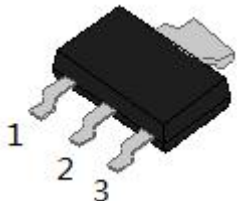
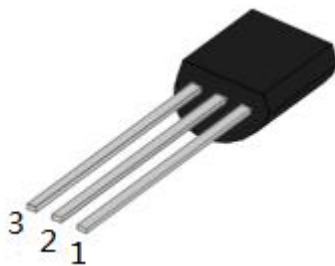
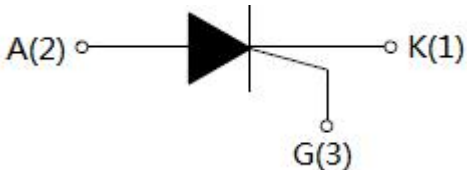


SX014 Series Sensitive gate SCRs

Description

The SX014 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.

SX014V 	SX014CR 
SOT-223	TO-92
	

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Storage junction temperature range	T_{stg}	-	-40-150	°C
Operating junction temperature range	T_j	-	-40-110	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)	V_{DRM}	-	900	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	-	900	V
RMS on-state current	$I_{(TRMS)}$	TO-92CR($T_c=50^\circ\text{C}$)	1.25	A
		SOT-223($T_c=75^\circ\text{C}$)		
Non repetitive surge peak on-state current ($t_p=10\text{ms}$)	I_{TSM}	-	20	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	-	2	A^2s
Critical rate of rise of on-state current	di/dt	-	50	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}$, $T_j=110^\circ\text{C}$)	I_{GM}	-	0.2	A
Peak gate power ($t_p=20\mu\text{s}$, $T_j=110^\circ\text{C}$)	P_{GM}	-	0.5	W
Average gate power dissipation($T_j=110^\circ\text{C}$)	$P_{G(AV)}$	-	0.1	W

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

Symbol	Condition	Min.	Typ.	Max.	Units
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	20	50	200	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	$V_D=V_{DRM} T_j=110^{\circ}\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	5	mA
I_H	$I_T=0.05\text{A}$	-	-	4	mA
dV/dt	$V_D=537\text{V } T_j=110^{\circ}\text{C } R_{GK}=1\text{K}\Omega$	200	-	-	V/ μs

Static Characteristics

Symbol	Condition	Max.	Units
V_{TM}	$I_T=4\text{A } t_p=380\mu\text{s}, T_j=25^{\circ}\text{C}$	1.5	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}, T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}	$V_D=V_{DRM} V_R=V_{RRM}, T_j=110^{\circ}\text{C}$	100	μA

Thermal Resistances

Symbol	Condition	Value	Units
$R_{th(j-c)}$	Junction to case	TO-92CR	57
		SOT-223	20
			$^{\circ}\text{C}/\text{W}$

Ordering Information

<div style="display: flex; justify-content: space-around; font-size: 2em; font-weight: bold;"> S X 014 V </div> <p>SMC Diode Solutions _____</p> <p>Sensitive gate SCRs _____</p> <p style="text-align: right;">V:SOT-223 CR:TO-92CR IT(RMS):1.25A</p>
--

Device	Package	Shipping
SX014V	SOT-223	8000pcs/ reel
SX014VTR	SOT-223	8000pcs/ reel
SX014CR	TO-92CR	2000pcs/ reel
SX014CRTR	TO-92CR	2000pcs/ reel

Ratings and Characteristics Curves

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

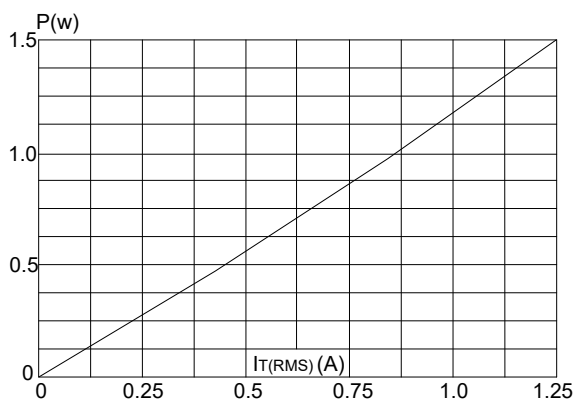


FIG.2: RMS on-state current versus case temperature

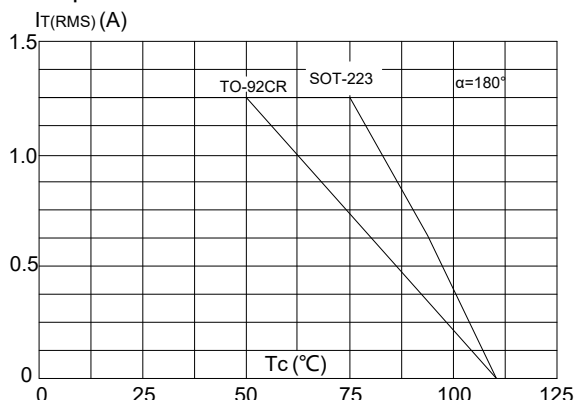


FIG.3: Surge peak on-state current versus number of cycles

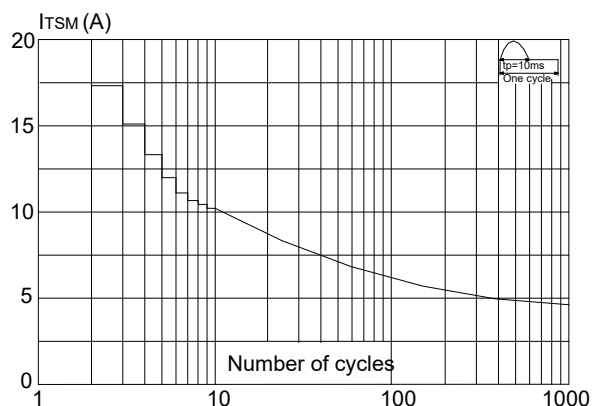


FIG.4: On-state characteristics (maximum values)

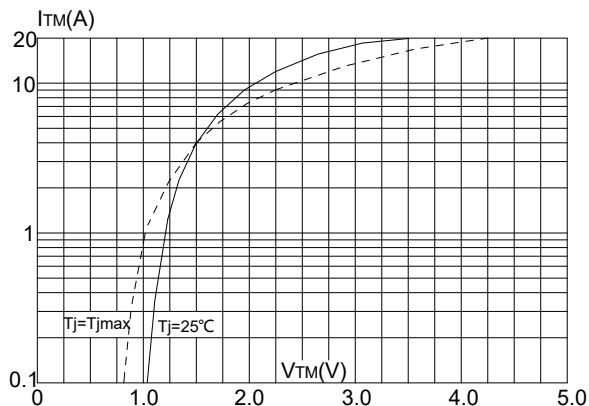


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

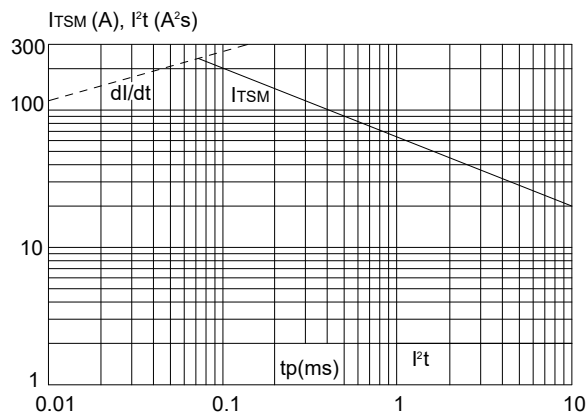
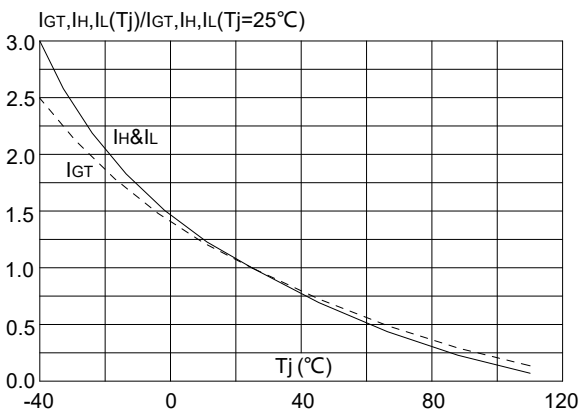
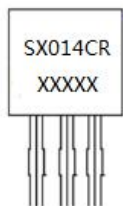


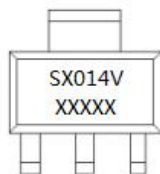
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Marking Diagram



SX014CR

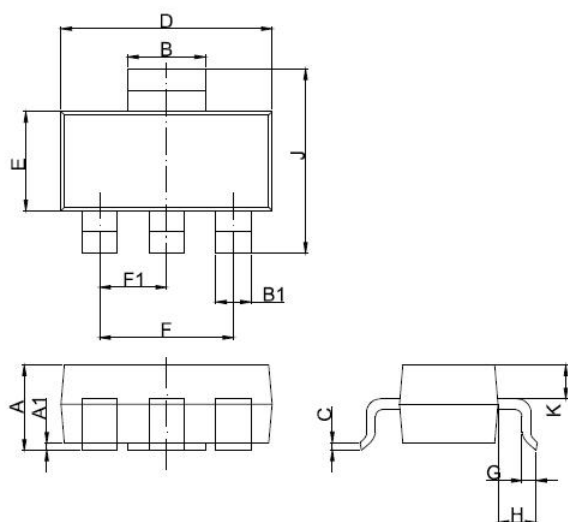


SX014V

Where XXXXX is YYWWL

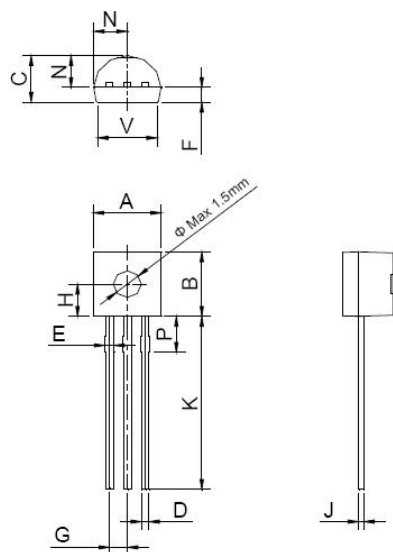
- S = SMC
- X = Sensitive gate SCRs
- 014 = Forward Current (1A)
- V/CR = Package type
- YY = Year
- WW = Week
- L = Lot Number

Mechanical Dimensions SOT-223



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
L						
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

Mechanical Dimensions TO-92CR



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
L						
A	4.56	-	5.00	0.179	-	0.197
B	4.56	-	5.00	0.179	-	0.197
C	3.30	-	3.60	0.130	-	0.142
D	0.50	-	0.60	0.020	-	0.024
E	0.60	-	0.80	0.024	-	0.032
F	-	1.1	-	-	0.043	-
G	-	1.27	-	-	0.050	-
H	-	2.43	-	-	0.096	-
J	0.36	-	0.50	0.014	-	0.020
K	11.50	13.00	14.20	0.453	0.512	0.559
N	2.04	-	2.66	0.080	-	0.105
P	2.50	-	2.90	0.098	-	0.114
V	-	-	4.30	-	-	0.169

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