

**JX040H 4A Sensitive SCR**

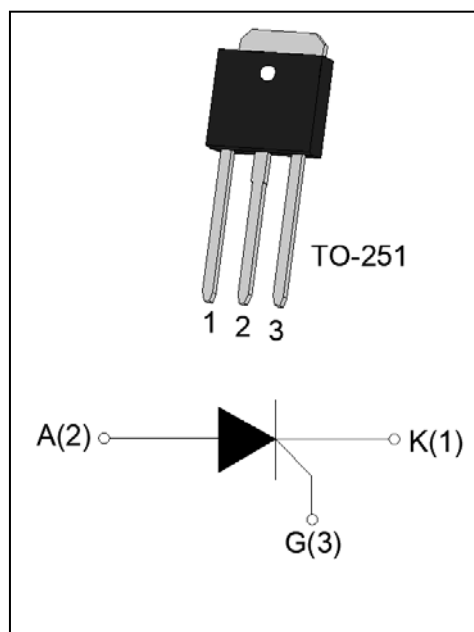
Rev.A.1.1

**DESCRIPTION:**

The JX040H SCR provides high  $dV/dt$  rate with strong resistance to electromagnetic interface. It is especially recommended for use on residual current circuit breaker, straight hair, igniter etc. Package TO-251 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 ( $T_c \leq 93^{\circ}C$ )                                                  | $I_{T(AV)}$  | 2.5                  | A           |
| RMS on-state current ( $T_c \leq 93^{\circ}C$ )                                                      | $I_{T(RMS)}$ | 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<br>( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG.7) | $V_{pp}$ | 0.5 | kV |

**NOTE 1:** Operating junction temperature  $T_j$  is up to  $125^{\circ}\text{C}$  when a resistor  $\leq 1\text{k}\Omega$  is connected between Gate and Cathode. Without this resistor, the  $T_j$  is up to  $110^{\circ}\text{C}$  only.

### 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     | $V_D=400\text{V}$ $T_j=125^{\circ}\text{C}$ $R_{GK}=1\text{k}\Omega$             | 50    | -    | -    | V/ $\mu\text{s}$ |
|           | $V_D=400\text{V}$ $T_j=125^{\circ}\text{C}$ $R_{GK}=220\Omega$                   | 200   | -    | -    |                  |
| $t_{on}$  | $I_G=10\text{mA}$ $I_A=20\text{mA}$ $I_R=2\text{mA}$<br>$T_j=25^{\circ}\text{C}$ | -     | 2    | -    | $\mu\text{s}$    |
| $t_{off}$ |                                                                                  | -     | 50   | -    | $\mu\text{s}$    |

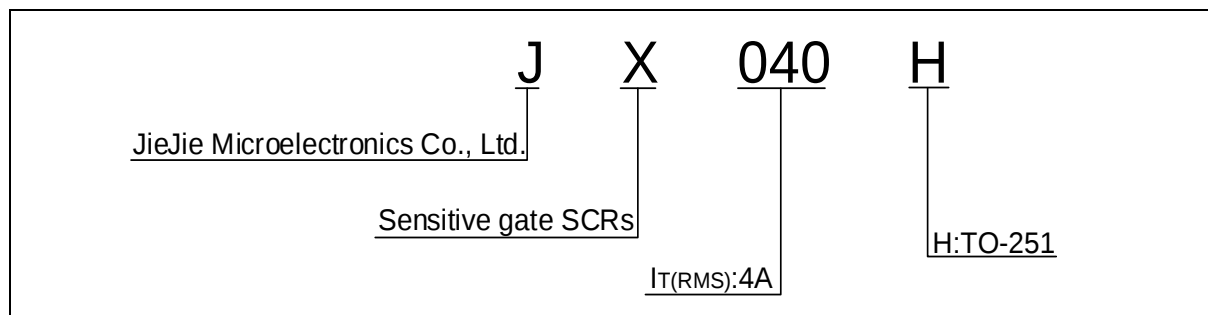
### STATIC CHARACTERISTICS

| Symbol    | Parameter                            |                           | Value(MAX.) | Unit          |
|-----------|--------------------------------------|---------------------------|-------------|---------------|
| $V_{TM}$  | $I_T=8\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.6         | V             |
| $V_{TO}$  | Threshold voltage                    | $T_j=125^{\circ}\text{C}$ | 0.8         | V             |
| $R_D$     | Dynamic Resistance                   | $T_j=125^{\circ}\text{C}$ | 0.1         | $\Omega$      |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$          | $T_j=25^{\circ}\text{C}$  | 5           | $\mu\text{A}$ |
| $I_{RRM}$ |                                      | $T_j=125^{\circ}\text{C}$ | 0.5         | mA            |

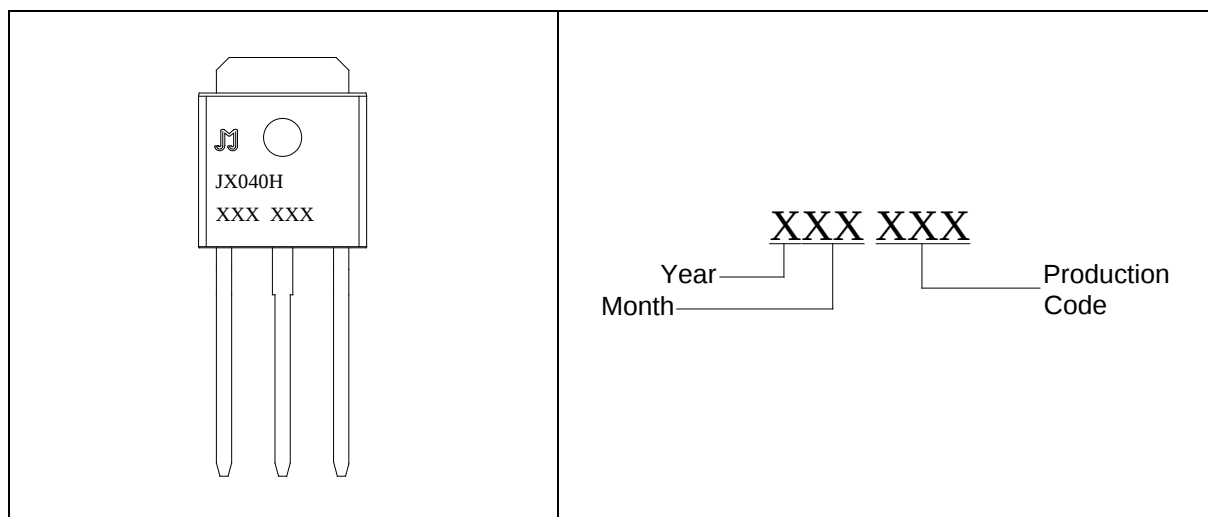
### THERMAL RESISTANCES

| Symbol        | Parameter                | Value | Unit                 |
|---------------|--------------------------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case (DC)    | 6     | $^{\circ}\text{C/W}$ |
| $R_{th(j-a)}$ | junction to ambient (DC) | 120   | $^{\circ}\text{C/W}$ |

## ORDERING INFORMATION



## MARKING



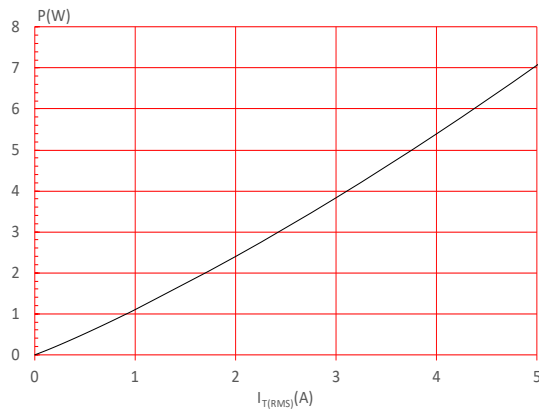
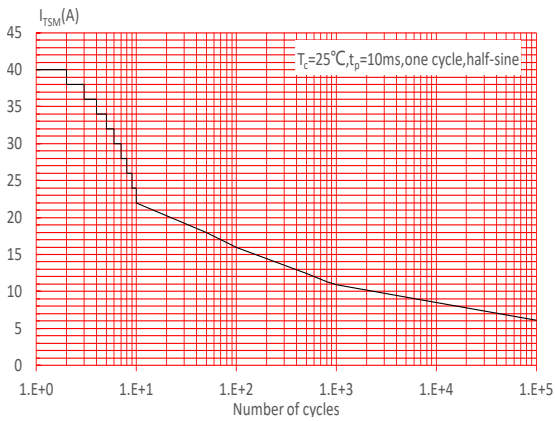
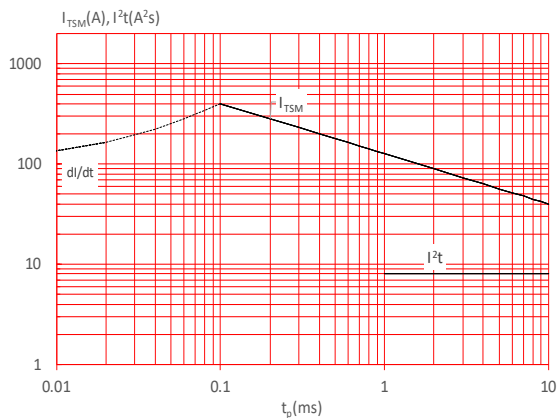
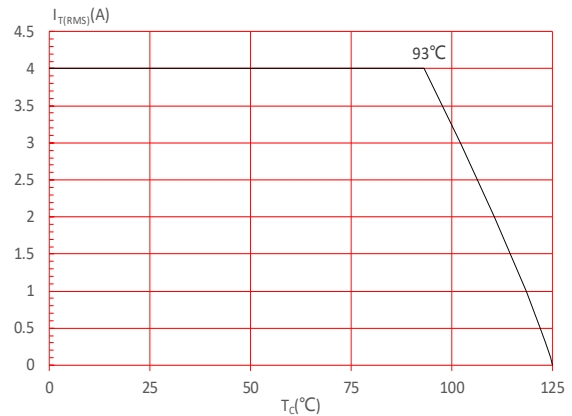
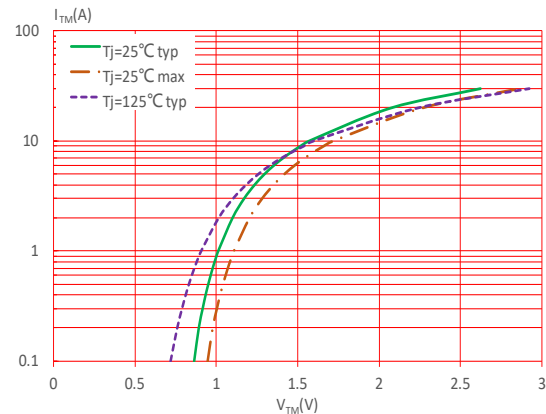
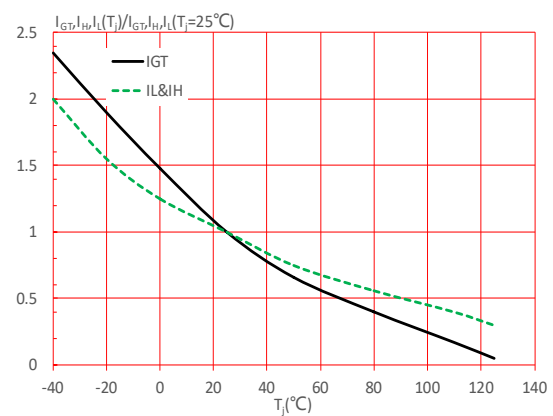
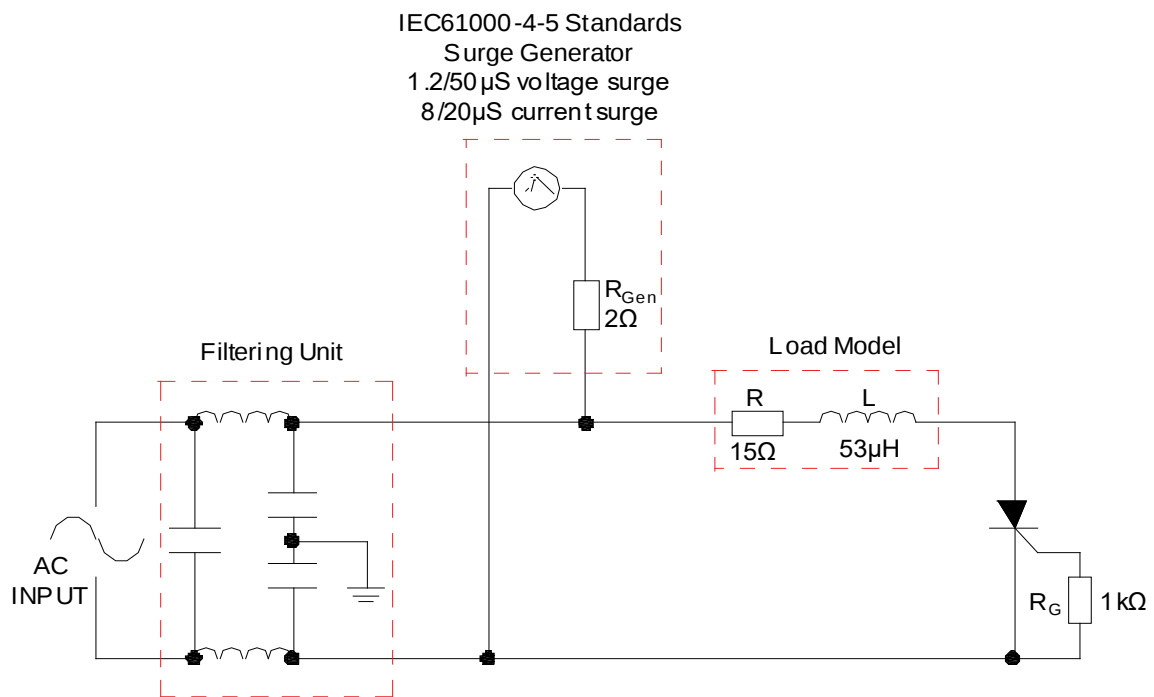
**FIG.1:** Maximum power dissipation versus RMS on-state current

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

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

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

**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.



## LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package” released by JieJie Microelectronics

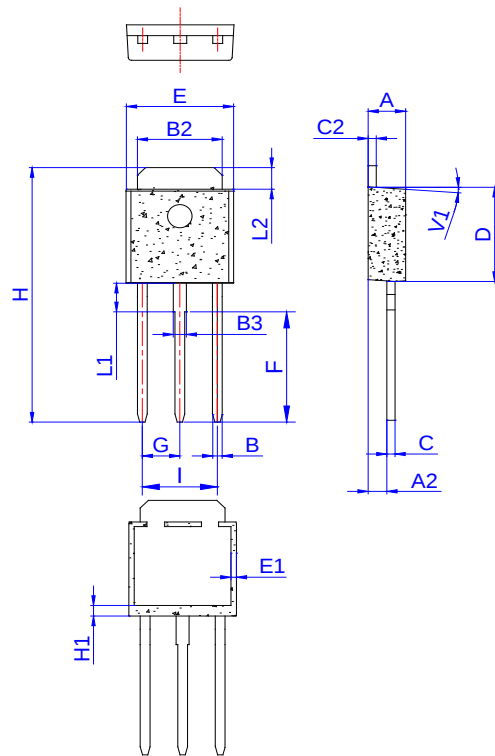
**ORDERING INFORMATION**

| Order code | Voltage<br>$V_{\text{DRM}}/V_{\text{RRM}}$ (V) | IGT( $\mu\text{A}$ ) | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|------------|------------------------------------------------|----------------------|---------|--------------------|------------------|
| JX040H     | 600                                            | $\leq 200$           | TO-251  | 80                 | Tube             |

**Document Revision History**

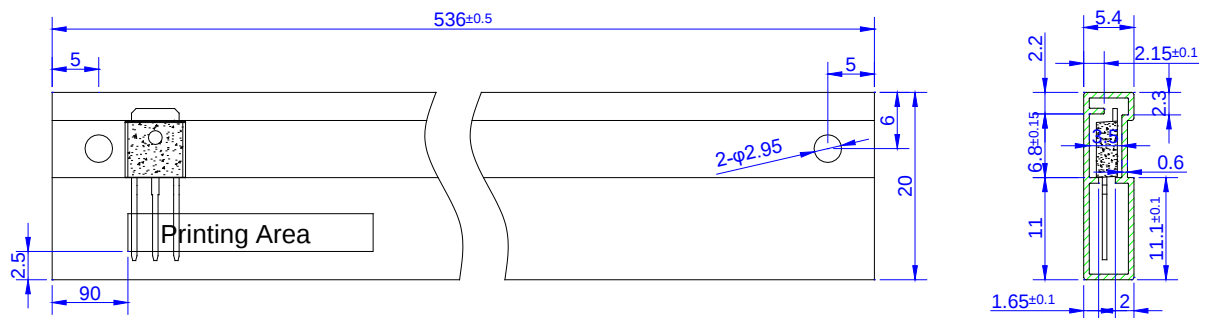
| Date         | Revision | Changes                        |
|--------------|----------|--------------------------------|
| Apr.12, 2023 | A.1.0    | Last update                    |
| Oct.16, 2025 | A.1.1    | Revise PACKAGE MECHANICAL DATA |

## PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |      |       |        |      |       |
|------|-------------|------|-------|--------|------|-------|
|      | Millimeters |      |       | Inches |      |       |
|      | Min.        | Typ. | Max.  | Min.   | Typ. | Max.  |
| A    | 2.20        |      | 2.40  | 0.086  |      | 0.095 |
| A2   | 1.00        |      | 1.30  | 0.039  |      | 0.051 |
| B    | 0.50        |      | 0.70  | 0.020  |      | 0.028 |
| B2   | 5.10        |      | 5.40  | 0.200  |      | 0.213 |
| B3   | 0.70        |      | 1.00  | 0.028  |      | 0.039 |
| C    | 0.45        |      | 0.62  | 0.018  |      | 0.024 |
| C2   | 0.48        |      | 0.62  | 0.019  |      | 0.024 |
| D    | 6.00        |      | 6.20  | 0.236  |      | 0.244 |
| E    | 6.40        |      | 6.70  | 0.252  |      | 0.264 |
| E1   | 0.60        |      | 1.00  | 0.024  |      | 0.039 |
| F    | 6.90        |      | 7.30  | 0.272  |      | 0.287 |
| G    | 2.20        |      | 2.40  | 0.087  |      | 0.094 |
| H    | 16.00       |      | 17.00 | 0.630  |      | 0.669 |
| H1   | 1.45        |      | 1.85  | 0.057  |      | 0.073 |
| I    | 4.40        |      | 4.80  | 0.173  |      | 0.189 |
| L1   | 1.80        |      | 2.20  | 0.071  |      | 0.087 |
| L2   | 1.25        |      | 1.55  | 0.049  |      | 0.061 |
| V1   |             | 4°   |       |        | 4°   |       |

## DELIVERY MODE



| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-251  | TUBE    | 80         | 4,000           | 20,000     |

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co., Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it. Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement. Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.



is a registered trademark of Jiangsu JieJie Microelectronics Co., Ltd.  
Copyright © 2025 Jiangsu JieJie Microelectronics Co., Ltd. All rights reserved.