

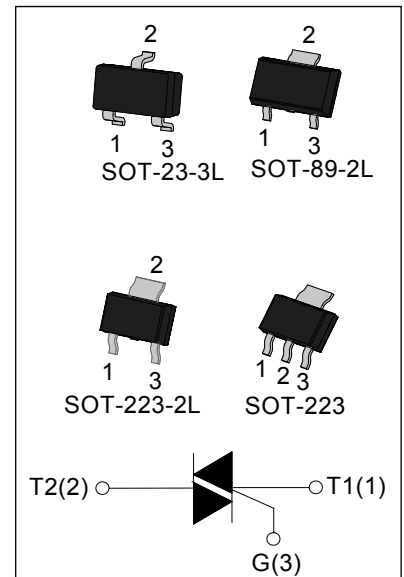
Silicon Controlled Rectifier

DESCRIPTION

With low holding and latching current, JST130 series triacs are especially recommended for use on middle and small resistance type power load. All the packages listed above are RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	0.8	A
V_{TM}	1.5	V


MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

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
RMS on-state current	SOT-23-3L/ SOT-223/ SOT-223-2L($T_c=75^\circ\text{C}$)	$I_{T(RMS)}$	0.8	A
	SOT-89-2L($T_c=60^\circ\text{C}$)			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)		I_{TSM}	9	A
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	0.45	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	I - II - III	di/dt	50	$\text{A}/\mu\text{s}$
	IV		20	
Peak gate current		I_{GM}	1	A
Average gate power dissipation		$P_{G(AV)}$	0.1	W
Peak gate power		P_{GM}	1	W

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

Symbol	Test Condition	Quadrant	Value		Unit	
			D	T		
I_{GT}	$V_D=12\text{V}$	I - II - III	MAX	5	5	mA
		IV		10	5	
V_{GT}		ALL	MAX	1.3		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	10	5	mA
		II		20	15	
I_H	$I_T=100\text{mA}$		MAX	7	5	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$		MIN	30	10	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter	Value(MAX)	Unit	
V_{TM}	$I_{TM}=1.1\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.5	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	μA
I_{RRM}		$T_j=125^\circ\text{C}$	100	μA

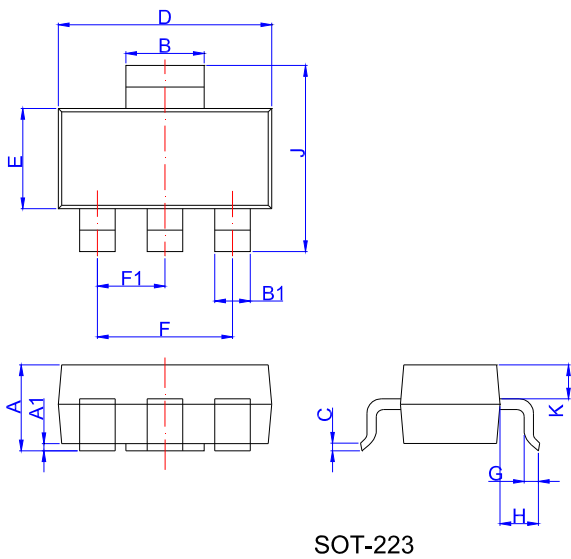
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit	
$R_{th(j-c)}$	junction to case(AC)	SOT-223/ SOT-223-2L/ SOT-23-3L	45	$^\circ\text{C}/\text{W}$
		SOT-89-2L	60	
$R_{th(j-a)}$	junction to ambient	SOT-223/ SOT-223-2L	60	$^\circ\text{C}/\text{W}$
		SOT-23-3L	125	
		SOT-89-2L	90	

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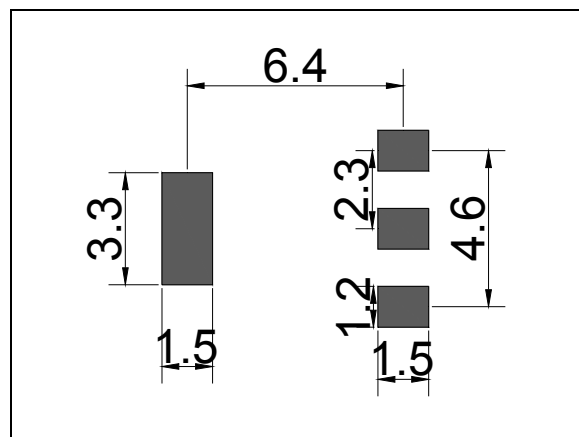
J	ST	130	W	-600	D
JieJie Microelectronics Co.,Ltd					
TRIACs					
IT(RMS):0.8A					
T:IGT1-4≤5mA					
D:IGT1-3≤5mA IGT4≤10mA					
600:VDRM/VRRM≥600V					
800:VDRM/VRRM≥800V					
V:SOT-223					
L:SOT-23-3L					
N2:SOT-89-2L					
W:SOT-223-2L					

PACKAGE MECHANICAL DATA



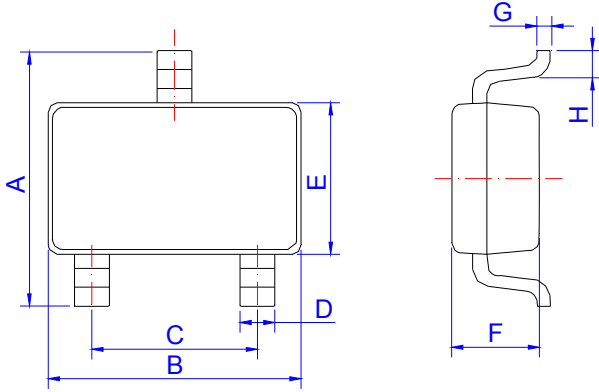
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
H	1.5	1.75	2.0	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K	0.8	0.9	1.0	0.031	0.035	0.039

FOOTPRINT-SOT-223 (dimensions in mm)



Silicon Controlled Rectifier

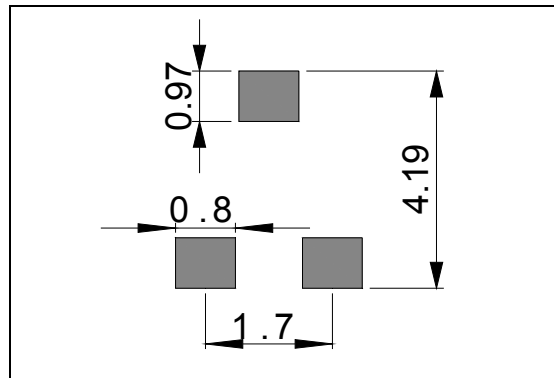
PACKAGE MECHANICAL DATA



SOT-23-3L

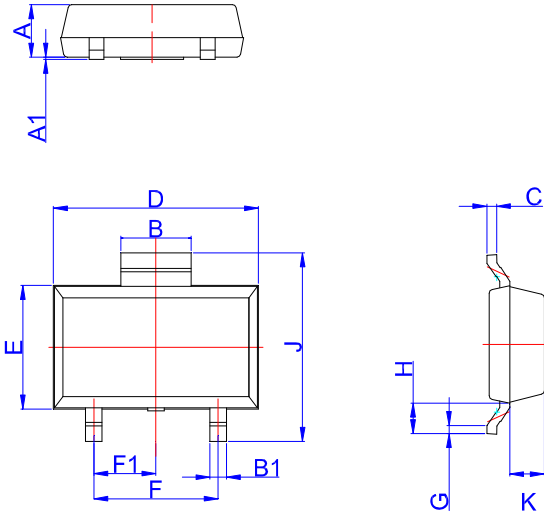
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.65	2.80	2.95	0.104	0.110	0.116
B	2.82	2.92	3.02	0.111	0.115	0.119
C	1.80	1.90	2.00	0.071	0.075	0.079
D	0.30	0.35	0.50	0.012	0.014	0.020
E	1.50	1.60	1.70	0.059	0.063	0.067
F	1.07	1.17	1.27	0.042	0.046	0.050
G	0.05	0.15	0.25	0.002	0.006	0.010
H	0.25	0.40	0.55	0.010	0.016	0.022

FOOTPRINT-SOT-23-3L (dimensions in mm)



Silicon Controlled Rectifier

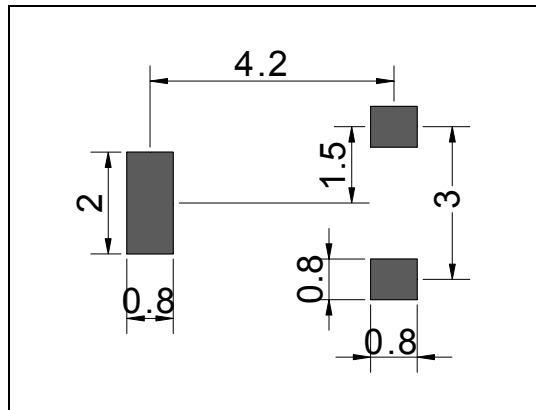
PACKAGE MECHANICAL DATA



SOT-89-2L

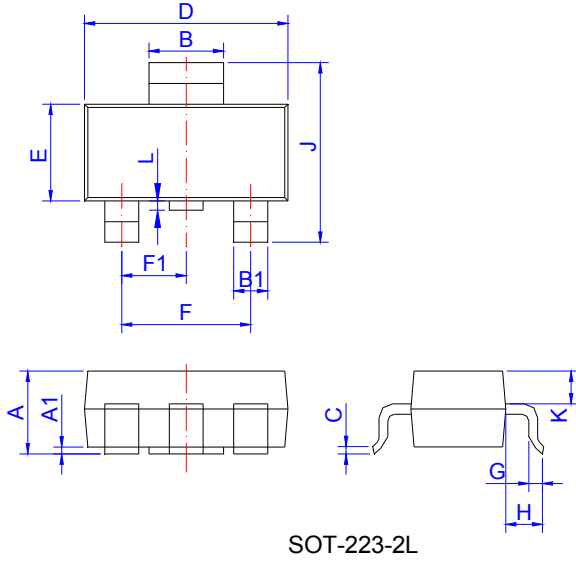
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.3	1.4	1.5	0.051	0.055	0.059
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	1.6	1.7	1.8	0.063	0.067	0.071
B1	0.3	0.4	0.5	0.012	0.016	0.020
C	0.22	0.254	0.32	0.009	0.010	0.013
D	4.75	4.95	5.15	0.187	0.195	0.203
E	2.75	2.95	3.15	0.108	0.116	0.124
F		3.0			0.118	
F1		1.5			0.059	
G	0.2	0.3	0.4	0.008	0.012	0.016
H	0.58	0.78	0.98	0.023	0.031	0.039
J	4.3	4.5	4.7	0.169	0.177	0.185
K		0.88			0.035	

FOOTPRINT-SOT-89-2L (dimensions in mm)



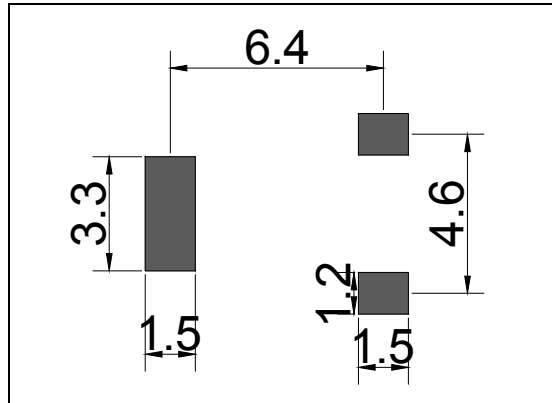
Silicon Controlled Rectifier

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
H	1.5	1.75	2	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K		0.9			0.035	
L	0	0.1	0.2	0	0.004	0.008

FOOTPRINT-SOT-223-2L (dimensions in mm)



RATINGS AND CHARACTERISTIC CURVES

MARKING

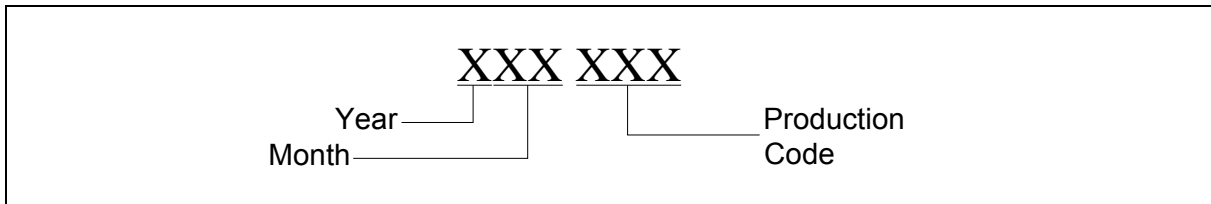
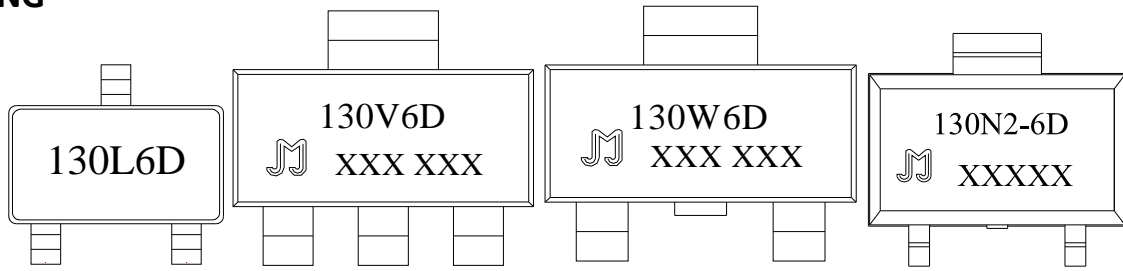


FIG.1: Maximum power dissipation versus RMS on-state current

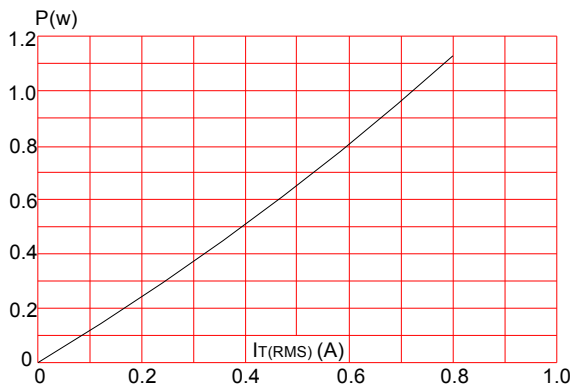


FIG.3: Surge peak on-state current versus number of cycles

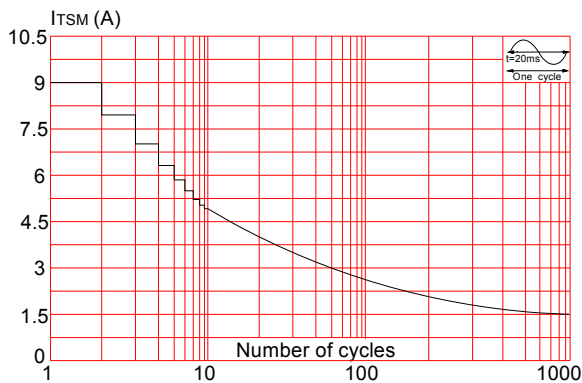


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35μm)(full cycle)

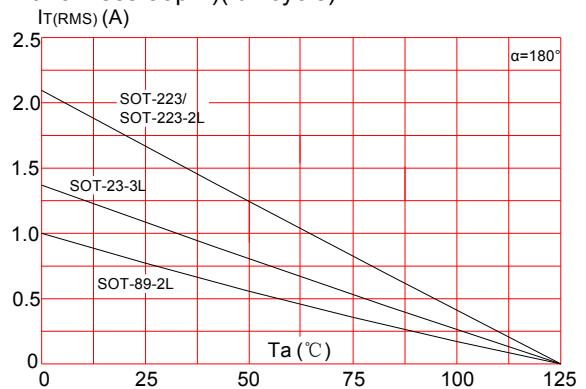
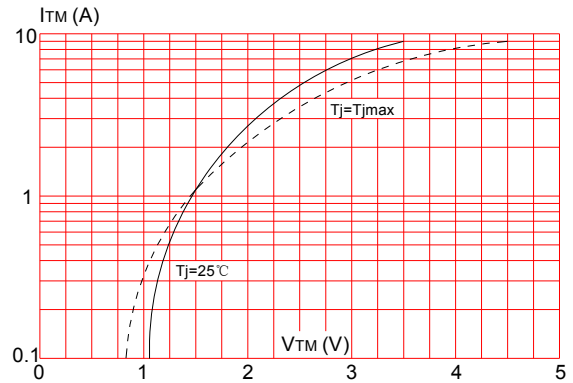


FIG.4: On-state characteristics (maximum values)



RATINGS AND CHARACTERISTIC CURVES

FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$
 (I - II - III: $dI/dt < 50\text{A}/\mu\text{s}$; IV: $dI/dt < 20\text{A}/\mu\text{s}$)

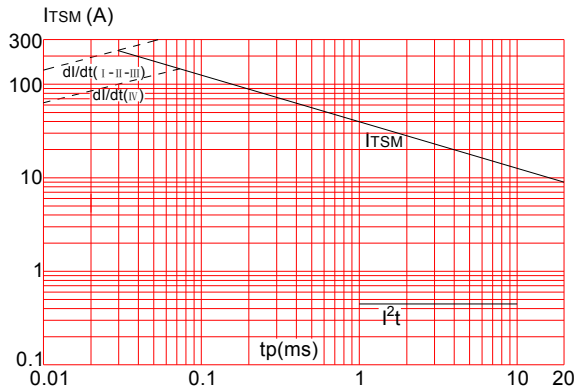
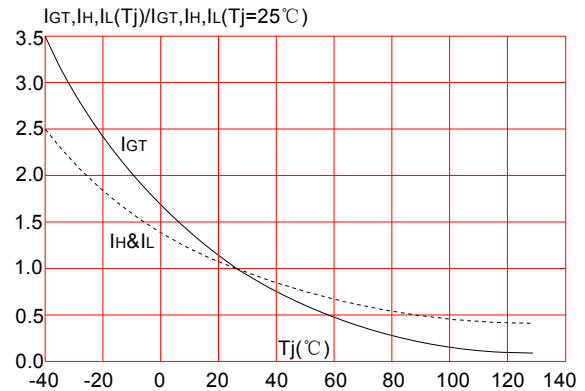


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(\text{min})}$)	+150°C
	-Temperature Max ($T_{s(\text{max})}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(\text{max})}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C

