



## JX040Q Sensitive gate SCRs

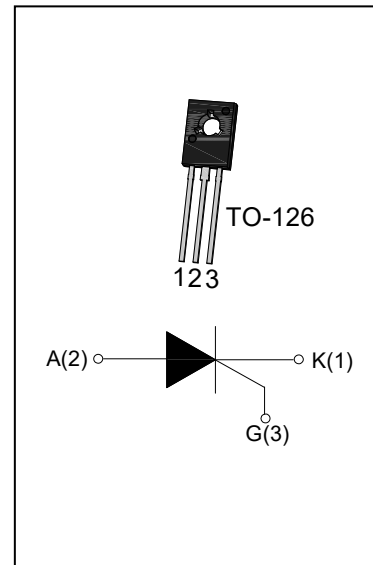
Rev.1

### DESCRIPTION:

The JX040Q 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. Package TO-126 is RoHS compliant. (2011/65/EU)

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	2	A
$I_{GT}$	< 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	$V_{DRM}$	600	V
Repetitive peak reverse voltage	$V_{RRM}$	600	V
RMS on-state current	$I_{T(RMS)}$	2	A
TO-126 ( $T_C=105^{\circ}C$ )			
Non repetitive surge peak on-state current (F=50Hz tp=10ms)	$I_{TSM}$	20	A
Non repetitive surge peak on-state current (F=60Hz tp=8.3ms)	$I_{TSM}$	22	A
$I^2t$ value for fusing (tp=10ms)	$I^2t$	2	$A^2s$
Critical rate of rise of on-state current	dI/dt	50	$A/\mu s$
Peak gate current (tp=20 $\mu s$ , $T_j=125^{\circ}C$ )	$I_{GM}$	0.2	A
Peak gate power (tp=20 $\mu s$ , $T_j=125^{\circ}C$ )	$P_{GM}$	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.	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	-	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
$I_H$	$I_T=0.05\text{A}$	-	-	5	mA
dv/dt	$V_D=400\text{V } T_j=125^{\circ}\text{C } R_{GK}=1\text{K}\Omega$	60	-	-	V/ $\mu\text{s}$
	$V_D=400\text{V } T_j=125^{\circ}\text{C } R_{GK}=220\Omega$	500	-	-	

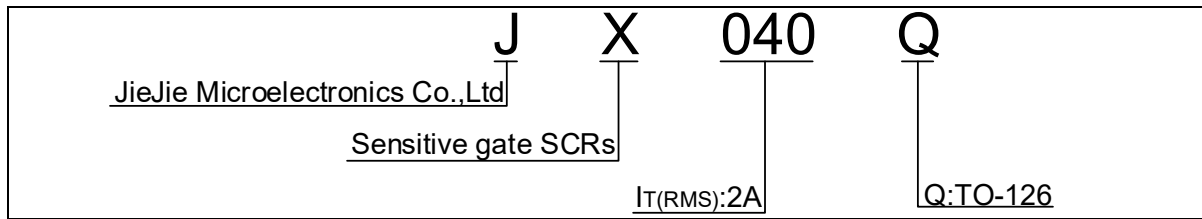
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_T=4\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^{\circ}\text{C}$	100	$\mu\text{A}$

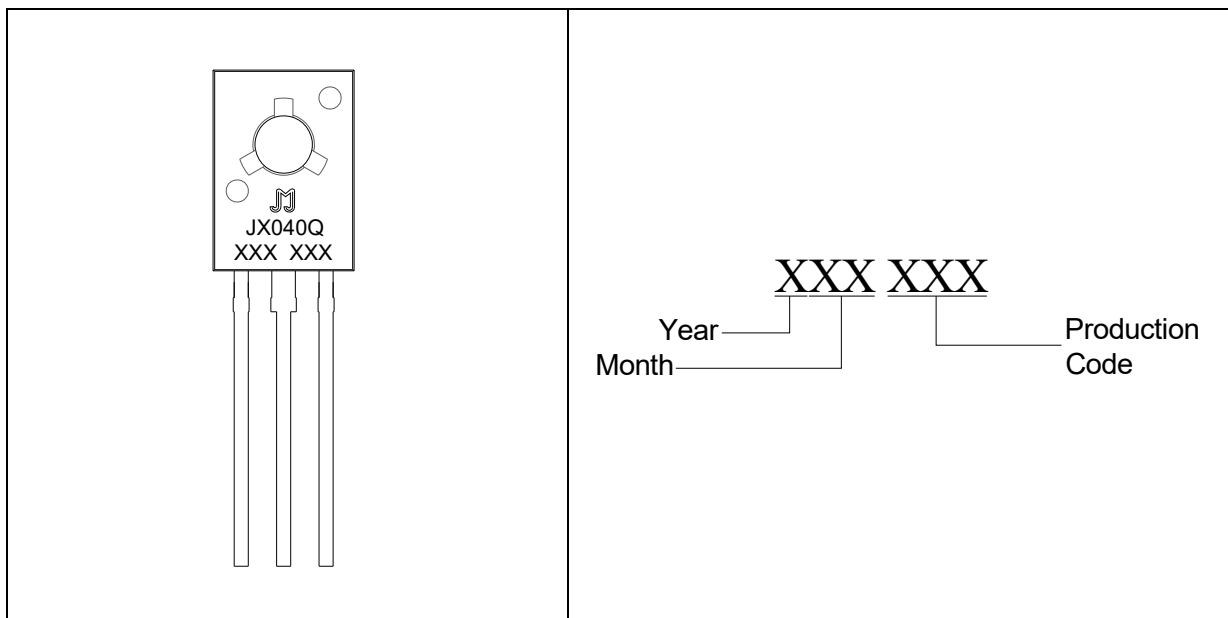
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case	TO-126	7.0	$^{\circ}\text{C/W}$

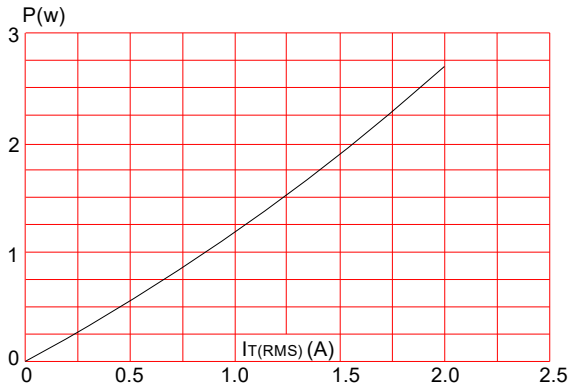
**ORDERING INFORMATION**



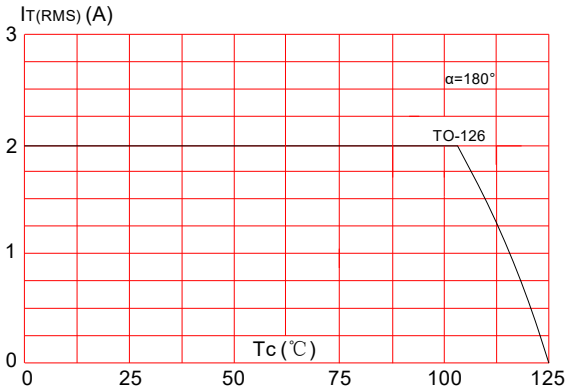
**MARKING**



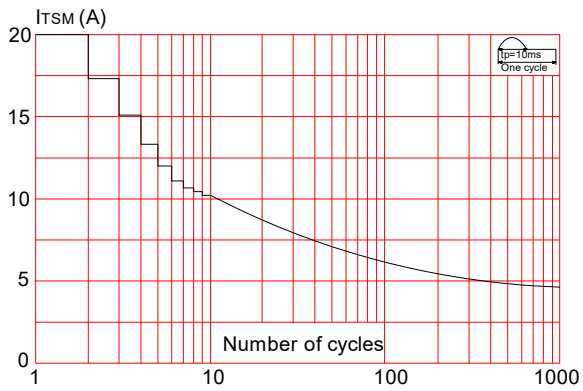
**FIG.1:** Maximum power dissipation versus RMS on-state current



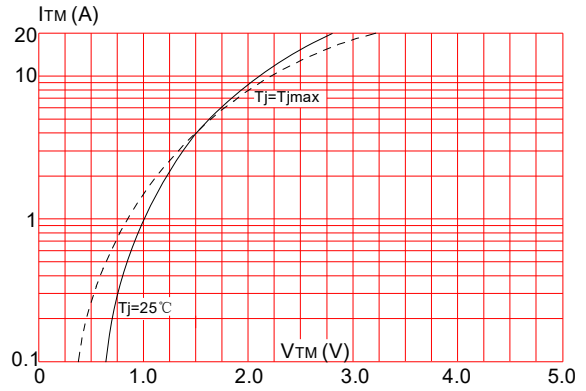
**FIG.2:** RMS on-state current versus case temperature



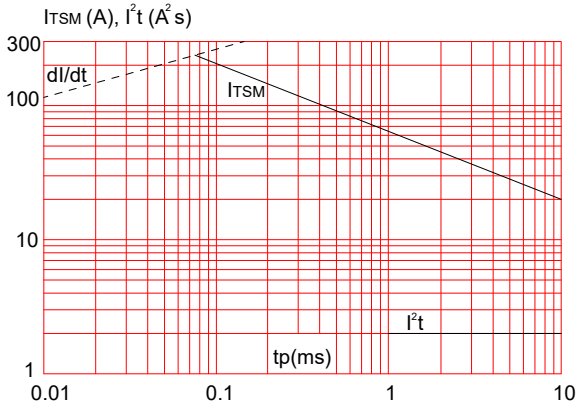
**FIG.3:** Surge peak on-state current versus number of cycles



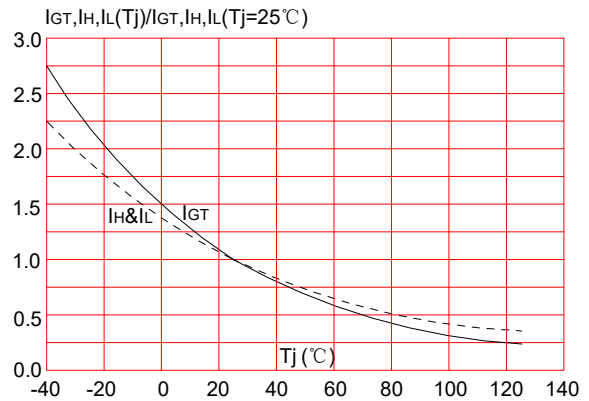
**FIG.4:** On-state characteristics (maximum values)



**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



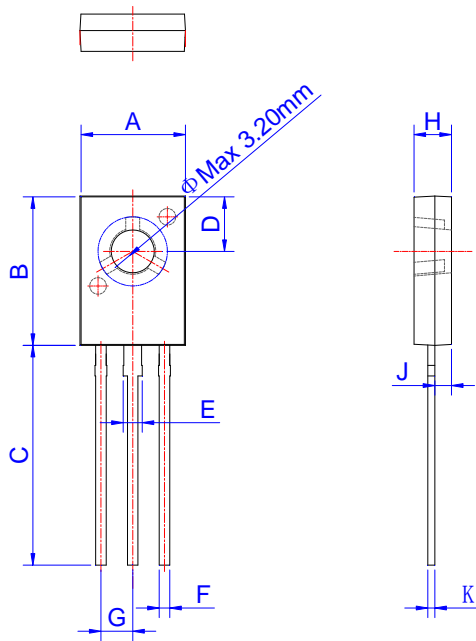
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT( $\mu$ A)	Package	Base qty. (pcs)	Delivery mode
JX040Q	600	< 200	TO-126	500	Bulk Pack

**Document Revision History**

Date	Revision	Changes
Mar 23, 2022	1	Last update

**PACKAGE MECHANICAL DATA**




Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.40		7.80	0.291		0.307
B	10.6		11.2	0.417		0.441
C	15.3		16.3	0.602		0.642
D	3.90		4.10	0.154		0.161
E	1.17		1.47	0.046		0.058
F	0.66		0.86	0.026		0.034
G		2.29			0.090	
H	2.50		2.90	0.098		0.114
J	1.10		1.50	0.043		0.059
K	0.45		0.60	0.018		0.024

**DELIVERY MODE**

PACKAGE	OUTLINE	BAG (PCS)	INNER BOX (PCS)	CARTON BOX (PCS)
TO-126	Bulk Pack	500	2,000	10,000



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