

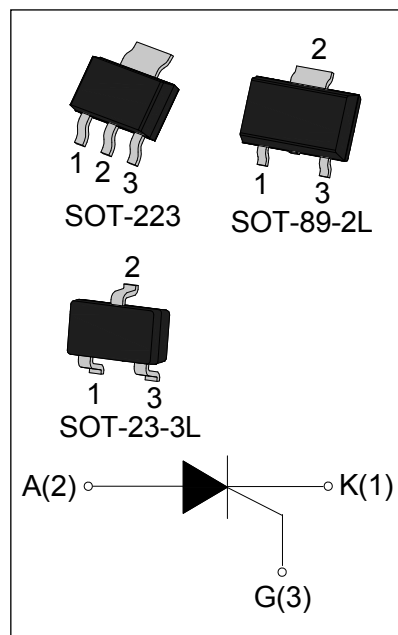


DESCRIPTION:

The JX007 SCR series provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	0.8	A
I_{GT}	≤ 120	μA
V_{DRM} / V_{RRM}	400/600	V



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$	
Operating junction temperature range	T_j	-40-125 ^①	$^{\circ}C$	
Repetitive peak off-state voltage	V_{DRM}	400/600	V	
Repetitive peak reverse voltage	V_{RRM}	400/600	V	
RMS on-state current	SOT-23-3L ($T_c=50^{\circ}C$)	$I_{T(RMS)}$	0.8	A
	SOT-223($T_c=70^{\circ}C$)			
	SOT-89-2L($T_c=61^{\circ}C$)			
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	8	A	
I^2t value for fusing (tp=10ms)	I^2t	0.32	A^2s	
Critical rate of rise of on-state current	di/dt	50	$A/\mu s$	
Peak gate current (tp=20 μs , $T_j=125^{\circ}C$)	I_{GM}	0.2	A	
Peak gate power (tp=20 μs , $T_j=125^{\circ}C$)	P_{GM}	0.5	W	
Average gate power dissipation($T_j=125^{\circ}C$)	$P_{G(AV)}$	0.1	W	

NOTE 1: When we parallel connect a $\leq 1K\Omega$ resistor between Gate and Cathode, the T_j can reach $125^{\circ}C$; if without this resistor, the T_j only can reach $110^{\circ}C$.

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	30	120	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	$V_D=V_{DRM} T_j=125^{\circ}\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	5	mA
I_H	$I_T=0.05\text{A}$	-	-	3	mA
dV/dt	$V_D=2/3V_{DRM} T_j=125^{\circ}\text{C} R_{GK}=1\text{K}\Omega$	10	-	-	V/ μs
T_{on}	$I_{TM}=2\text{A } V_D=V_{DRM(max)} I_G=10\text{mA}$ $dI_G/dt=0.1\text{A}/\mu\text{s}$	-	-	3	μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_T=1\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	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

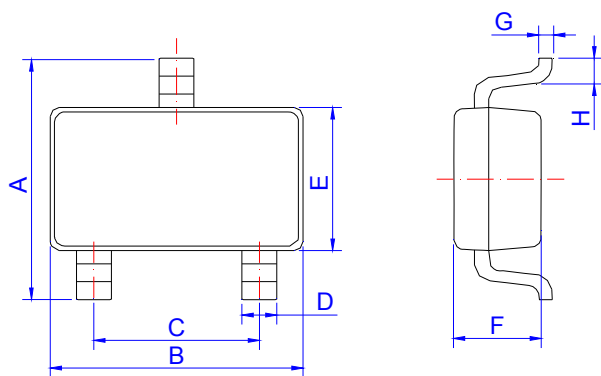
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case	SOT-23-3L	113	$^{\circ}\text{C}/\text{W}$
		SOT-223	50	
		SOT-89-2L	60	
$R_{th(j-a)}$	junction to ambient	SOT-23-3L	125	$^{\circ}\text{C}/\text{W}$
		SOT-223	60	
		SOT-89-2L	90	

ORDERING INFORMATION

<p>J</p> <p>JieJie Microelectronics Co.,Ltd</p> <p>Sensitive gate SCRs</p>	<p>X</p>	<p>007</p> <p>IT(RMS):0.8A</p>	<p>V</p> <p>V:SOT-223 L:SOT-23-3L N2:SOT-89-2L</p>
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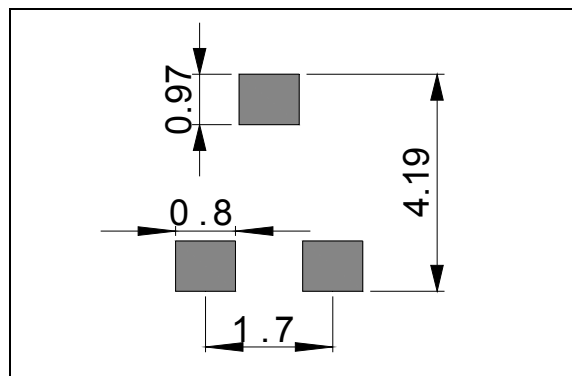
PACKAGE MECHANICAL DATA



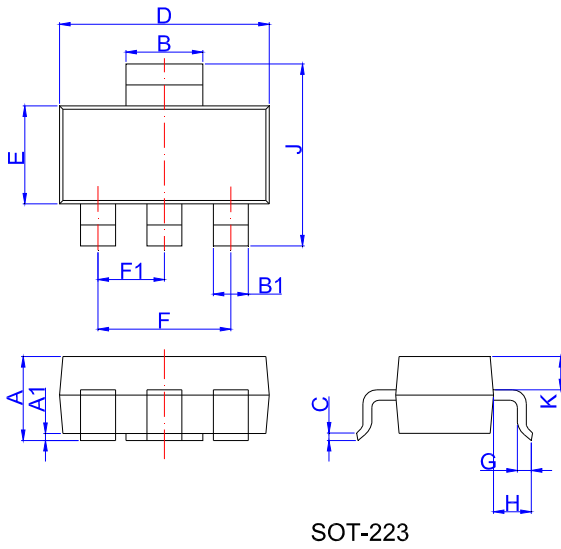
SOT-23-3L

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)

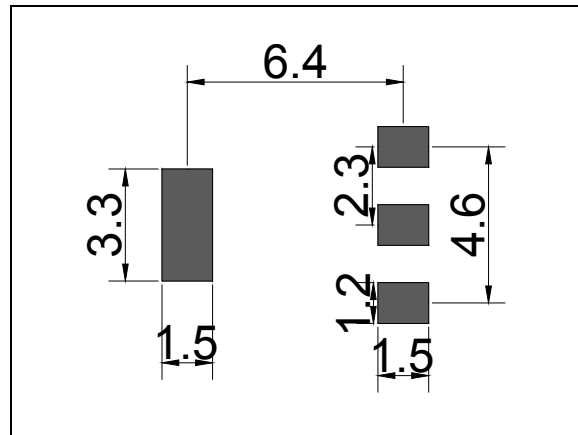


PACKAGE MECHANICAL DATA

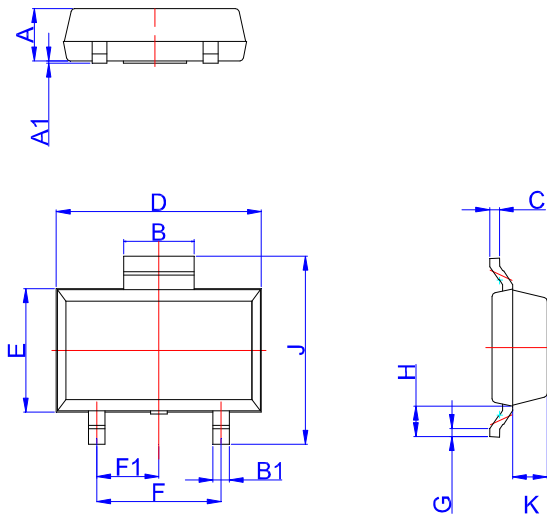


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138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



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)

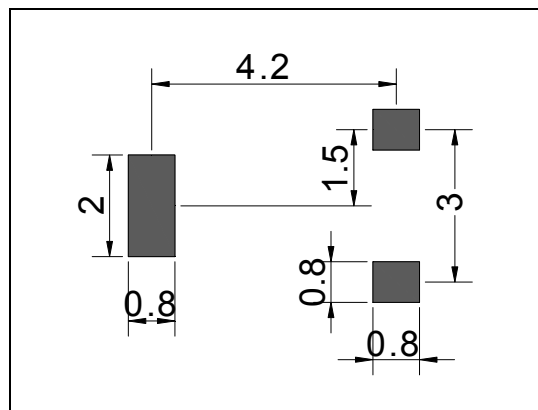


FIG.1: Maximum power dissipation versus RMS on-state current

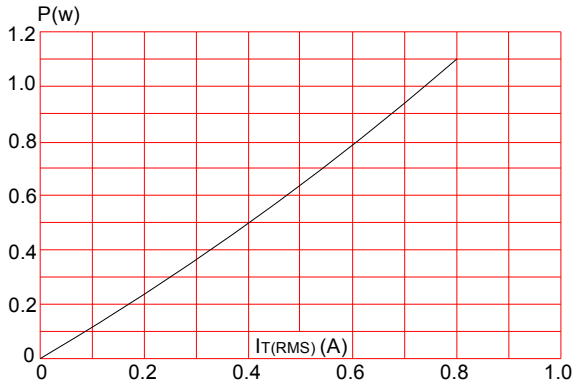


FIG.3: Surge peak on-state current versus number of cycles

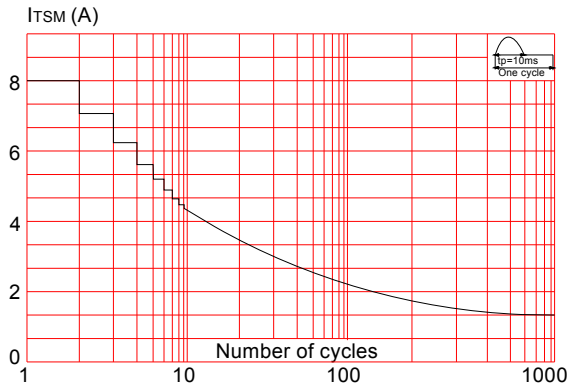


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

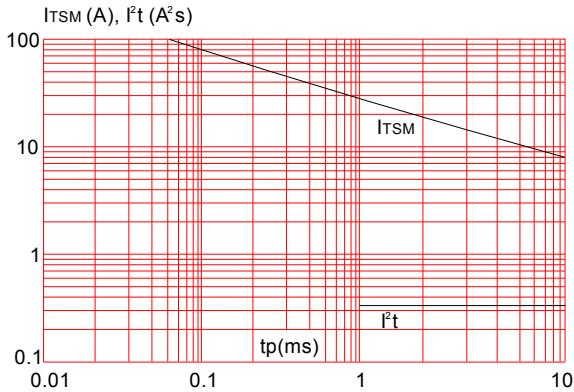


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35 μm)(full cycle)

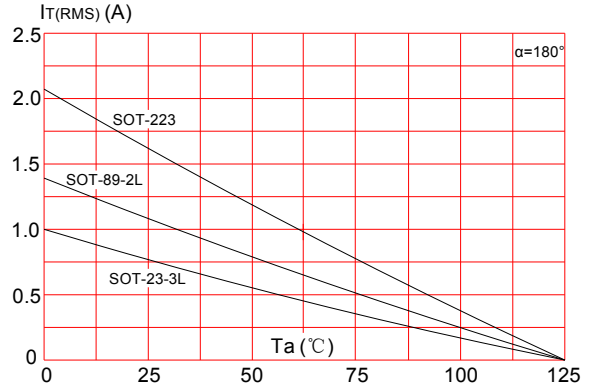


FIG.4: On-state characteristics (maximum values)

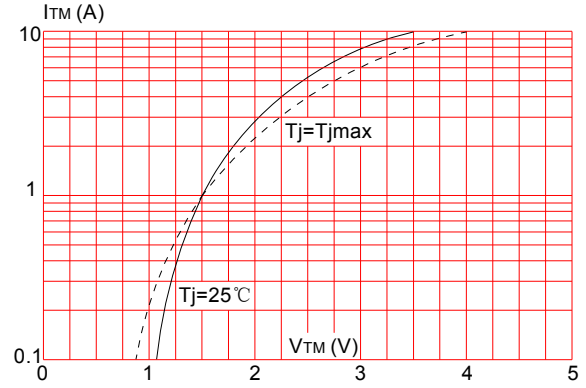
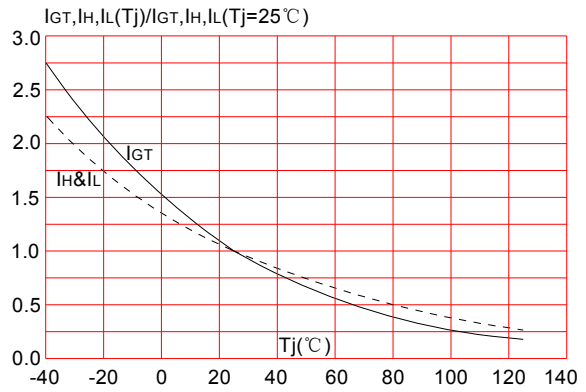
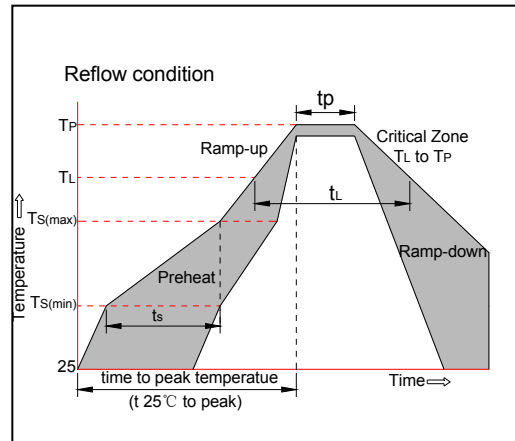


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature




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



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