_C=95^{\circ}C$)			
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	80	A
I^2t value for fusing ($t_p=10ms$)		I^2t	32	A ² s

Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	A/ μ s
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

3 Quadrants

Symbol	Test Condition	Quadrant		Value				Unit
				TW	SW	CW	BW	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	I - II - III	MAX	5	10	35	50	mA
V_{GT}		I - II - III	MAX	1.5				V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C}$ $R_L=3.3\text{K}\Omega$	I - II - III	MIN	0.2				V
I_L	$I_G=1.2I_{GT}$	I - III	MAX	15	20	50	70	mA
		II		25	35	60	80	
I_H	$I_{TM}=100\text{mA}$		MAX	10	15	40	60	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$		MIN	50	200	500	1000	V/ μ s

4 Quadrants

Symbol	Test Condition	Quadrant		Value		Unit
				C	B	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	I - II - III	MAX	25	50	mA
		IV		50	70	
V_{GT}		ALL	MAX	1.5		V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C}$ $R_L=3.3\text{K}\Omega$	ALL	MIN	0.2		V
I_L	$I_G=1.2I_{GT}$	I - III - IV	MAX	35	50	mA
		II		60	80	
I_H	$I_{TM}=200\text{mA}$		MAX	25	50	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$		MIN	200	500	V/ μ s

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=11A$ $t_p=380\mu s$	$T_j=25^{\circ}C$	1.55	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}C$	5	μA
I_{RRM}		$T_j=125^{\circ}C$	1	mA

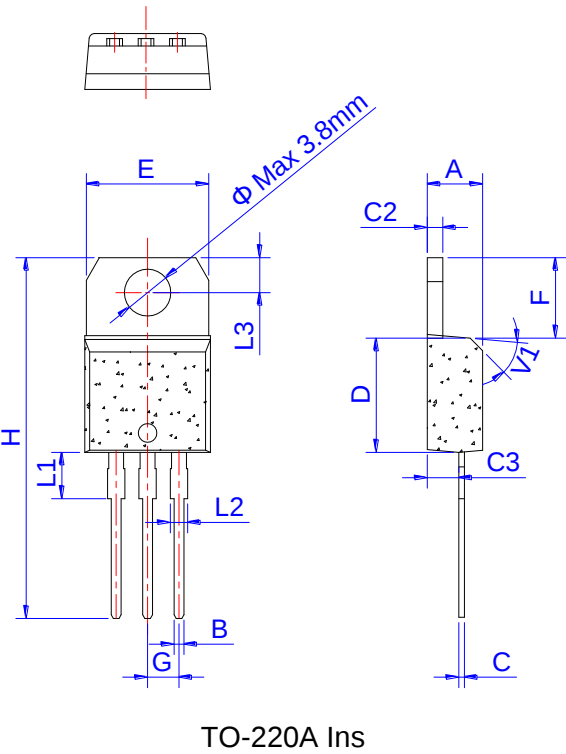
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-251/ TO-252	3.5	$^{\circ}C/W$
		TO-220A(Ins)	4.0	
		TO-220B(Non-Ins)	2.4	
		TO-220F(Ins)	4.6	

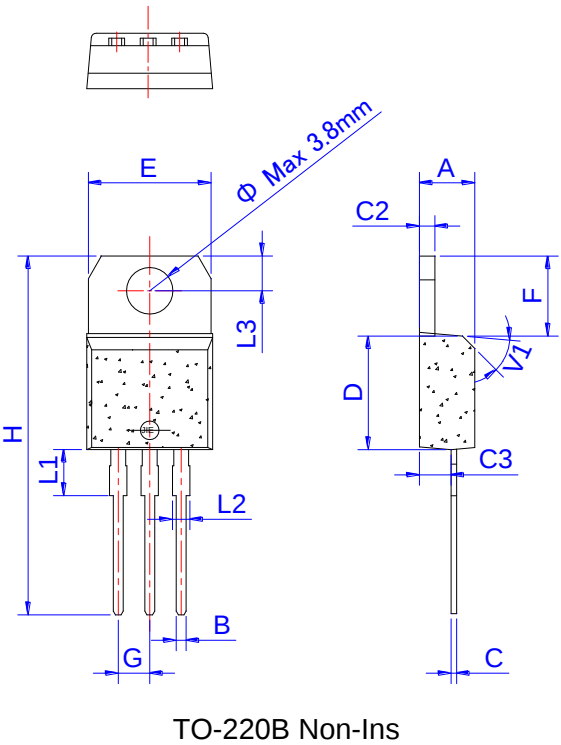
ORDERING INFORMATION

JieJie Microelectronics Co.,Ltd	J	ST	08	K	-600	SW
	Triacs	$I_T(RMS):8A$ A:TO-220A(Ins) F:TO-220F(Ins) B:TO-220B(Non-Ins) H:TO-251 K:TO-252			600: $V_{DRM}/V_{RRM} \geq 600V$ 800: $V_{DRM}/V_{RRM} \geq 800V$ 1200: $V_{DRM}/V_{RRM} \geq 1200V$	TW: $I_{GT1-3} \leq 5mA$ SW: $I_{GT1-3} \leq 10mA$ CW: $I_{GT1-3} \leq 35mA$ BW: $I_{GT1-3} \leq 50mA$ C: $I_{GT1-3} \leq 25mA$ $I_{GT4} \leq 50mA$ B: $I_{GT1-3} \leq 50mA$ $I_{GT4} \leq 70mA$

PACKAGE MECHANICAL DATA

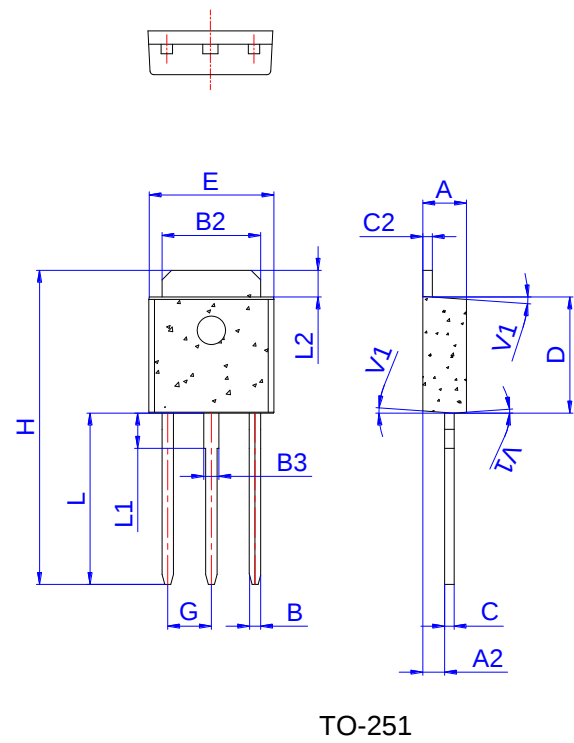


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
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°	

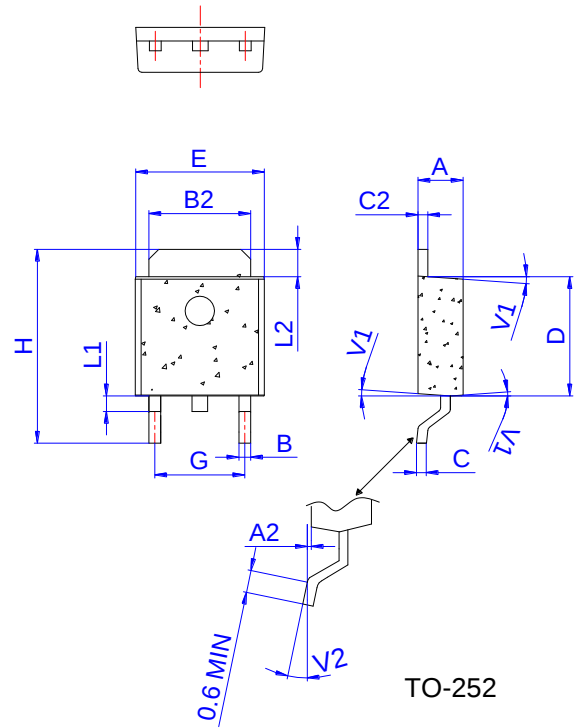


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
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

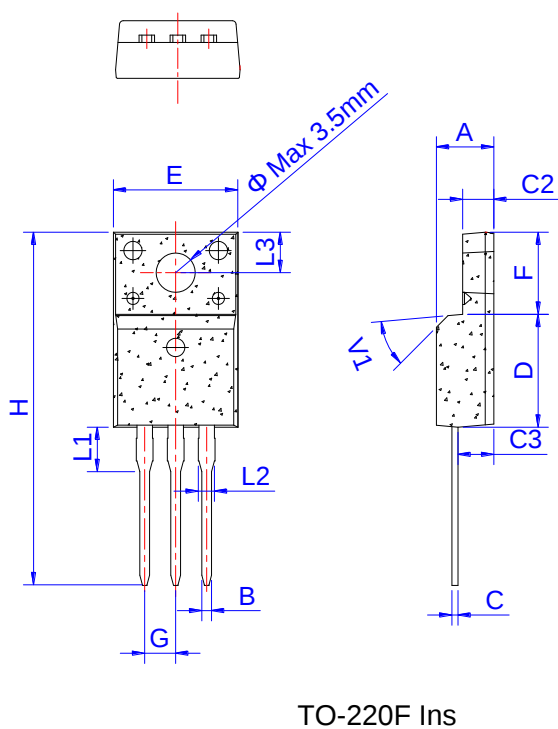


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

PACKAGE MECHANICAL DATA



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°	

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

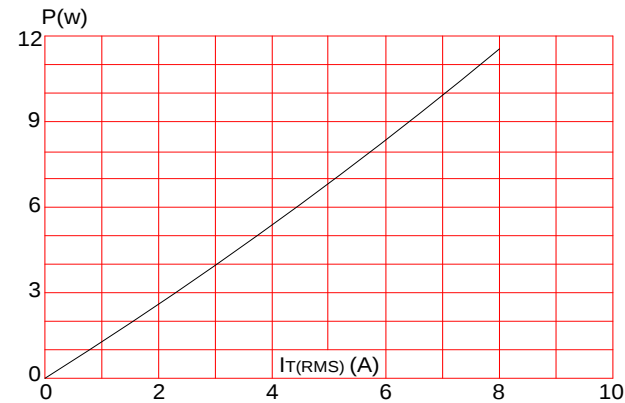


FIG.3: Surge peak on-state current versus number of cycles

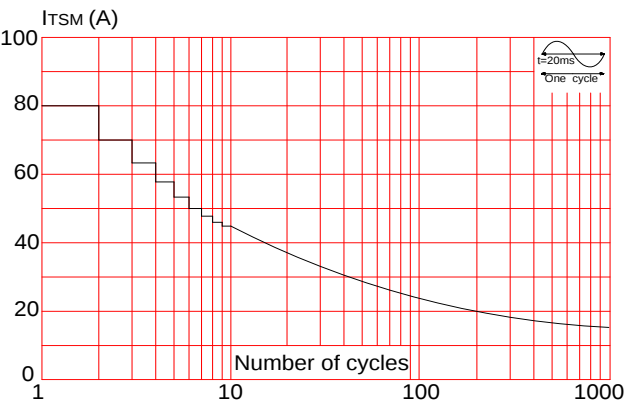


FIG.2: RMS on-state current versus case temperature

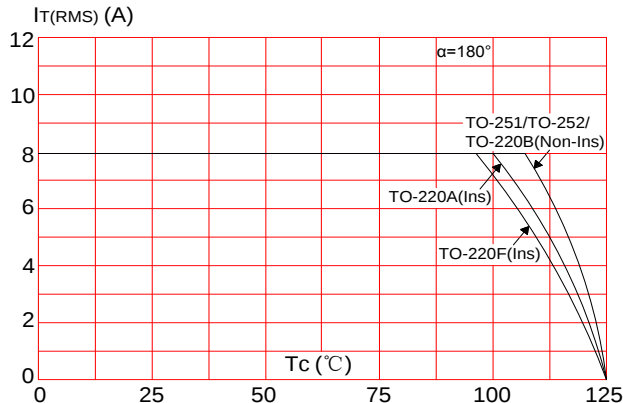


FIG.4: On-state characteristics (maximum values)

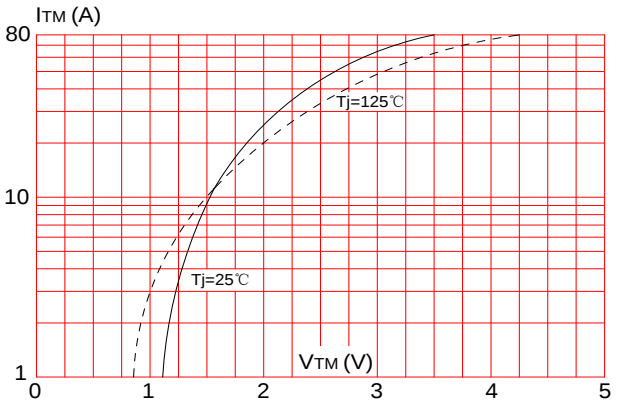


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

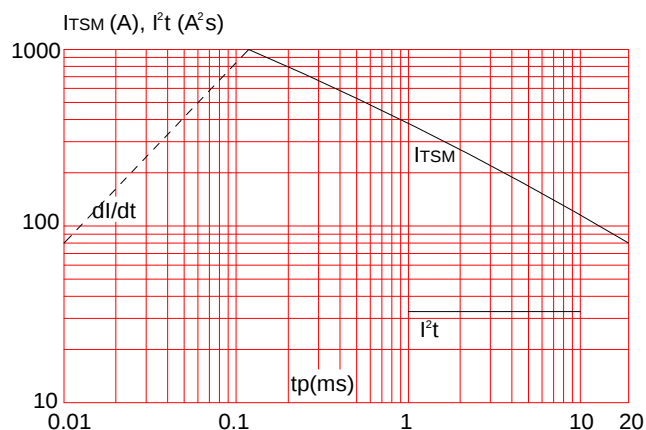
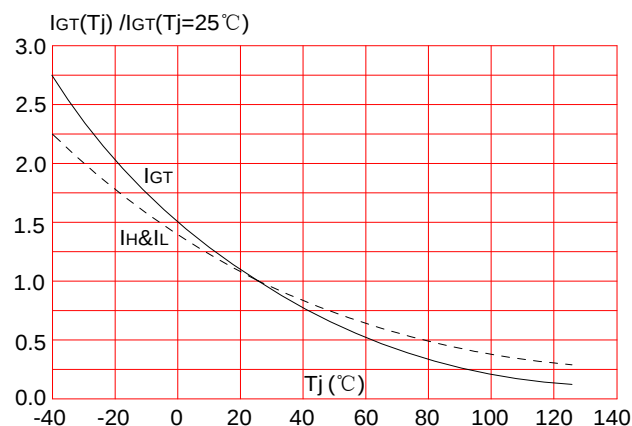


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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