

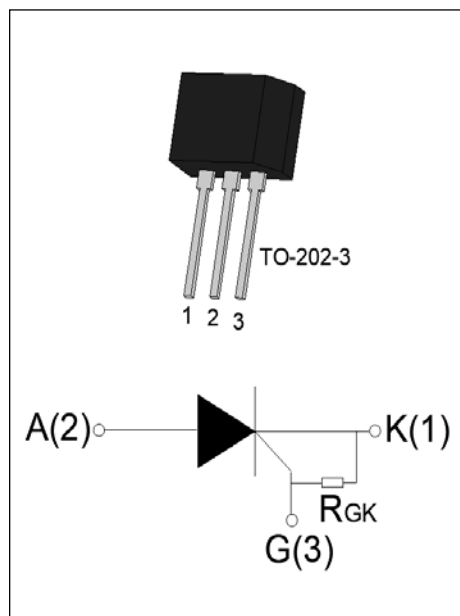


### DESCRIPTION:

The JR0405S3 SCR with the parallel resistor between Gate and Cathode,  $R_{GK}=10\sim 80k\Omega$ , is especially recommended for use on straight hair, igniter, anion generator, etc. Package TO-202-3 is RoHS compliant.

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT}$	$\leq 200$	$\mu A$



### 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 <sup>①</sup>	$^{\circ}C$
Repetitive peak off-state voltage ( $T_j=25^{\circ}C$ )	$V_{DRM}$	600	V
Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )	$V_{RRM}$	600	V
Average on-state current ( $T_c \leq 83^{\circ}C$ )	$I_{T(AV)}$	2.5	A
RMS on-state current ( $T_c \leq 83^{\circ}C$ )	$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current ( $t_p=10ms, T_j=25^{\circ}C$ )	$I_{TSM}$	40	A
Non repetitive surge peak on-state current ( $t_p=8.3ms, T_j=25^{\circ}C$ )		44	
$I^2t$ value for fusing ( $t_p=10ms, T_j=25^{\circ}C$ )	$I^2t$	8	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}, f=100Hz, T_j=125^{\circ}C$ )	$di/dt$	50	$A/\mu s$
Peak gate current ( $t_p=20\mu s, T_j=125^{\circ}C$ )	$I_{GM}$	2	A
Average gate power dissipation ( $T_j=125^{\circ}C$ )	$P_{G(AV)}$	0.5	W

Peak gate power	$P_{GM}$	5	W
Peak pulse voltage ( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG.7)	$V_{pp}$	0.5	kV

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

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	-	50	200	$\mu\text{A}$
$V_{GT}$		-	0.6	0.8	V
$V_{GD}$	$V_D=V_{DRM } T_j=125^{\circ}\text{C}$	0.2	-	-	V
$I_L$	$I_G=1.2 I_{GT}$	-	-	6	mA
$I_H$	$I_T=0.1\text{A}$	-	-	5	mA
dV/dt	$V_D=400\text{V } T_j=125^{\circ}\text{C } R_{GK}=1\text{K}\Omega$	50	-	-	$\text{V}/\mu\text{s}$
	$V_D=400\text{V } T_j=125^{\circ}\text{C } R_{GK}=220\Omega$	250	-	-	
$t_{on}$	$I_G=10\text{mA } I_A=20\text{mA } I_R=2\text{mA}$ $T_j=25^{\circ}\text{C}$	-	2	-	$\mu\text{s}$
$t_{off}$		-	50	-	

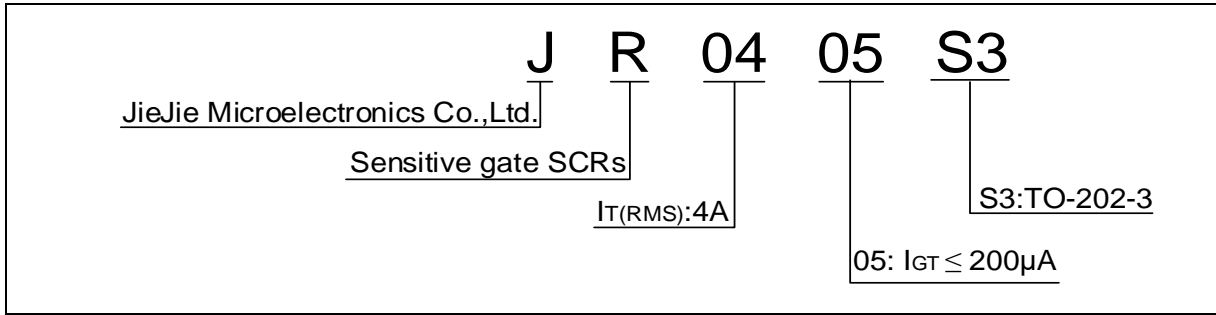
### STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=8\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.6	V
$V_{TO}$	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.64	V
$R_D$	Dynamic resistance	$T_j=125^{\circ}\text{C}$	0.08	$\Omega$
$I_{DRM}$	$V_D=V_{DRM } V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^{\circ}\text{C}$	0.5	mA

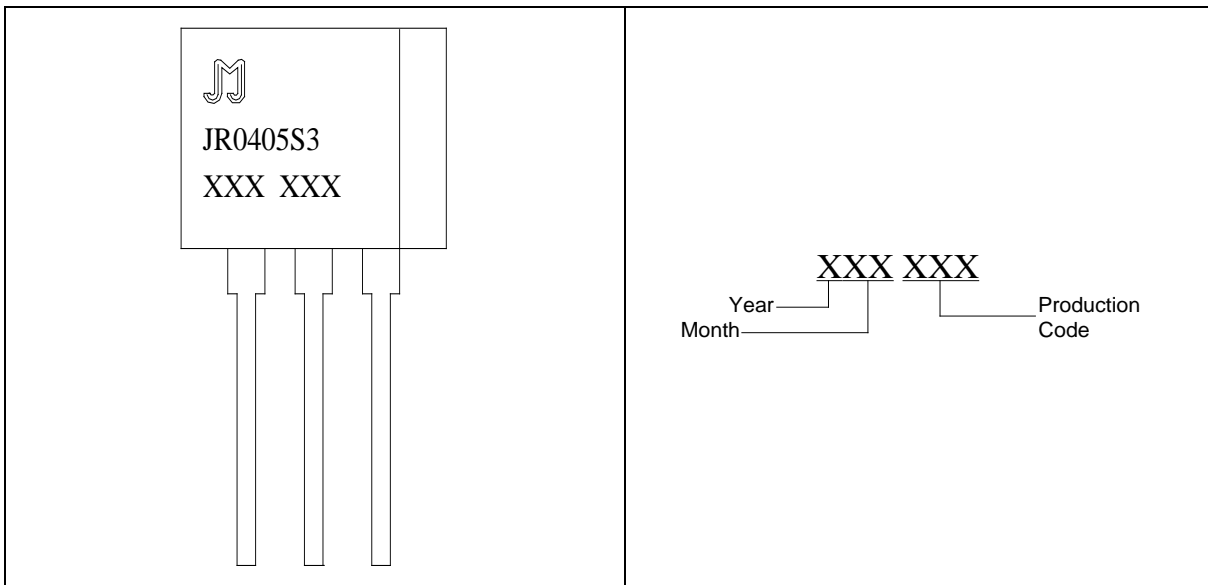
### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	7.8	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC)	80	$^{\circ}\text{C}/\text{W}$

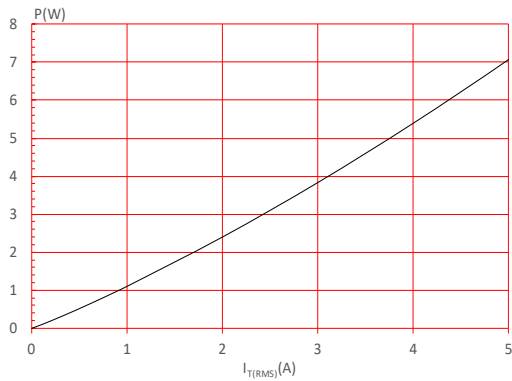
**ORDERING INFORMATION**



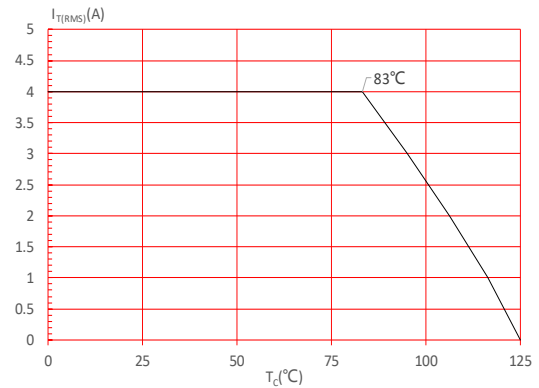
**MARKING**



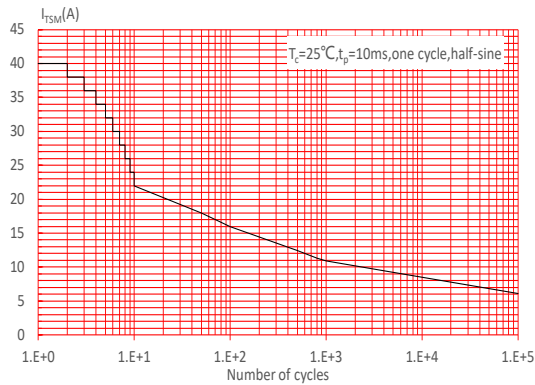
**FIG.1** Maximum power dissipation versus RMS on-state current



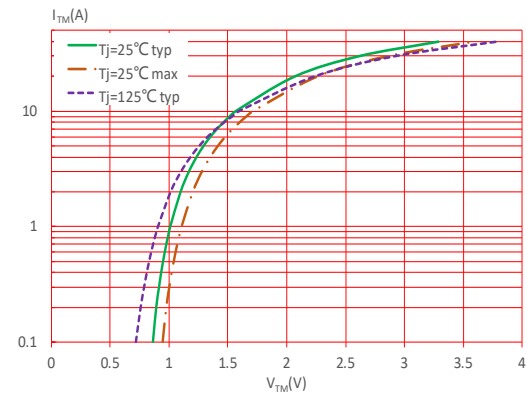
**FIG.2:** RMS on-state current versus case temperature



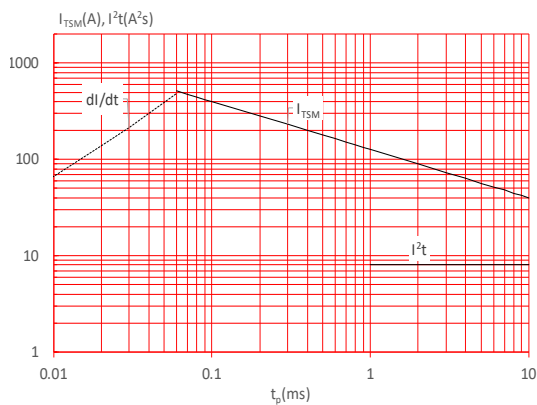
**FIG.3:** Surge peak on-state current versus number of cycles



**FIG.4:** On-state characteristics



**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

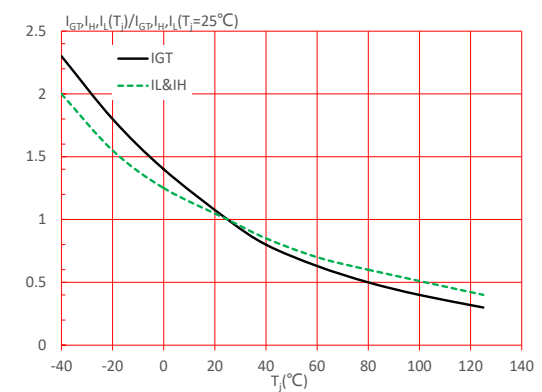
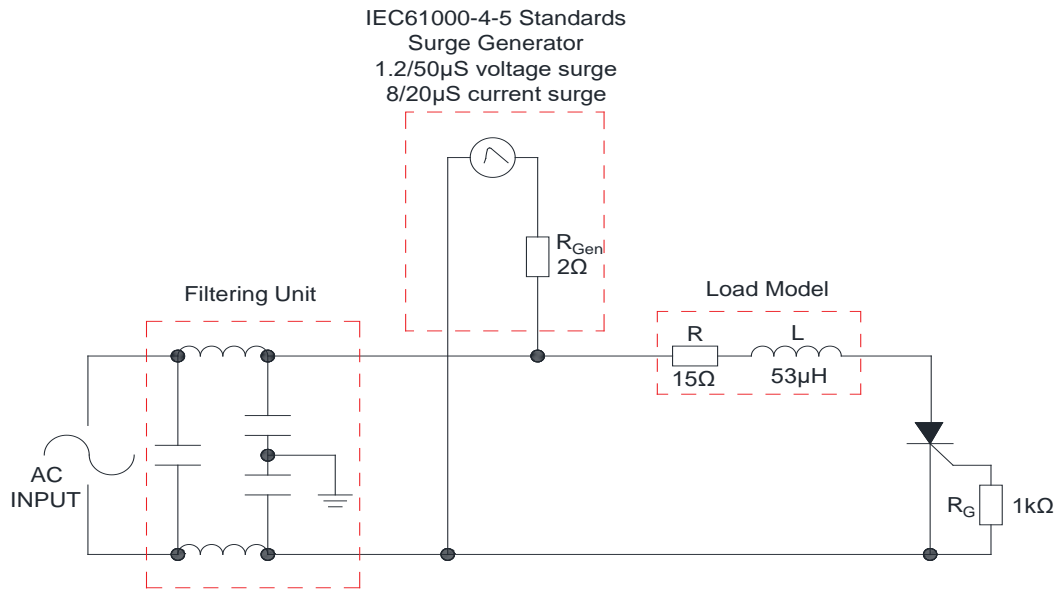


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



### SHAPING AND SOLDERING PARAMETERS

Refer to «Instructions for installation of plastic-sealed in-line power devices» released by JieJie

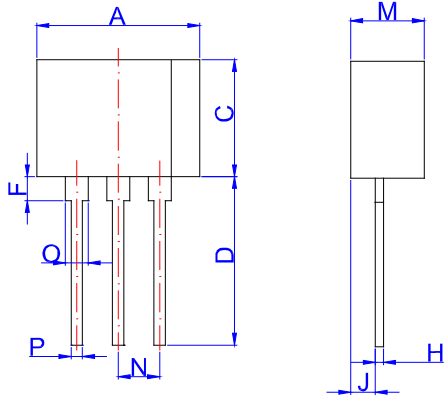
## ORDERING INFORMATION

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT( $\mu$ A)	Package	Base qty. (pcs)	Delivery mode
JR0405S3	600	$\leq 200$	TO-202-3	250	Bulk Pack

## Document Revision History

Date	Revision	Changes
Apr.10, 2023	A.1.0	Last update

**PACKAGE MECHANICAL DATA**




TO-202-3

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.50		10.0	0.374		0.394
C	7.0		7.6	0.276		0.299
D	10.0		11.0	0.394		0.433
F	1.00		1.50	0.039		0.059
H	0.45		0.55	0.018		0.022
J	1.50		1.90	0.059		0.075
M	4.40		4.70	0.173		0.185
N	2.40		2.70	0.094		0.106
O	1.15		1.45	0.045		0.057
P	0.60		0.80	0.024		0.031

**DELIVERY MODE**

PACKAGE	OUTLINE	BAG (PCS)	INNER BOX (PCS)	PER CARTON
TO-202-3	Bulk Pack	250	4,000	20,000

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