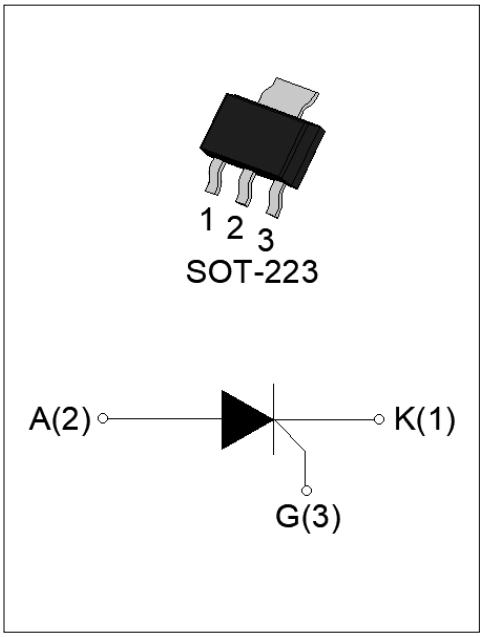
## JX020V 2A Sensitive SCR

Rev.A.1.1

### DESCRIPTION:

The JX020V 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 SOT-223 is RoHS compliant.




### MAIN FEATURES

| Symbol | Value | Unit |
|---|---|---|
| $I_{T(RMS)}$ | 2 | A |
| $V_{DRM}$ /$V_{RRM}$ | 600 | V |
| $I_{GT}$ | ≤200 | μA |

### ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Storage junction temperature range | $T_{stg}$ | -40-150 | |
| Operating junction temperature range | $T_j$ | -40-125 | |
| Repetitive peak off-state voltage ($T_j$=25 ) | $V_{DRM}$ | 600 | V |
| Repetitive peak reverse voltage ($T_j$=25 ) | $V_{RRM}$ | 600 | V |
| Average on-state current ($T_C$ 72 ) | $I_{T(AV)}$ | 1.3 | A |
| RMS on-state current ($T_C$ 72 ) | $I_{T(RMS)}$ | 2 | A |
| Non repetitive surge peak on-state current ($t_p$=10ms , $T_j$=25 ) | $I_{TSM}$ | 20 | A |
| Non repetitive surge peak on-state current ($t_p$=8.3ms , $T_j$=25 ) | | 22 | |
| $I^2t$ value for fusing ($t_p$=10ms , $T_j$=25 ) | $I^2t$ | 2 | $A^2s$ |
| Critical rate of rise of on-state current ($I_G$=2 × $I_{GT}$ , f=100Hz , $T_j$=125 ) | dI/dt | 50 | A/μs |
| Peak gate current ($t_p$=20μs, $T_j$=125 ) | $I_{GM}$ | 1.2 | A |
| Average gate power dissipation ($T_j$=125 ) | $P_{G(AV)}$ | 0.2 | W |

| | | | |
|---|---|---|---|
| Peak gate power | $P_{GM}$ | 2 | W |
| Peak pulse voltage ($T_j$=25 ; non-repetitive,off-state;FIG.8) | $V_{pp}$ | 0.5 | kV |

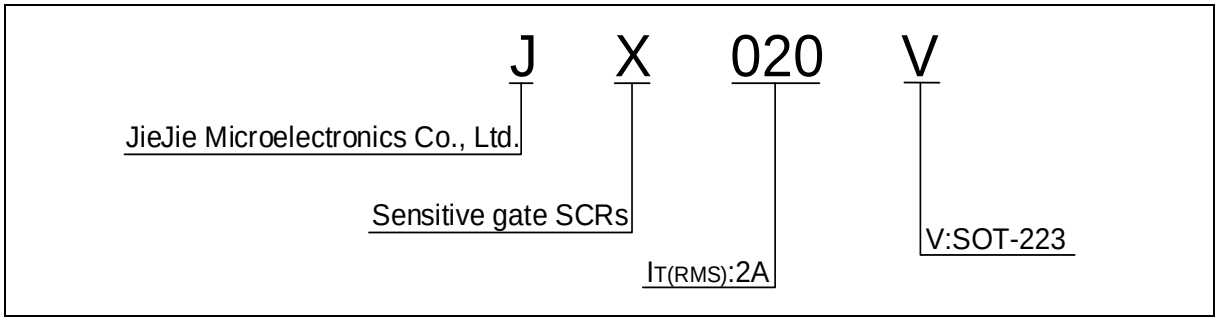
**NOTE 1:** Operating junction temperature $T_j$ is up to 125 when a resistor ≤1kΩ is connected between Gate and Cathode. Without this resistor, the $T_j$ is up to 110 only.

## ELECTRICAL CHARACTERISTICS unless otherwise specified

| Symbol | Test Condition | Value | | | Unit |
|---|---|---|---|---|---|
| | | MIN. | TYP. | MAX. | |
| $I_{GT}$ | $V_D$=12V $R_L$=33Ω | - | 50 | 200 | μA |
| $V_{GT}$ | | - | 0.6 | 0.8 | V |
| $V_{GD}$ | $V_D$=$V_{DRM}$ $T_j$=125 | 0.2 | - | - | V |
| $I_L$ | $I_G$=1.2 $I_{GT}$ | - | - | 6 | mA |
| $I_H$ | $I_T$=0.05A | - | - | 5 | mA |
| dV/dt | $V_D$=400V $T_j$=125 $R_{GK}$=1kΩ | 20 | - | - | V/μs |
| | $V_D$=400V $T_j$=125 $R_{GK}$=220Ω | 100 | - | - | |
| $t_{on}$ | $I_G$=10mA $I_A$=20mA $I_R$=2mA $T_j$=25 | - | 2 | - | μs |
| $t_{off}$ | | - | 50 | - | μs |

## STATIC CHARACTETI

## ORDERING INFORMATION




## MARKING

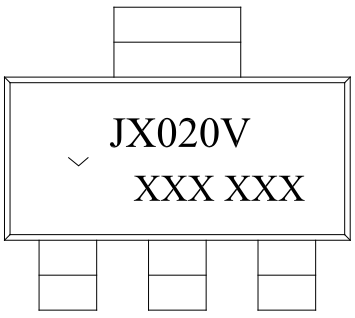
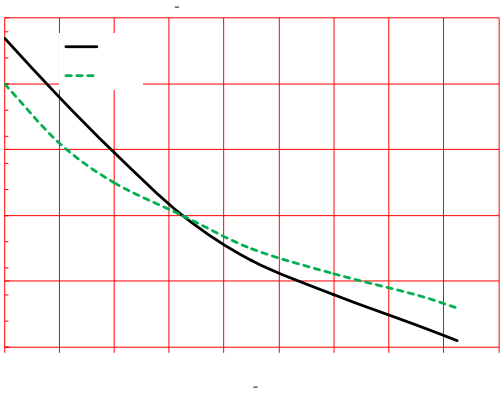


**FIG.1:** Maximum power dissipation versus RMS on-state current



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

**FIG.7:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



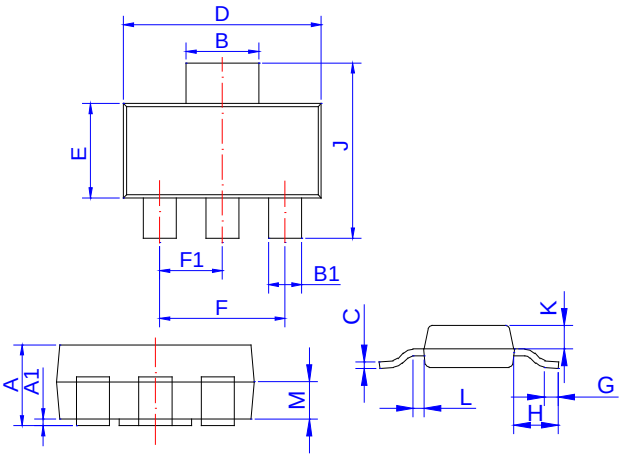
## ORDERING INFORMATION

| Order code | Voltage $V_{DRM}/V_{RRM}$ (V) | IGT § | Package | Base qty. (pcs) | Delivery mode |
|---|---|---|---|---|---|
| JX020V | 600 | ” | SOT-223 | 4,000 | Tape & Reel |

### Document Revision History

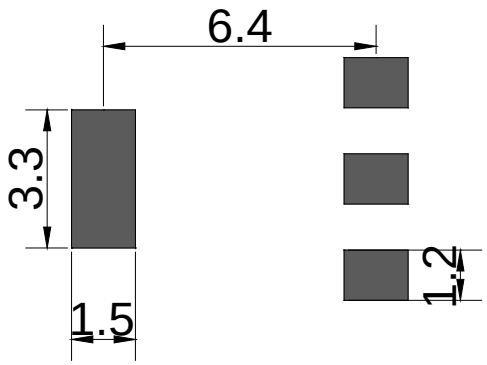
| Date | Revision | Changes |
|---|---|---|
| Apr.12, 2023 | A.1.0 | Last update |
| Oct.23, 2025 | A.1.1 | Revise PACKAGE MECHANICAL DATA |

## PACKAGE MECHANICAL DATA

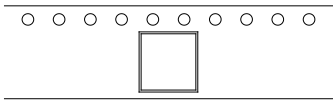



| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.50 | 1.60 | 1.80 | 0.059 | 0.063 | 0.071 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| B | 2.90 | 3.00 | 3.10 | 0.114 | 0.118 | 0.122 |
| B1 | 0.60 | 0.70 | 0.80 | 0.024 | 0.028 | 0.031 |
| C | 0.22 | 0.26 | 0.32 | 0.009 | 0.010 | 0.013 |
| D | 6.30 | 6.50 | 6.70 | 0.248 | 0.256 | 0.264 |
| E | 3.30 | 3.50 | 3.70 | 0.130 | 0.138 | 0.146 |
| F | 4.40 | | 4.80 | 0.173 | | 0.189 |
| F1 | 2.20 | | 2.40 | 0.087 | | 0.094 |
| G | 0.50 | | 1.00 | 0.020 | | 0.039 |
| H | 1.50 | 1.75 | 2.00 | 0.059 | 0.069 | 0.079 |
| J | 6.70 | 7.00 | 7.30 | 0.264 | 0.276 | 0.287 |
| K | 0.80 | | 1.00 | 0.031 | | 0.039 |
| L | 0.40 | | 0.80 | 0.016 | | 0.031 |
| M | 0.65 | | 0.80 | 0.026 | | 0.031 |

## FOOTPRINT-SOT-223 (dimensions in mm)



## DELIVERY MODE



| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| W | - | | 12.30 | - | | 0.482 |
| E | 1.65 | 1.75 | 1.85 | 0.065 | 0.069 | 0.073 |
| F | 5.45 | 5.50 | 5.55 | 0.215 | 0.217 | 0.219 |
| D0 | | 1.55 | 1.60 | | 0.061 | 0.063 |
| D1 | | - | - | | | |
| P0 | 3.90 | 4.00 | 4.10 | 0.154 | 0.157 | 0.161 |
| P1 | 7.90 | 8.00 | 8.10 | 0.311 | 0.315 | 0.319 |
| P2 | 1.95 | 2.00 | 2.05 | 0.077 | 0.079 | 0.081 |
| 10P0 | 39.80 | 40.00 | 40.20 | 1.567 | 1.575 | 1.583 |
| A0 | 6.85 | 6.95 | 7.05 | 0.269 | 0.273 | 0.276 |
| B0 | 7.15 | 7.25 | 7.35 | 0.280 | 0.284 | 0.288 |
| K0 | 1.95 | 2.05 | 2.15 | 0.076 | 0.080 | 0.084 |
| T | 0.20 | 0.25 | 0.30 | 0.008 | 0.010 | 0.012 |