

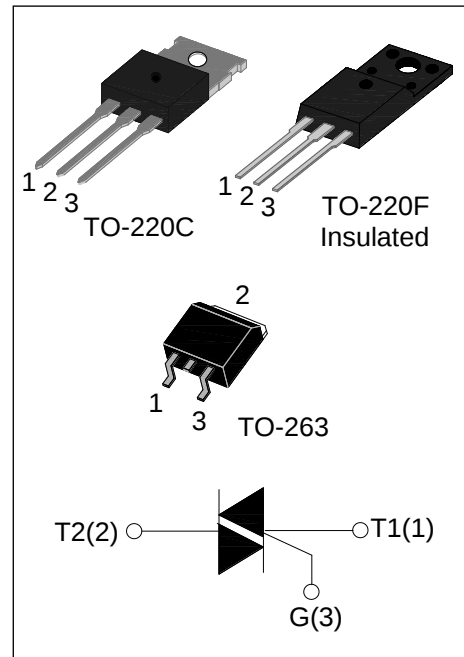


DESCRIPTION:

JST138 series triacs with low holding and latching current are especially recommended for use on middle and small resistance type power load. JST138F 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
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	600 and 800	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	V
Repetitive peak reverse voltage($T_j=25^{\circ}\text{C}$)		V_{RRM}	600/800	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-220C($T_C=110^{\circ}\text{C}$)	$I_{T(RMS)}$	12	A
	TO-220F(Ins) ($T_C=95^{\circ}\text{C}$)			
	TO-263($T_C=113^{\circ}\text{C}$)			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)		I_{TSM}	95	A
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	45	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)		dI/dt	50	$\text{A}/\mu\text{s}$
Peak gate current		I_{GM}	2	A

Average gate power dissipation	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	5	W

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

Symbol	Test Condition	Quadrant		Value			Unit
				D	E	F	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	I - II - III	MAX	5	10	25	mA
		IV		10	25	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	MAX	15	30	40	mA
		II - IV		20	40	60	
I_H	$I_T=100\text{mA}$		MAX	10	30	40	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	10	20	50	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=15\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.65	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	1	mA

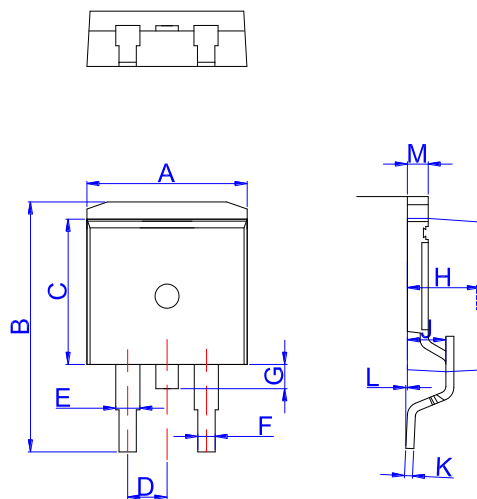
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220C	3.0	$^{\circ}\text{C/W}$
		TO-220F(Ins)	5.5	
		TO-263	2.1	

ORDERING INFORMATION

J	ST	138	C	-600	E
JieJie Microelectronics Co.,Ltd	TRIACs	$I_{T(RMS)}:12A$		$600:V_{DRM}/V_{RRM} \geq 600V$ $800:V_{DRM}/V_{RRM} \geq 800V$	D: $I_{GT1-3} \leq 5mA$ $I_{GT4} \leq 10mA$ E: $I_{GT1-3} \leq 10mA$ $I_{GT4} \leq 25mA$ F: $I_{GT1-3} \leq 25mA$ $I_{GT4} \leq 70mA$
			F:TO-220F(Ins) C:TO-220C E:TO-263		

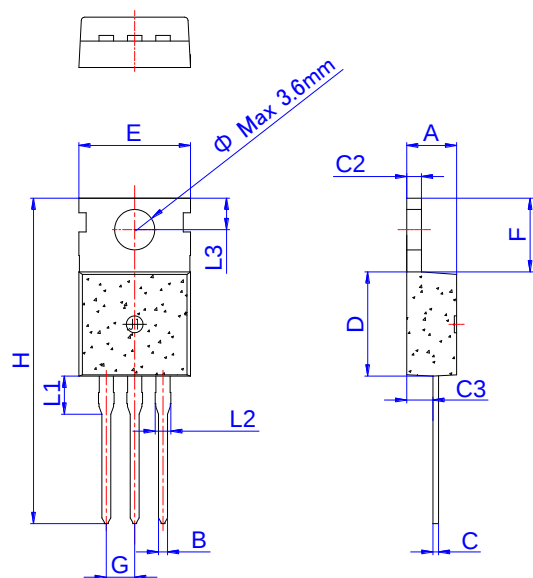
PACKAGE MECHANICAL DATA



TO-263

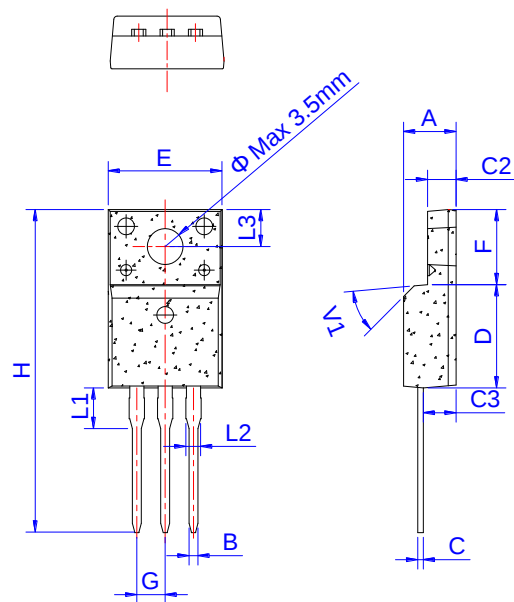
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55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

PACKAGE MECHANICAL DATA



TO-220C

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	



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°	

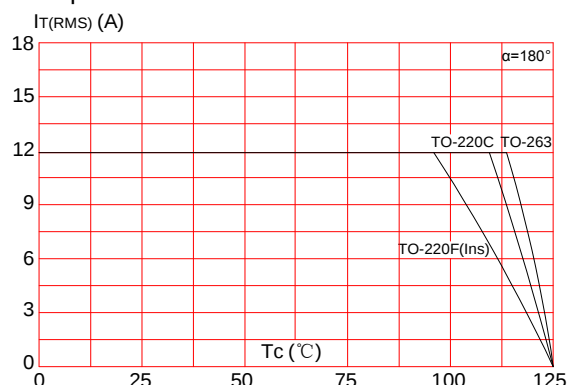
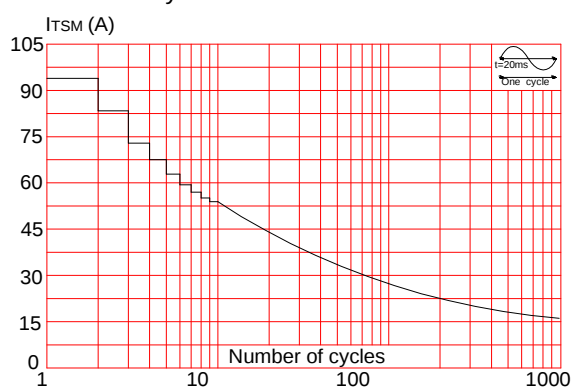
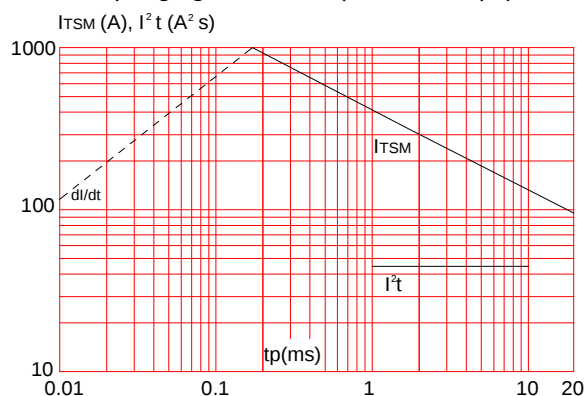
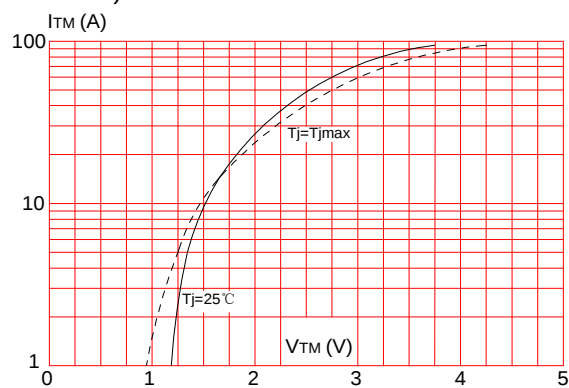
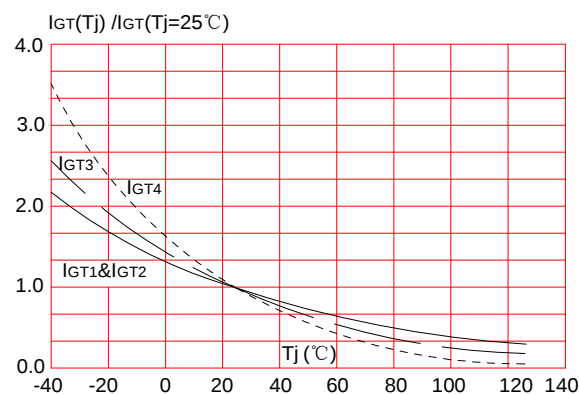
FIG.1 Maximum power dissipation versus RMS on-state current**FIG.2:** RMS on-state current versus case temperature**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)**FIG.4:** On-state characteristics (maximum values)**FIG.6:** Relative variations of gate trigger current versus junction temperature

FIG.7: Relative variations of holding current versus junction temperature

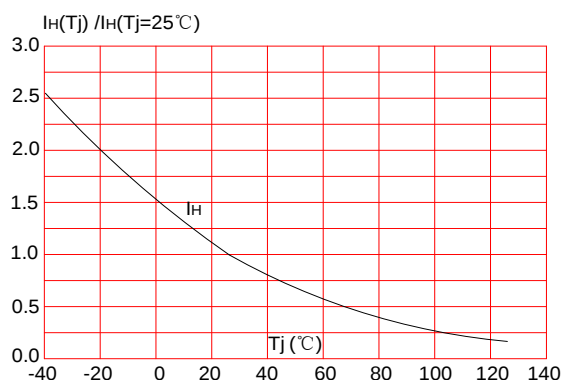
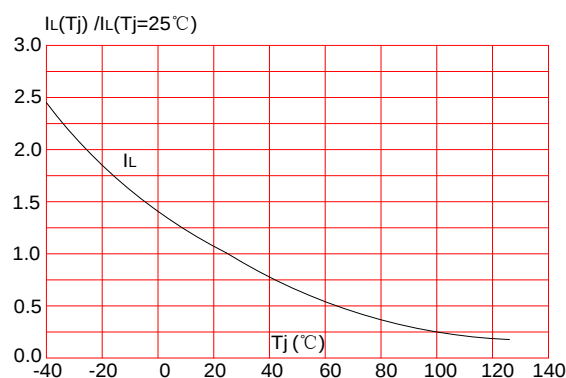


FIG.8: Relative variations of latching current versus junction temperature



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