



JX016K Sensitive gate SCRs

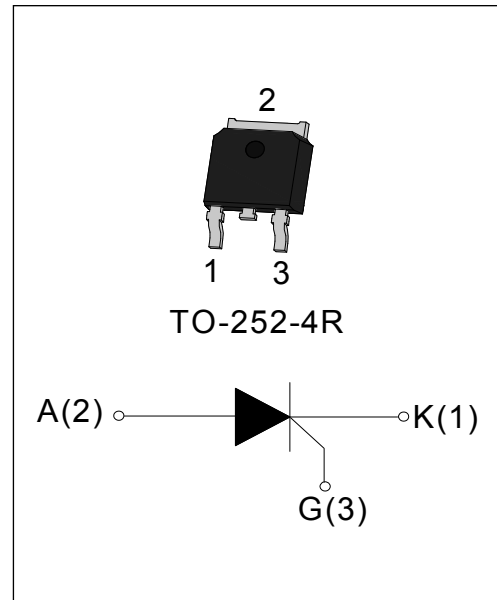
Rev.2.0

DESCRIPTION:

The JX016K SCR 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. Package TO-252-4R is RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	6	A
I_{GT}	200	μA
V_{TM}	1.8	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	$^{\circ}C$
Repetitive peak off-state voltage	V_{DRM}	800	V
Repetitive peak reverse voltage	V_{RRM}	800	V
Non-repetitive peak off-state voltage	V_{DSM}	1600	V
Non-repetitive peak reverse voltage	V_{RSM}	1600	V
RMS on-state current	$I_{T(RMS)}$	6	A
TO-252-4R ($T_C=65^{\circ}C$)			
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	55	A
I^2t value for fusing (tp=10ms)	I^2t	15	A^2s
Critical rate of rise of on-state current	di/dt	50	$A/\mu s$
Peak gate current (tp=20 μs , $T_j=110^{\circ}C$)	I_{GM}	1.5	A
Peak gate power (tp=20 μs , $T_j=110^{\circ}C$)	P_{GM}	3	W
Average gate power dissipation($T_j=110^{\circ}C$)	$P_{G(AV)}$	0.2	W

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	60	200	μA
V_{GT}		-	0.7	0.8	V
V_{GD}	$V_D=V_{DRM} T_j=110^{\circ}\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	6	mA
I_H	$I_T=0.05\text{A}$	-	-	5	mA
dV/dt	$V_D=537\text{V } T_j=110^{\circ}\text{C } R_{GK}=1\text{K}\Omega$	300	-	-	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_T=9\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.8	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	50	μA
I_{RRM}		$T_j=110^{\circ}\text{C}$	5	mA

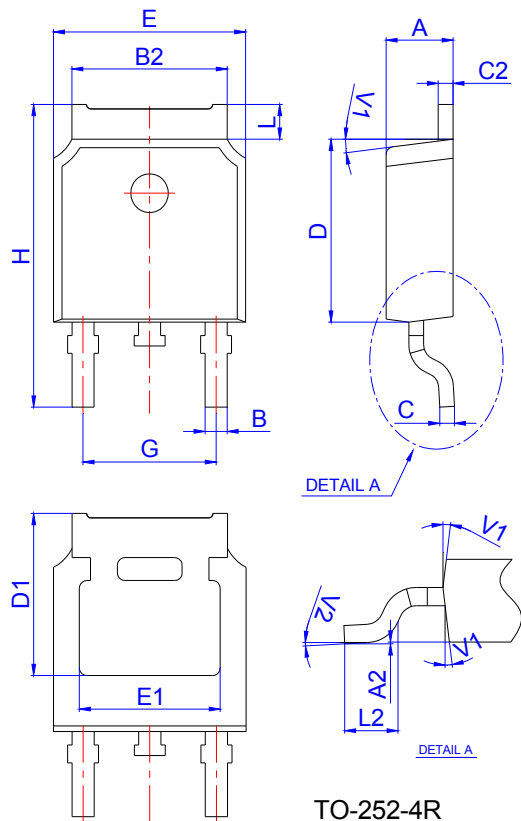
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case	TO-252-4R	4.2	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient		70	

ORDERING INFORMATION

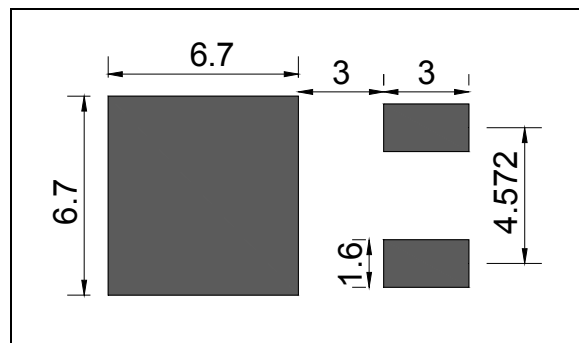
<p>J X 016 K</p> <p>JieJie Microelectronics Co.,Ltd</p> <p>Sensitive gate SCRs</p>	<p>J X 016 K</p> <p>K:TO-252-4R KTR:TO-252-4R(Tape&Reel)</p> <p>$I_{T(RMS)}:6\text{A}$</p>
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PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

FOOTPRINT-TO-252-4R (dimensions in mm)



PACKAGE INFORMATION

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-252-4R	TUBE	80	4,000	20,000
PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-252-4R	TAPING	2,500	25,000	13 inch

MARKING

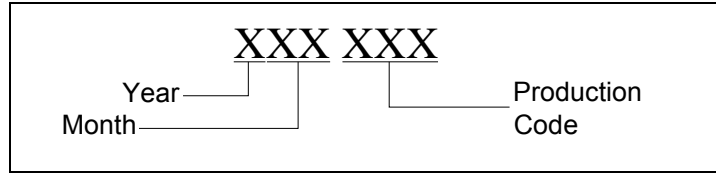
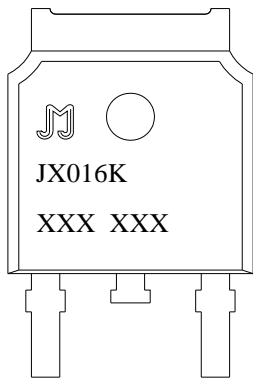


FIG.1: Maximum power dissipation versus RMS on-state current

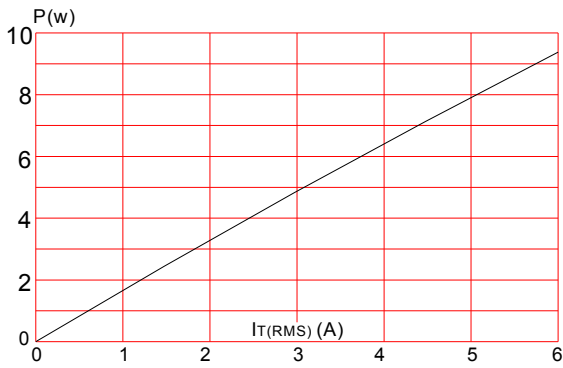


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 μ m)(full cycle)

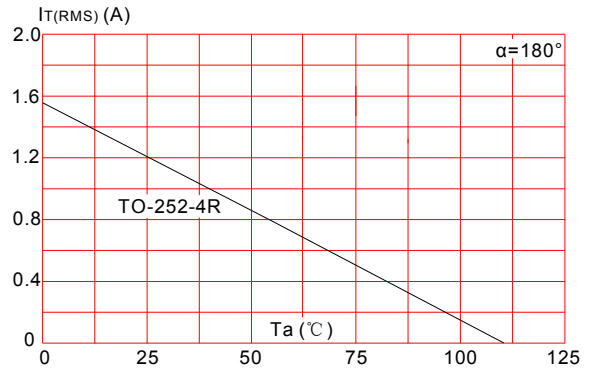


FIG.3: Surge peak on-state current versus number of cycles

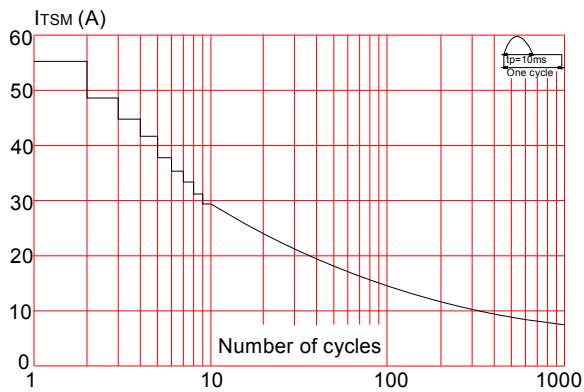


FIG.4: On-state characteristics (maximum values)

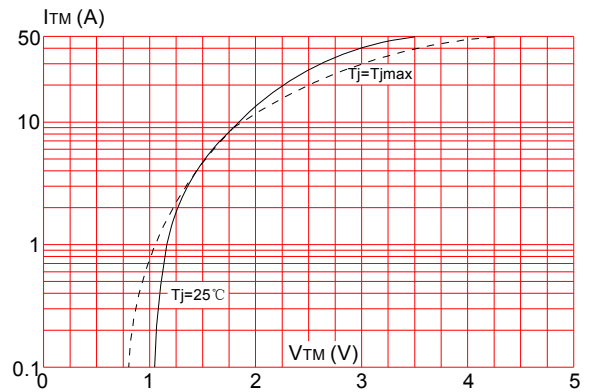


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

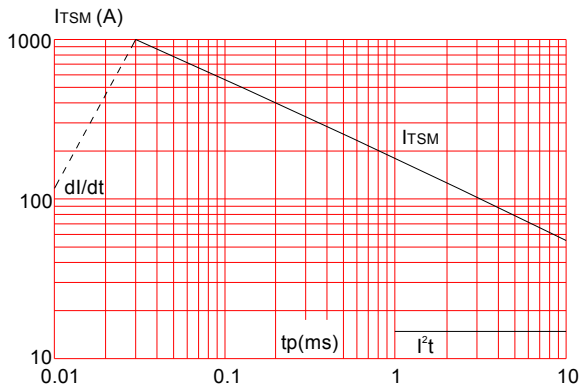
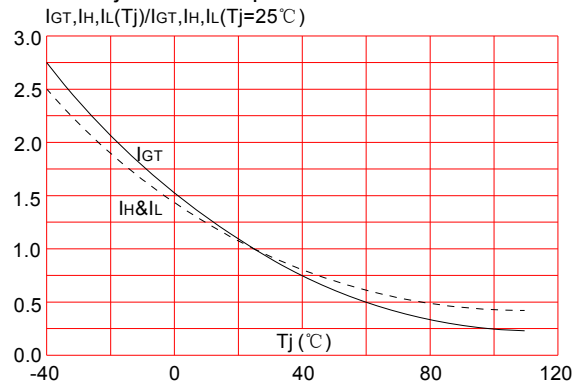
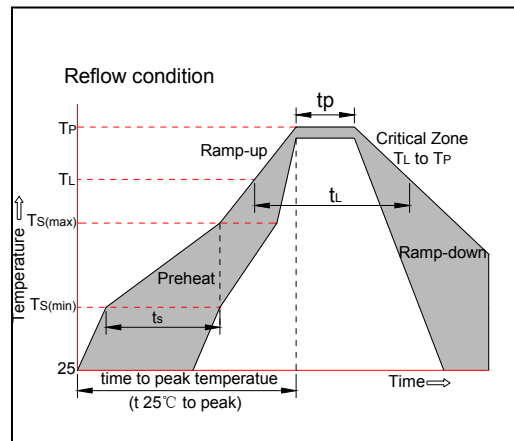


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature




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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