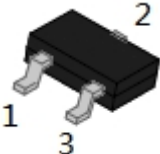
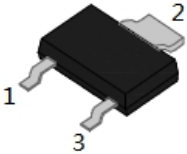
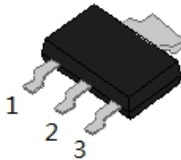
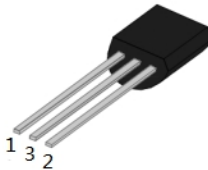
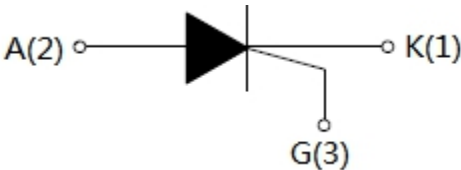


## SX008 Series 0.8A Sensitive SCRs

### Description

The SX008 SCR series provide high dv/dt rate with strong resistance to electromagnetic interface. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

SX008L	SX008N2	SX008V	SX008U
			
SOT-23-3L	SOT-89-2L	SOT-223	TO-92
			

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Storage junction temperature range	$T_J$	-	-40 to +110	°C
Operating junction temperature range	$T_{stg}$	-	-40 to +150	°C
Repetitive peak off-state voltage	$V_{DRM}$	-	600	V
Repetitive peak reverse voltage	$V_{RRM}$	-	600	V
RMS on-state current	$I_{(TRMS)}$	TO-92/ SOT-23-3L(TC=65°C)	0.8	A
		SOT-89-2L(TC=70°C)		
		SOT-223 (TC=75°C)		
Non repetitive surge peak on-state current(tp=10ms)	$I_{TSM}$	-	8	A
I2t value for fusing (tp=10ms)	I2t	-	0.32	A <sup>2</sup> S
Critical rate of rise of on-state current	dI/dt	-	50	A/us
Peak gate current (tp=20 μs, Tj=110°C)	$I_{GM}$	-	0.2	A
Peak gate power (tp=20 μs, Tj=110°C)	$P_{GM}$	-	0.5	W
Average gate power dissipation(Tj=110°C)	$P_{G(AV)}$	-	0.1	W

### Electrical Characteristics (T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Condition	Min.	Typ.	Max.	Units
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	20	50	200	μA
V <sub>GT</sub>		-	0.6	0.8	V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> T <sub>j</sub> =110°C	0.2	-	-	V
I <sub>L</sub>	I <sub>G</sub> =1.2 I <sub>GT</sub>	-	-	6	mA
I <sub>H</sub>	I <sub>T</sub> =0.05A	-	-	5	mA
dv/dt	V <sub>D</sub> =2/3V <sub>DRM</sub> T <sub>j</sub> =110°C R <sub>GK</sub> =1KΩ	100	-	-	V/μs

\* Pulse width < 300 μs, duty cycle < 2%

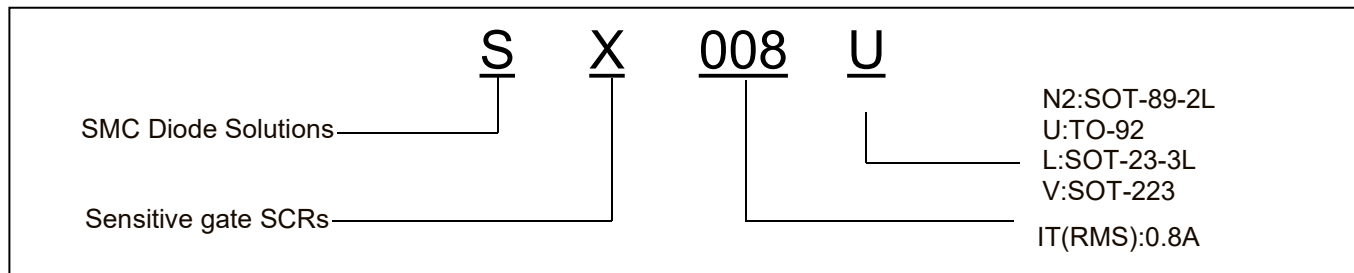
### Static Characteristics

Symbol	Condition	Max.	Units
V <sub>TM</sub>	I <sub>T</sub> =1.1A t <sub>p</sub> =380μs, T <sub>j</sub> =25°C	1.5	V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub> , T <sub>j</sub> =25°C	5	μA
I <sub>RRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub> , T <sub>j</sub> =110°C	100	μA

### Thermal Resistances

Symbol	Condition	Value	Units
R <sub>th(j-c)</sub>	Junction to case	TO-92/ SOT-23-3L	75
		SOT-89-2L	38
		SOT-223	31

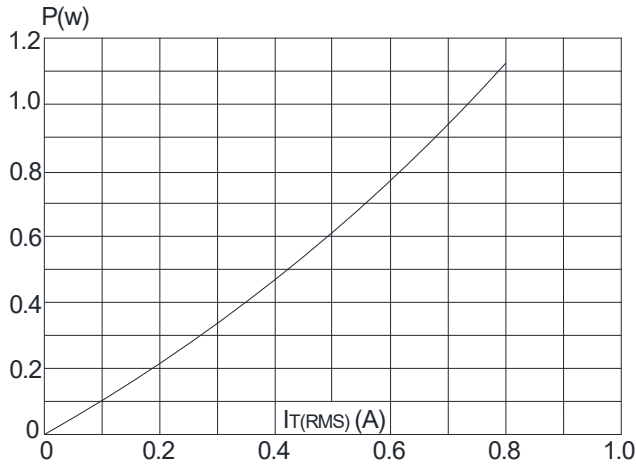
### Ordering Information



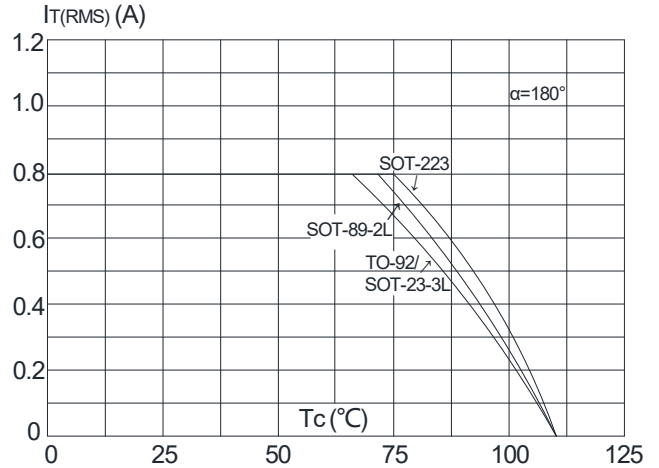
Device	Package	Shipping
SX008L	SOT-23-3L	3000pcs/ reel
SX008LTR	SOT-23-3L	3000pcs/ reel
SX008N2	SOT-89-2L	4000pcs/ reel
SX008N2TR	SOT-89-2L	4000pcs/ reel
SX008U	TO-92	1000pcs/ bag
SX008V	SOT-223	4000pcs/ reel
SX008VTR	SOT-223	4000pcs/ reel

**Ratings and Characteristics Curves**

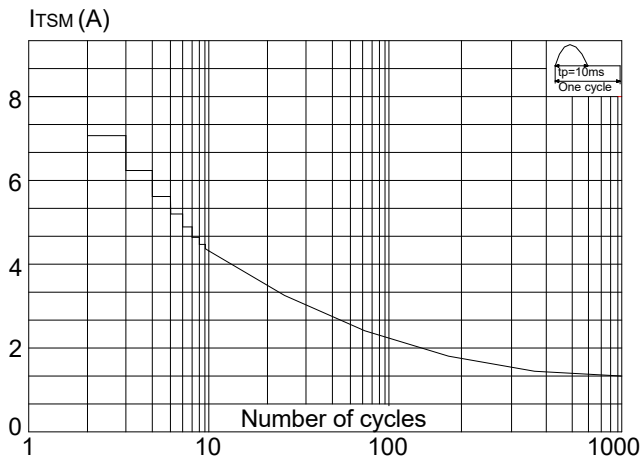
**FIG.1** Maximum power dissipation versus RMS on-state current



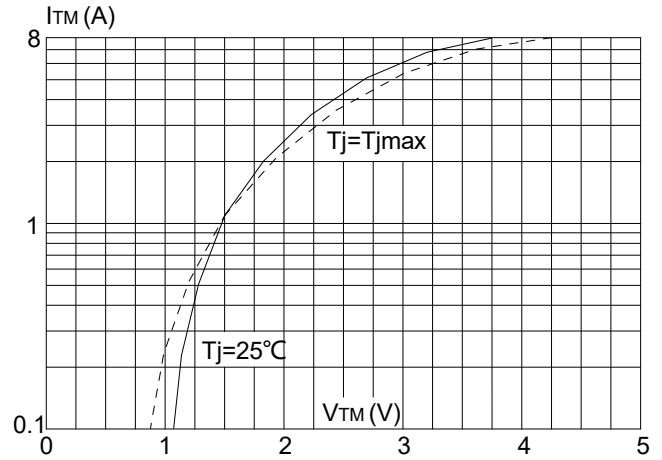
**FIG.2:** RMS on-state current versus case temperature



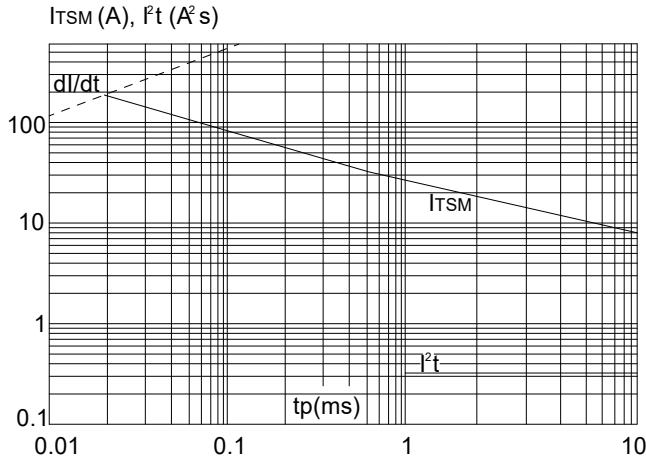
**FIG.3:** Surge peak on-state current versus number of cycles



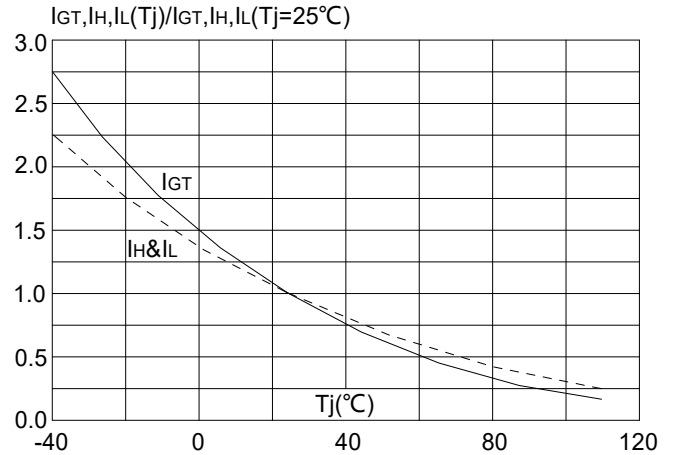
**FIG.4:** On-state characteristics (maximum values)



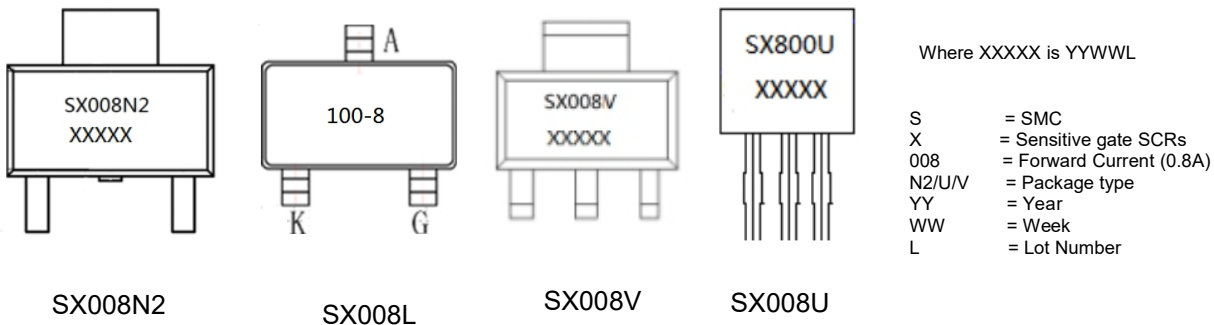
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )



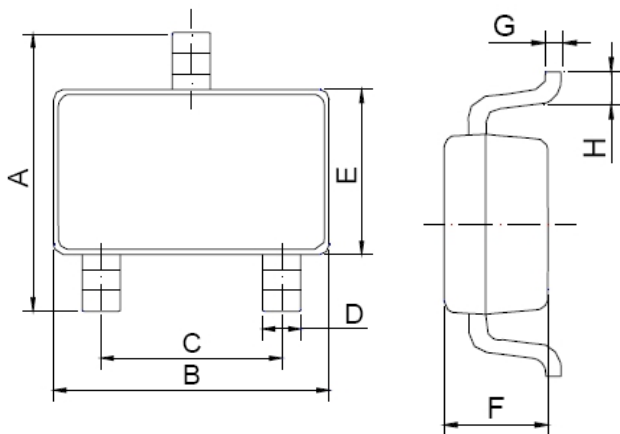
**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



**Marking Diagram**

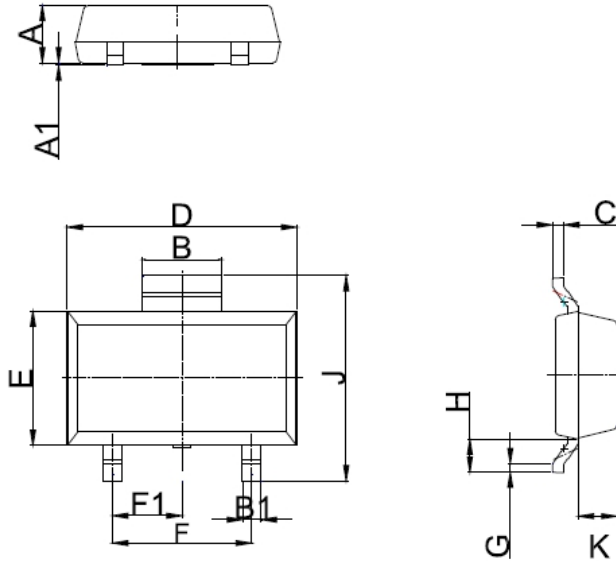


**Mechanical Dimensions SOT-23-3L**



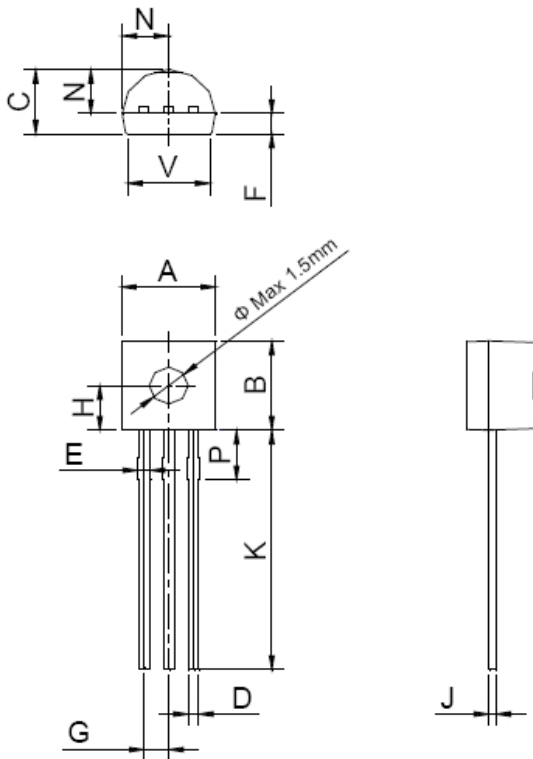
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.65	2.80	2.95	0.104	0.110	0.116
B	2.82	2.92	3.02	0.111	0.115	0.119
C	1.80	1.90	2.00	0.071	0.075	0.079
D	0.30	0.35	0.50	0.012	0.014	0.020
E	1.50	1.60	1.70	0.059	0.063	0.067
F	1.07	1.17	1.27	0.042	0.046	0.050
G	0.05	0.15	0.25	0.002	0.006	0.010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

### Mechanical Dimensions SOT-89-2L



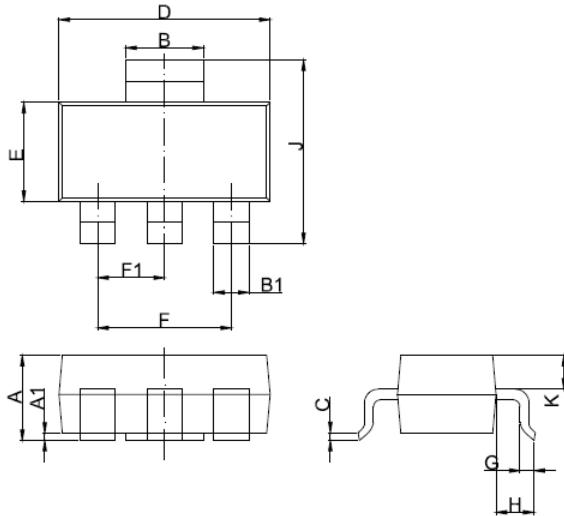
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.3	1.4	1.5	0.051	0.055	0.059
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	1.6	1.7	1.8	0.063	0.067	0.071
B1	0.3	0.4	0.5	0.012	0.016	0.020
C	0.22	0.254	0.32	0.009	0.010	0.013
D	4.75	4.95	5.15	0.187	0.195	0.203
E	2.75	2.95	3.15	0.108	0.116	0.124
F		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	

### Mechanical Dimensions TO-92



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.45	-	5.20	0.175	-	0.205
B	4.32	-	5.33	0.170	-	0.210
C	3.18	-	4.19	0.125	-	0.165
D	0.407	-	0.533	0.016	-	0.021
E	0.60	-	0.80	0.024	-	0.031
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.050	-
H	-	2.30	-	-	0.091	-
J	0.36	-	0.50	0.014	-	0.020
K	12.70	-	15.0	0.500	-	0.591
N	2.04	-	2.66	0.080	-	0.105
P	1.86	-	2.06	0.073	-	0.081
V	-	-	4.3	-	-	0.169

## Mechanical Dimensions SOT-223



SYMBOL	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	1.50	1.5	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

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