

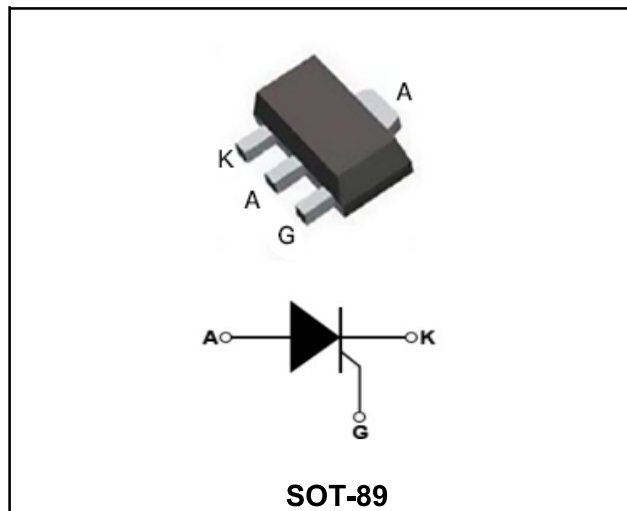
## 2.0A Sensitive Gate SCRs

### Product Summary

| Symbol            | Value | Unit    |
|-------------------|-------|---------|
| $I_{T(RMS)}$      | 2.0   | A       |
| $V_{DRM} V_{RRM}$ | 600   | V       |
| $I_{GT}$          | 200   | $\mu A$ |

### Features

With high ability to withstand the shock loading of large current,  
Provide high dv/dt rate with strong resistance to electromagnetic interference.



### Application

Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.

### Absolute maximum ratings ( $T_a=25^{\circ}C$ unless otherwise noted)

| Parameter                                                           | Symbol       | Value     | Unit        |
|---------------------------------------------------------------------|--------------|-----------|-------------|
| Repetitive peak off-state voltage                                   | $V_{DRM}$    | 600       | V           |
| Repetitive peak reverse voltage                                     | $V_{RRM}$    | 600       | V           |
| RMS on-state current                                                | $I_{T(RMS)}$ | 3         | A           |
| Non repetitive surge peak on-state current (full cycle, F=50Hz)     | $I_{TSM}$    | 20        | A           |
| $I^2t$ value for fusing ( $t_p=10ms$ )                              | $I^2t$       | 2         | $A^2s$      |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ ) | $di_T/dt$    | 50        | A/ps        |
| Peak gate current                                                   | $I_{GM}$     | 0.2       | A           |
| Average gate power dissipation                                      | $P_G (AV)$   | 0.1       | W           |
| Junction Temperature                                                | $T_J$        | -40 ~+110 | $^{\circ}C$ |
| Storage Temperature                                                 | $T_{STG}$    | -40 ~+150 | $^{\circ}C$ |

### Electrical characteristics (TA=25°C, unless otherwise noted)

| Parameter                                    | Symbol    | Test Condition                                           | Value |     | Unit    |
|----------------------------------------------|-----------|----------------------------------------------------------|-------|-----|---------|
|                                              |           |                                                          | Min   | Max |         |
| Gate trigger current                         | $I_{GT}$  | $V_D=12V I_T=10mA T_j=25^{\circ}C$                       | 10    | 200 | $\mu A$ |
| Gate trigger voltage                         | $V_{GT}$  |                                                          | -     | 0.8 | V       |
| Gate non-trigger voltage                     | $V_{GD}$  | $V_D=1/2V_{DRM} T_j=110^{\circ}C$                        | 0.2   | -   | V       |
| latching current                             | $I_L$     | $V_D=12V I_G=0.5mA$<br>$R_{GK}=1k\Omega T_j=25^{\circ}C$ | -     | 3   | mA      |
| Holding current                              | $I_H$     |                                                          | -     | 4   | mA      |
| Critical-rate of rise of commutation voltage | $dV_D/dt$ | $V_D=2/3V_{DRM}$ Gate Open $T_j=110^{\circ}C$            | 10    | -   | V/ps    |

### STATIC CHARACTERISTICS

|                                   |           |                           |                    |   |      |         |
|-----------------------------------|-----------|---------------------------|--------------------|---|------|---------|
| Forward "on" voltage              | $V_{TM}$  | $I_{TM}=4A t_p=380ps$     |                    | - | 1.55 | V       |
| Repetitive Peak Off-State Current | $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25^{\circ}C$  | - | 5    | $\mu A$ |
| Repetitive Peak Reverse Current   | $I_{RRM}$ |                           | $T_j=110^{\circ}C$ | - | 0.1  | mA      |

### THERMAL RESISTANCES

|                    |               |                     |      |    |               |
|--------------------|---------------|---------------------|------|----|---------------|
| Thermal resistance | $R_{th(j-c)}$ | Junction to case    | TYP. | 20 | $^{\circ}C/W$ |
|                    | $R_{th(j-a)}$ | Junction to ambient | TYP. | 60 | $^{\circ}C/W$ |

Typical Characteristics

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

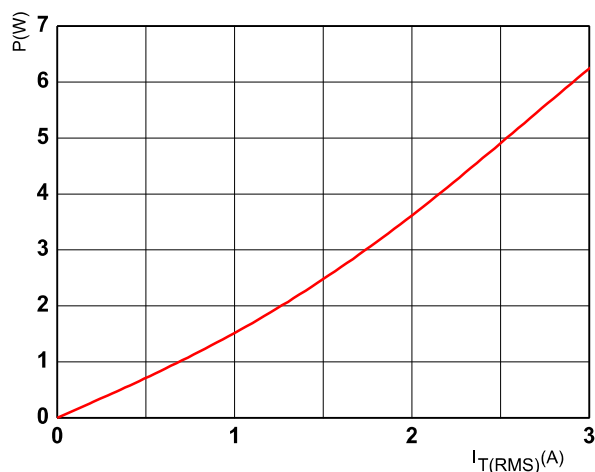


FIG.2: RMS on-state current versus case temperature (full cycle)

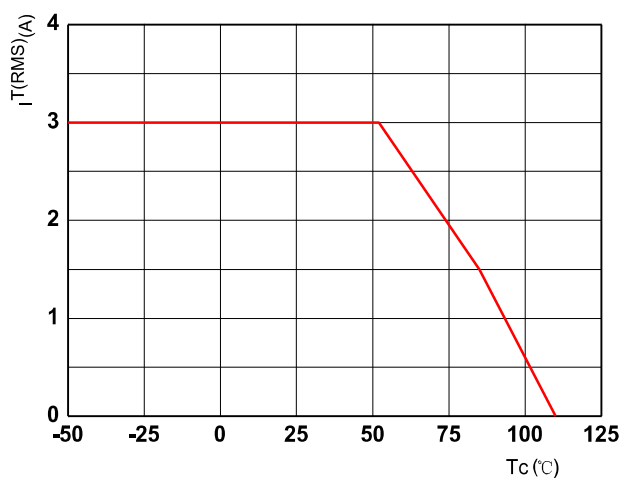


FIG.3: Surge peak on-state current versus number of cycles

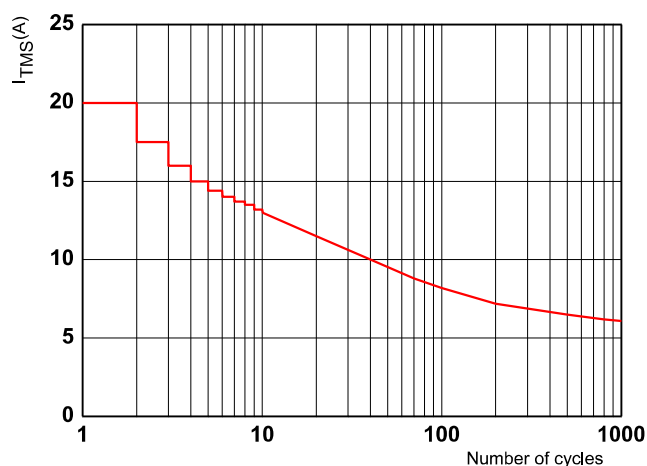


FIG.4: On-state characteristics (maximum values)

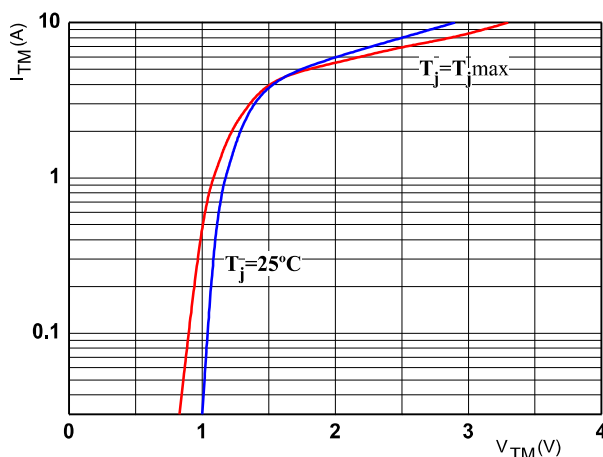


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$

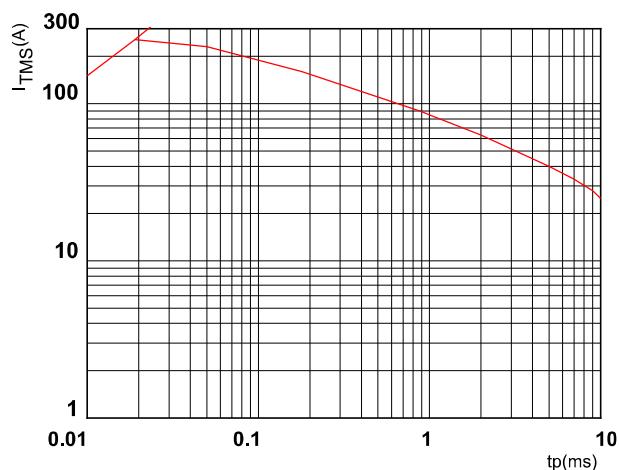
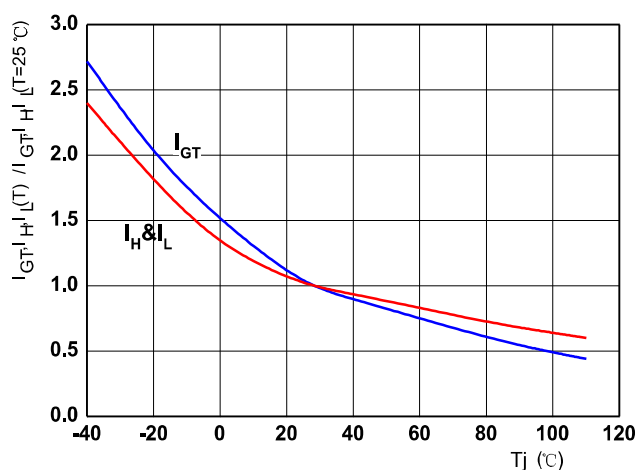


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



**Ordering information**

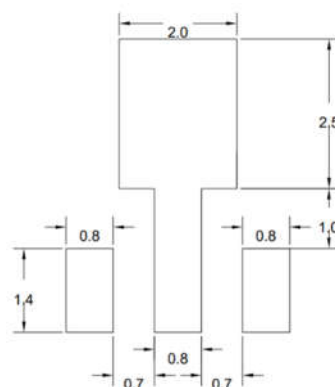
| Package | Packing Description | Base Quantity | Packing Quantity            |
|---------|---------------------|---------------|-----------------------------|
| SOT-89  | Tape/Reel, 7" reel  | 1000pcs/Reel  | 6000PCS/Box 30000PCS/Carton |

**Package Dimensions**

**SOT-89**

| Dim | Millimeter |      | Inches |       |
|-----|------------|------|--------|-------|
|     | Min.       | Max. | Min.   | Max.  |
| A   | 1.40       | 1.60 | 0.055  | 0.063 |
| b   | 0.32       | 0.52 | 0.013  | 0.020 |
| b1  | 0.38       | 0.58 | 0.015  | 0.023 |
| c   | 0.35       | 0.45 | 0.014  | 0.018 |
| D   | 4.40       | 4.60 | 0.173  | 0.181 |
| D1  | 1.45       | 1.65 | 0.057  | 0.065 |
| D2  | 1.70       | 1.80 | 0.067  | 0.071 |
| E   | 2.30       | 2.60 | 0.091  | 0.102 |
| E1  | 3.95       | 4.25 | 0.156  | 0.167 |
| E2  | 1.80       | 2.00 | 0.071  | 0.079 |
| e   | 1.40       | 1.60 | 0.055  | 0.063 |
| e1  | 2.80       | 3.20 | 0.110  | 0.126 |
| L   | 0.90       | 1.20 | 0.035  | 0.047 |

**The recommended mounting pad size**



UNIT:MM

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