



## JR0205N2 2A SCR

Rev.A.1.0

### DESCRIPTION:

The JR0205N2 SCR with the parallel resistor between Gate and Cathode,  $R_{GK}$  is especially recommended for use on straight hair, igniter, anion generator, etc. Package SOT-89-2L is RoHS compliant.

### MAIN FEATURES

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

### 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 ( $T_c$ 58 )          | $I_{T(AV)}$  | 1.3     | A    |
| RMS on-state current ( $T_c$ 58 )              | $I_{T(RMS)}$ | 2       | A    |

10m

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

**NOTE 1:** When we parallel connect a 1K resistor between Gate and Cathode, the  $T_j$  can reach 125 ; if without this resistor, the  $T_j$  only can reach 110 .

## ELECTRICAL CHARACTERISTICS

unless otherwise specified

| Symbol    | Test Condition                | Value |      |      | Unit |
|-----------|-------------------------------|-------|------|------|------|
|           |                               | MIN.  | TYP. | MAX. |      |
| $I_{GT}$  | $V_D=12V R_L=33$              | -     | 40   | 200  | A    |
| $V_{GT}$  |                               | -     | 0.5  | 0.8  | V    |
| $V_{GD}$  | $V_D=V_{DRM} T_j=125$         | 0.2   | -    | -    | V    |
| $I_L$     | $I_G=1.2 I_{GT}$              | -     | -    | 3    | mA   |
| $I_H$     | $I_T=0.1A$                    | -     | -    | 2    | mA   |
| dV/dt     | $V_D=400V T_j=125 R_{GK}=1K$  | 50    | -    | -    | V s  |
|           | $V_D=400V T_j=125 R_{GK}=220$ | 250   | -    | -    |      |
| $t_{on}$  | $I_G=10mA I_A=20mA I_R=2mA$   | -     | 2    | -    | s    |
| $t_{off}$ | $T_j=25$                      | -     | 50   | -    |      |

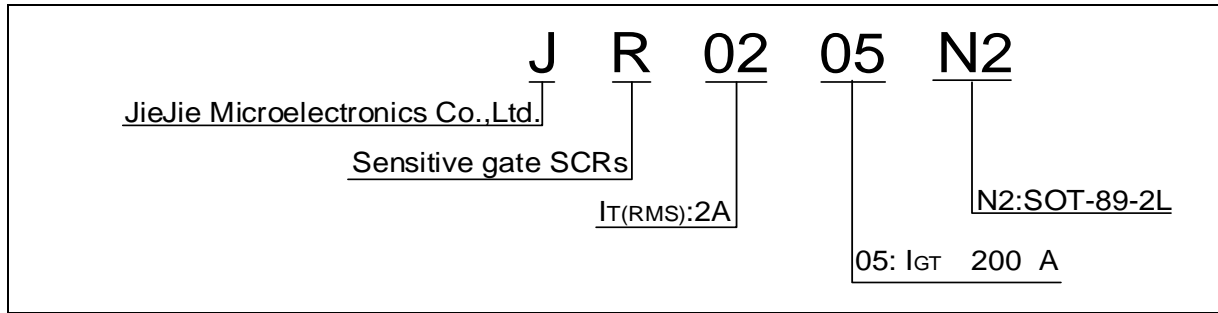
## STATIC CHARACTERISTICS

| Symbol    | Parameter                 |           | Value(MAX.) | Unit |
|-----------|---------------------------|-----------|-------------|------|
| $V_{TM}$  | $I_{TM}=4A t_p=380 s$     | $T_j=25$  | 1.5         | V    |
| $V_{TO}$  | Threshold voltage         | $T_j=125$ | 0.73        | V    |
| $R_D$     | Dynamic resistance        | $T_j=125$ | 0.14        |      |
| $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25$  | 5           | A    |
| $I_{RRM}$ |                           | $T_j=125$ | 0.2         | mA   |

## THERMAL RESISTANCES

| Symbol        | Parameter   | Value | Unit |
|---------------|---|-------|------|
| $R_{th(j-c)}$ | junction to case (DC)                             | 25    | /W   |
| $R_{th(j-a)}$ | junction to ambient (DC, in free air, $S=5cm^2$ ) | 100   | /W   |

**ORDERING INFORMATION**



**MARKING**

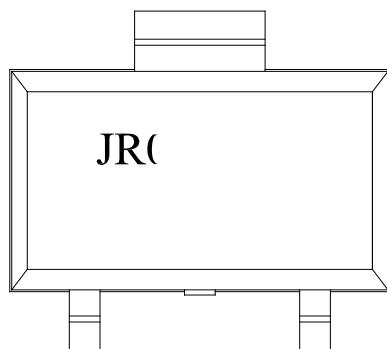




FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

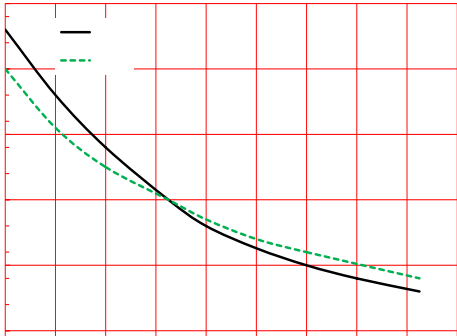
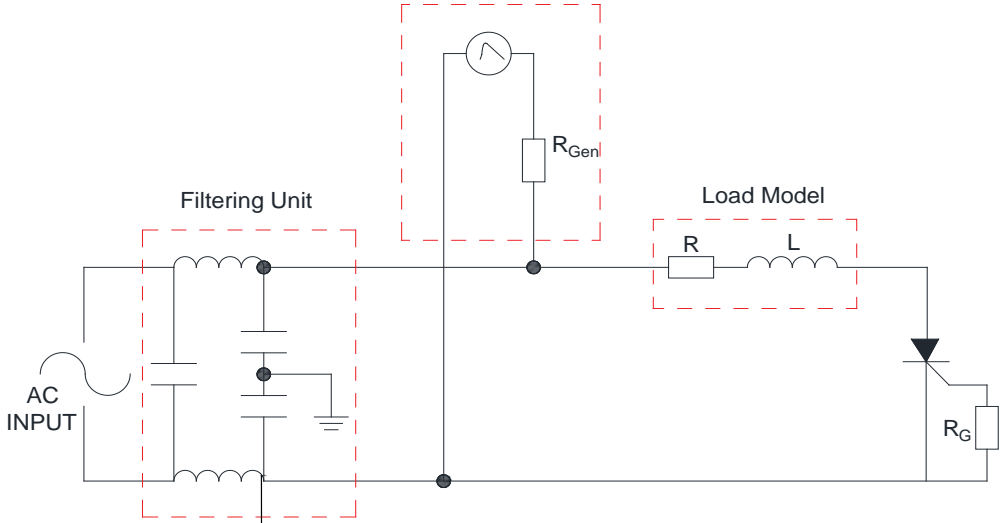


FIG.8 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

IEC61000-4-5 Standards  
Surge Generator



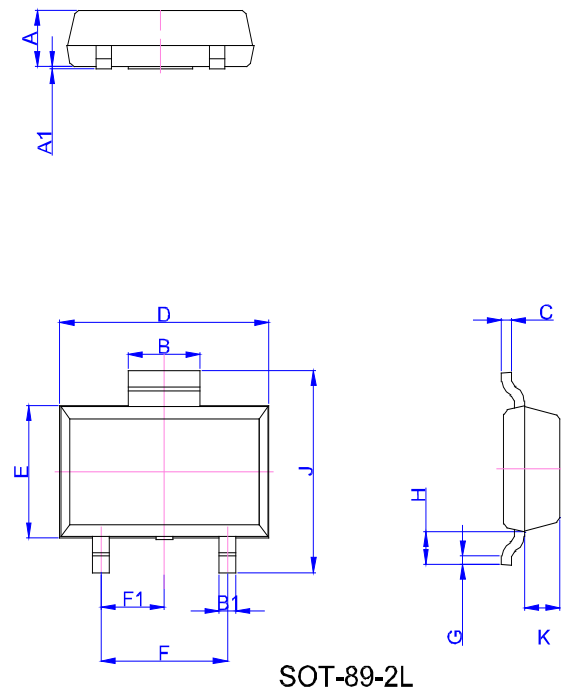
**ORDERING INFORMATION**

| Order code | Voltage<br>$V_{DRM}/V_{RRM}$ (V) | IGT( $\mu$ A) | Package   | Base qty.<br>(pcs) | Delivery<br>mode |
|------------|----------------------------------|---------------|-----------|--------------------|------------------|
| JR0205N2   | 600                              | $\leq 200$    | SOT-89-2L | 4,000              | Tape & Reel      |

**Document Revision History**

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

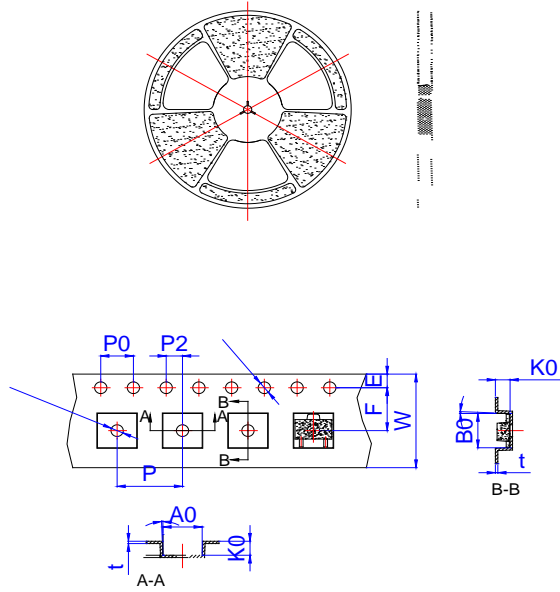
**PACKAGE MECHANICAL DATA**



| Ref. | Dimensions  |       |      |        |       |       |
|------|-------------|-------|------|--------|-------|-------|
|      | Millimeters |       |      | Inches |       |       |
|      | Min.        | Typ.  | Max. | Min.   | Typ.  | Max.  |
| A    | 1.3         | 1.4   | 1.5  | 0.051  | 0.055 | 0.059 |
| A1   | 0.01        | 0.06  | 0.10 | 0.001  | 0.002 | 0.004 |
| B    | 1.6         | 1.7   | 1.8  | 0.063  | 0.067 | 0.071 |
| B1   | 0.3         | 0.4   | 0.5  | 0.012  | 0.016 | 0.020 |
| C    | 0.22        | 0.254 | 0.32 | 0.009  | 0.010 | 0.013 |
| D    | 4.75        | 4.95  | 5.15 | 0.187  | 0.195 | 0.203 |
| E    | 2.90        |       | 3.30 | 0.114  |       | 0.130 |
| F    |             |       |      | 0.110  |       |       |
| F1   | 1.40        |       |      | 0.055  |       |       |
| G    | 0.20        | 0.30  | 0.40 | 0.008  | 0.012 | 0.016 |
| H    | 0.58        | 0.78  | 0.98 | 0.023  | 0.031 | 0.039 |
| J    | 4.30        | 4.50  | 4.70 | 0.169  | 0.177 | 0.185 |
| K    | 0.80        |       |      | 0.031  |       |       |




DELIVERY MODE



| Ref. | Dimensions  |       |       |        |       |       |
|------|-------------|-------|-------|--------|-------|-------|
|      | Millimeters |       |       | Inches |       |       |
|      | Min.        | Typ.  | Max.  | Min.   | Typ.  | Max.  |
| 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 |
| P2   | 1.90        | 2.00  | 2.10  | 0.075  | 0.079 | 0.082 |
| D    | -           | 1.50  | 1.60  | -      | 0.059 | 0.063 |
| D1   | 1.50        | -     | -     | 0.059  | -     | -     |
| P0   | 3.90        | 4.00  | 4.10  | 0.154  | 0.157 | 0.161 |
| 10P0 | 39.80       | 40.00 | 40.20 | 1.567  | 1.575 | 1.583 |
| W    | -           | -     | 12.30 | -      | -     | 0.482 |
| P    | 7.90        | 8.00  | 8.10  | 0.311  | 0.315 | 0.319 |
| A0   | 5.20        | 5.30  | 5.40  | 0.204  | 0.208 | 0.212 |
| B0   | 4.80        | 4.90  | 5.00  | 0.188  | 0.192 | 0.196 |
| K0   | 1.75        | 1.85  | 1.95  | 0.069  | 0.073 | 0.076 |
| t    | 0.20        | 0.25  | 0.30  | 0.008  | 0.010 | 0.012 |
|      | 3°          |       | 5°    | 3°     |       | 5°    |

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