



JX011 Series Sensitive gate SCRs

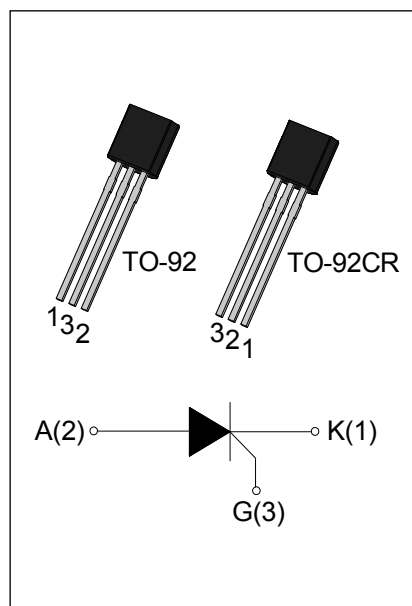
Rev.11.0

DESCRIPTION:

The JX011 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. Packages TO-92 & TO-92CR are RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
I_{GT}	≤ 200	μA
V_{TM}	≤ 1.7	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}	800	V
Repetitive peak reverse voltage		V_{RRM}	800	V
RMS on-state current	TO-92/ TO-92CR ($T_C=50^{\circ}C$)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (F=50Hz tp=10ms)		I_{TSM}	12	A
Non repetitive surge peak on-state current (F=60Hz tp=8.3ms)		I_{TSM}	13.2	A
I^2t value for fusing (tp=10ms)		I^2t	0.72	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}	0.3	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}	$V_D=12\text{V } R_L=33\Omega$	-	40	200	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	$I_T=0.05\text{A}$	-	-	4	mA
dV/dt	$V_D=540\text{V } T_j=125^{\circ}\text{C } R_{GK}=1\text{K}\Omega$	100	-	-	V/ μs
	$V_D=540\text{V } T_j=125^{\circ}\text{C } R_{GK}=220\Omega$	700	-	-	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_T=2\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.4	V
V_{T0}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.7	V
R_d	Dynamic resistance	$T_j=125^{\circ}\text{C}$	0.2	Ω
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

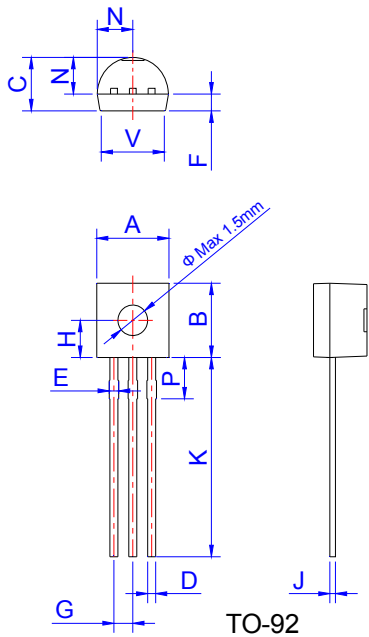
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case	TO-92/ TO-92CR	70	$^{\circ}\text{C/W}$

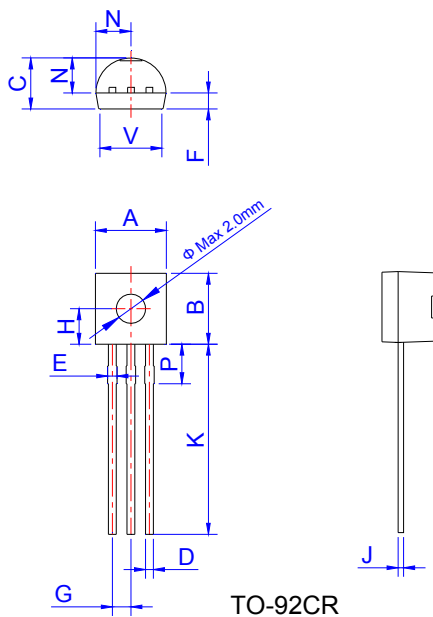
ORDERING INFORMATION

<p>J X 011 U</p> <p>JieJie Microelectronics Co.,Ltd</p> <p>Sensitive gate SCRs</p>	<p>U:TO-92 CR:TO-92CR</p> <p>$I_{T(RMS)}:1\text{A}$</p>
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PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	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	0.50		0.70	0.020		0.028
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



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
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	-		4.3	-		0.169

PACKAGE INFORMATION

PACKAGE	OUTLINE	BAG (PCS)	INNER BOX (PCS)	PER CARTON
TO-92/ TO-92CR	Shielding Bag	1,000	10,000	30,000
TO-92/ TO-92CR	Shielding Bag	1,000	10,000	50,000
TO-92/ TO-92CR	Shielding Bag	1,000	10,000	100,000

MARKING

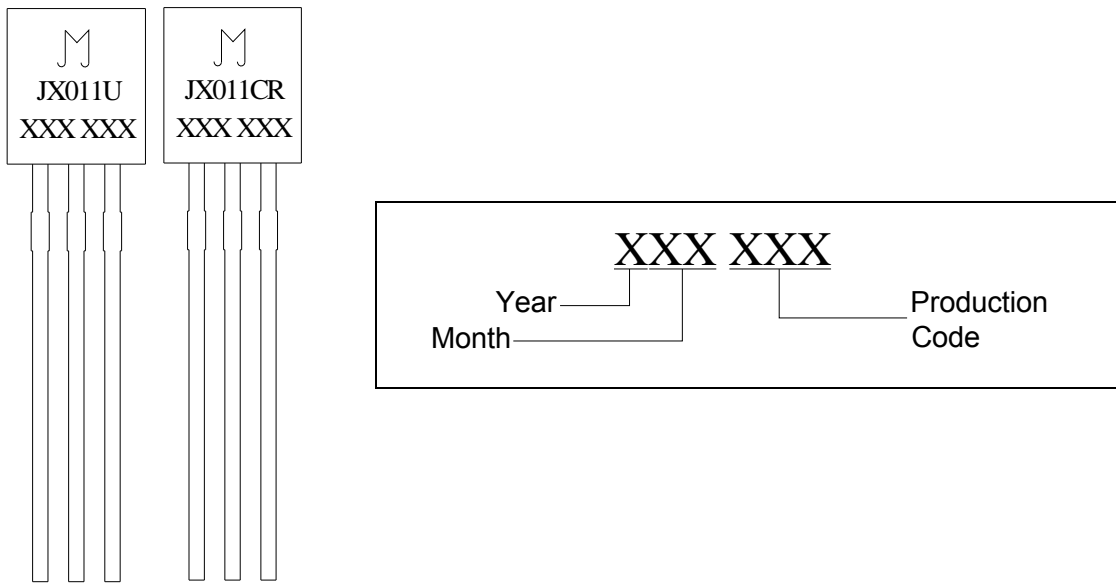


FIG.1: Maximum power dissipation versus RMS on-state current

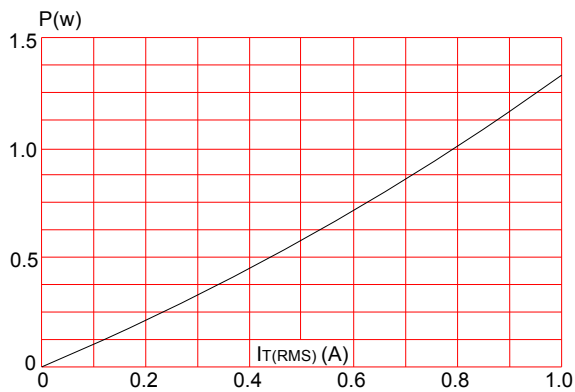


FIG.2: RMS on-state current versus case temperature

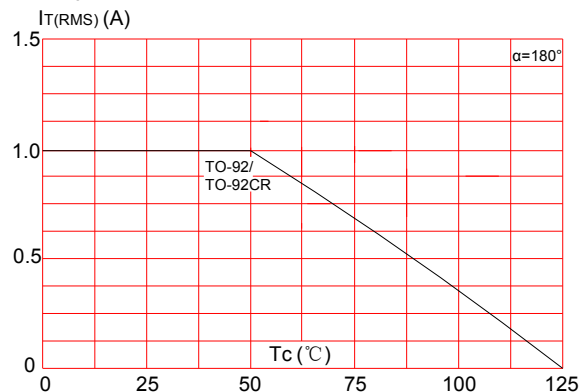


FIG.3: Surge peak on-state current versus number of cycles

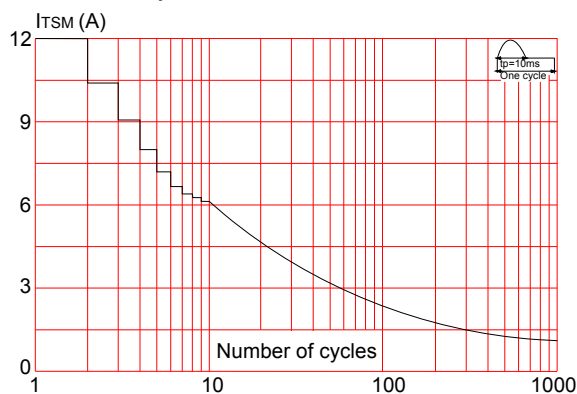


FIG.4: On-state characteristics (maximum values)

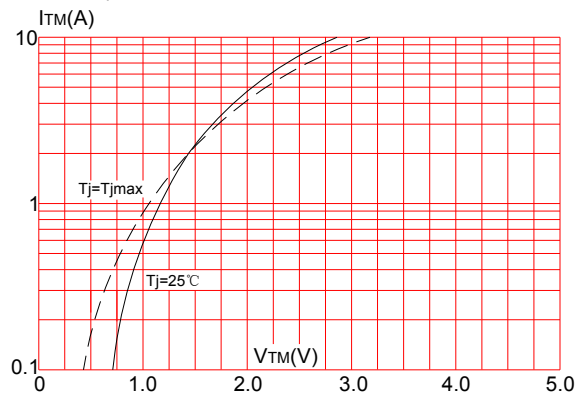


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$ ($di/dt \leq 50\text{A}/\mu\text{s}$)

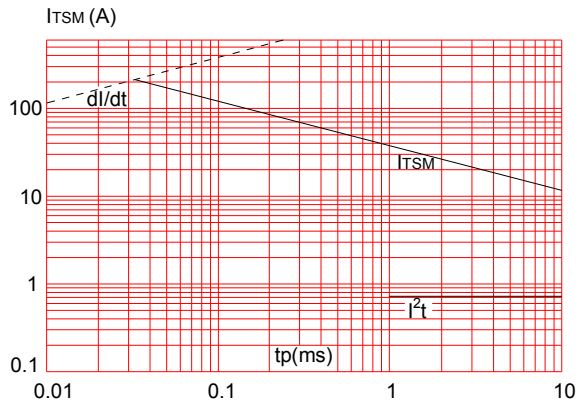
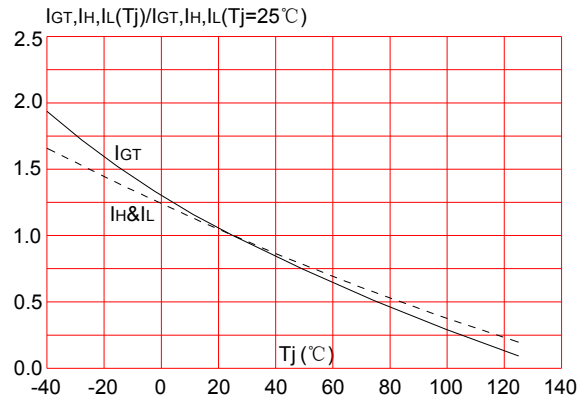



FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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