

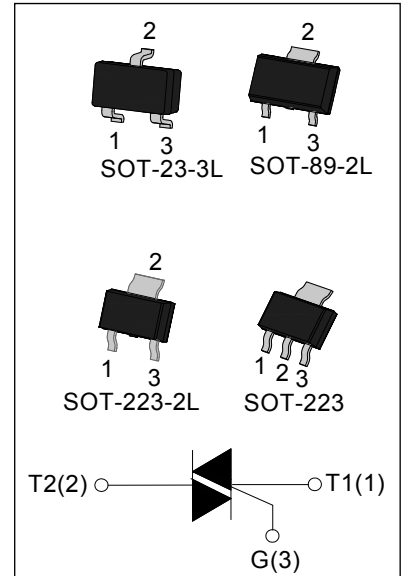
## Silicon Controlled Rectifier

**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	$\text{A}^2\text{s}$
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/ $\mu\text{s}$

**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	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	100	$\mu\text{A}$

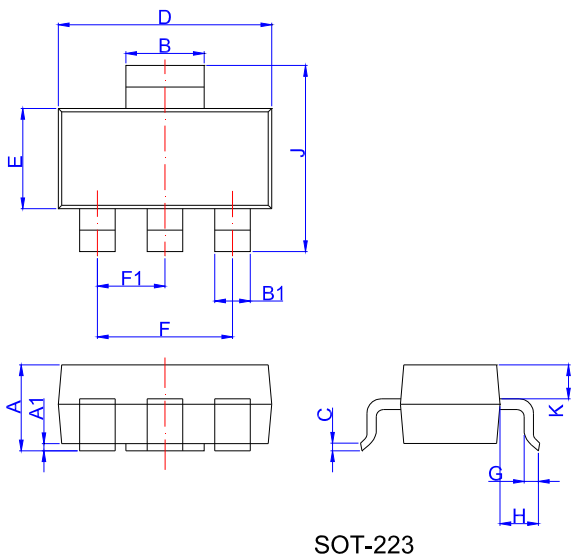
**THERMAL RESISTANCES**

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	

## Silicon Controlled Rectifier

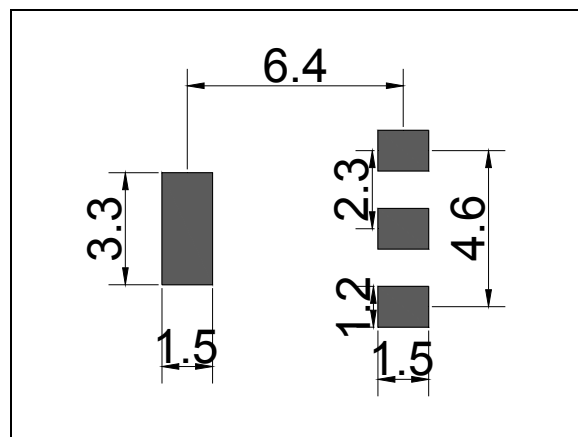
<p>JieJie Microelectronics Co.,Ltd</p>	<p><b>J</b></p> <p>TRIACs</p> <p><math>I_{T(RMS)}:0.8A</math></p>	<p><b>ST</b></p>	<p><b>130</b></p>	<p><b>W</b></p> <p>V:SOT-223 L:SOT-23-3L N2:SOT-89-2L W:SOT-223-2L</p>	<p><b>-600</b></p> <p>600: <math>V_{DRM}/V_{RRM} \geq 600V</math> 800: <math>V_{DRM}/V_{RRM} \geq 800V</math></p>	<p><b>D</b></p> <p>T: <math>I_{GT1-4} \leq 5mA</math> D: <math>I_{GT1-3} \leq 5mA</math> <math>I_{GT4} \leq 10mA</math></p>
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### PACKAGE MECHANICAL DATA



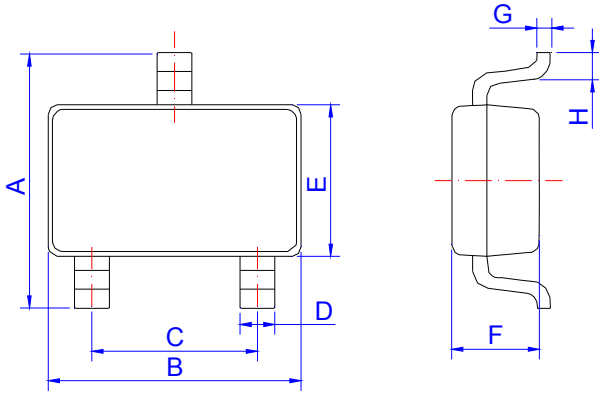
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	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

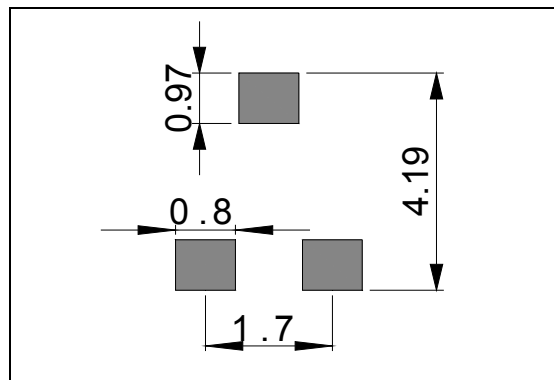
### PACKAGE MECHANICAL DATA



SOT-23-3L

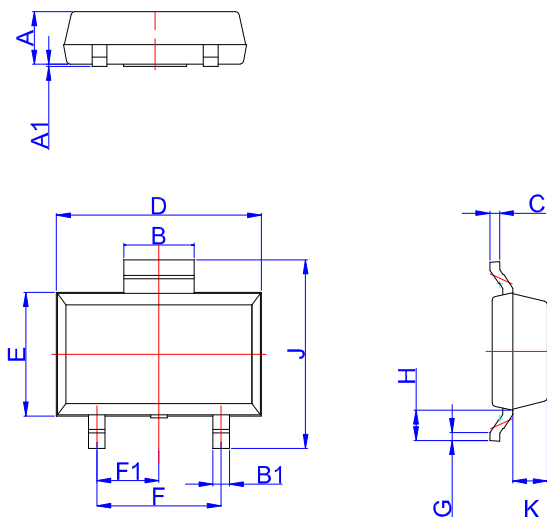
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.65	2.80	2.95	0.104	0.110	0.116
B	2.82	2.92	3.02	0.111	0.115	0.119
C	1.80	1.90	2.00	0.071	0.075	0.079
D	0.30	0.35	0.50	0.012	0.014	0.020
E	1.50	1.60	1.70	0.059	0.063	0.067
F	1.07	1.17	1.27	0.042	0.046	0.050
G	0.05	0.15	0.25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

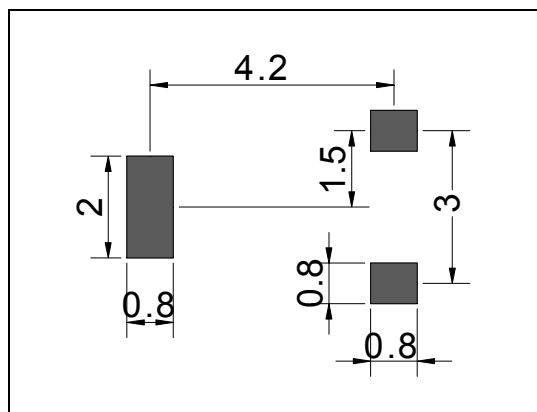
### PACKAGE MECHANICAL DATA



SOT-89-2L

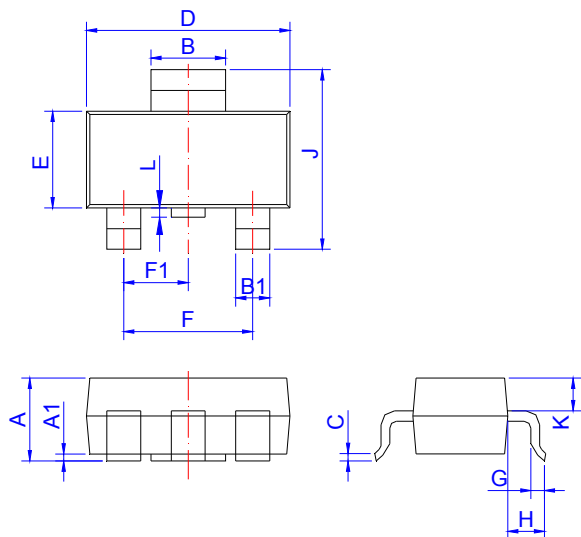
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.3	1.4	1.5	0.051	0.055	0.059
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	1.6	1.7	1.8	0.063	0.067	0.071
B1	0.3	0.4	0.5	0.012	0.016	0.020
C	0.22	0.254	0.32	0.009	0.010	0.013
D	4.75	4.95	5.15	0.187	0.195	0.203
E	2.75	2.95	3.15	0.108	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

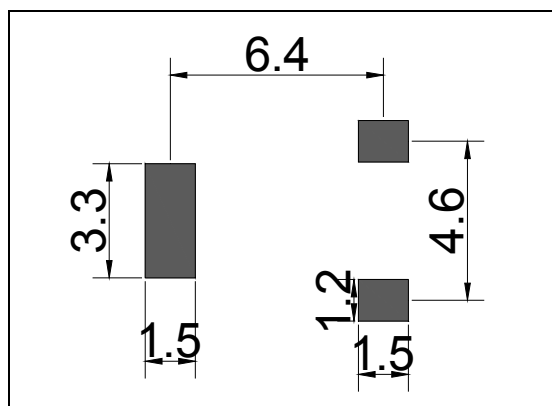
### PACKAGE MECHANICAL DATA



SOT-223-2L

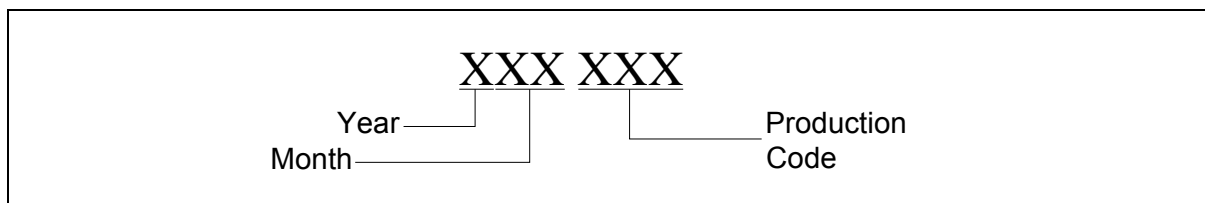
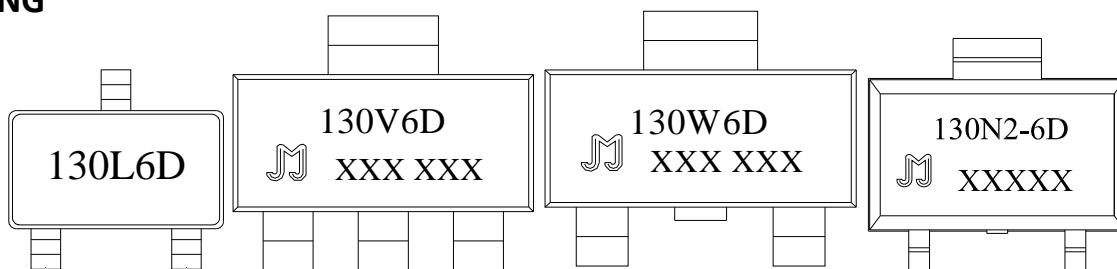
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	Millimeters			Inches		
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D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
H	1.5	1.75	2	0.059	0.069	0.079
J	6.7	7.0	7.3	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)

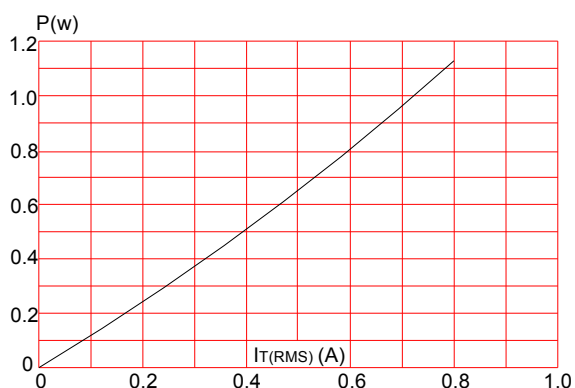


## RATINGS AND CHARACTERISTIC CURVES

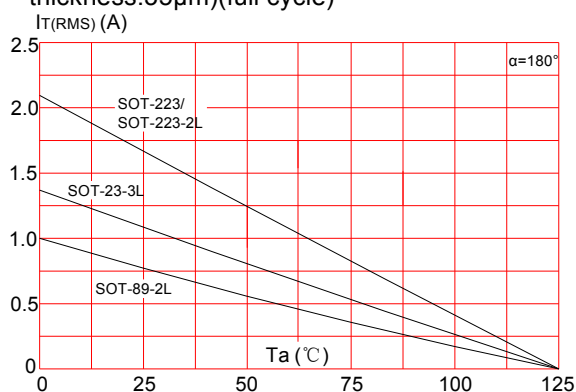
### MARKING



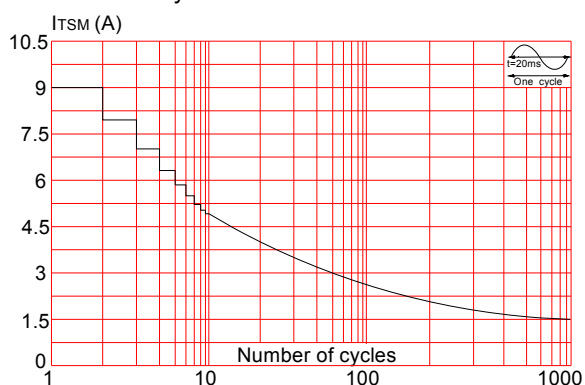
**FIG.1:** Maximum power dissipation versus RMS on-state current



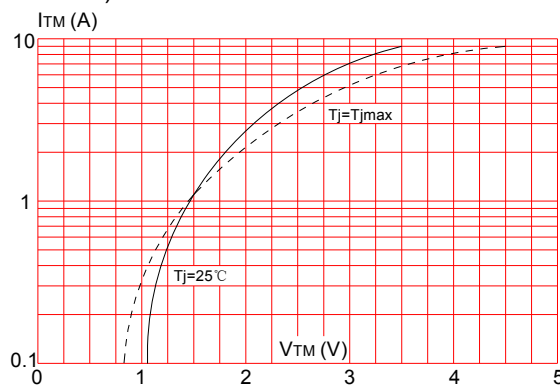
**FIG.2:** RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 $\mu$ m)(full cycle)



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

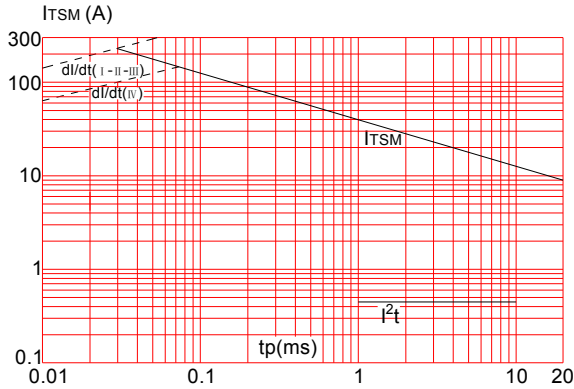


**FIG.4:** On-state characteristics (maximum values)

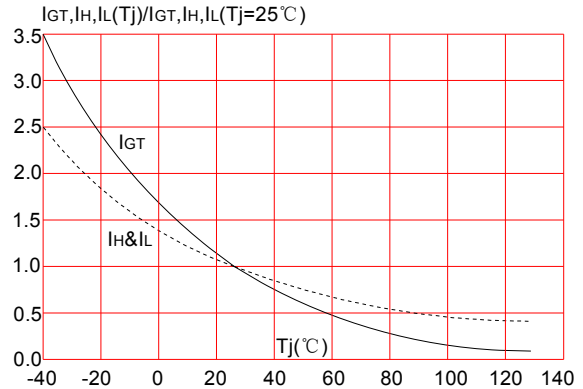


RATINGS AND CHARACTERISTIC CURVES

**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 ( $T_{s(min)}$ )	+150°C
	-Temperature Max ( $T_{s(max)}$ )	+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
$T_{s(max)}$ 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

