

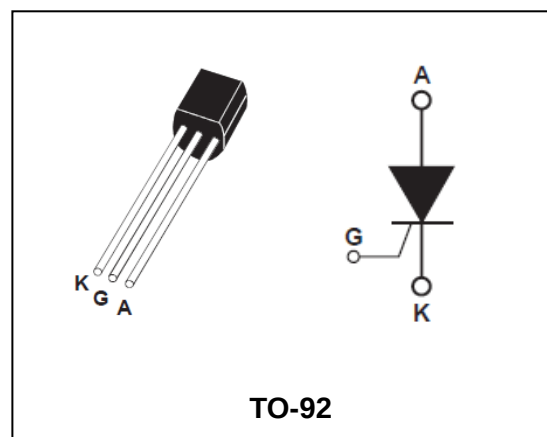
## 400V, 0.8A Sensitive Gate SCRs

### Features

- Repetitive Peak Off-State Voltage : 400V
- R.M.S On-State Current :  $I_{T(RMS)}=0.8A$
- Low On-state Voltage :  $V_{TM}=1.2V(Typ.)$

### General Description

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits. Supplied in an inexpensive plastic TO-92 package which is readily adaptable for use in automatic insertion equipment.



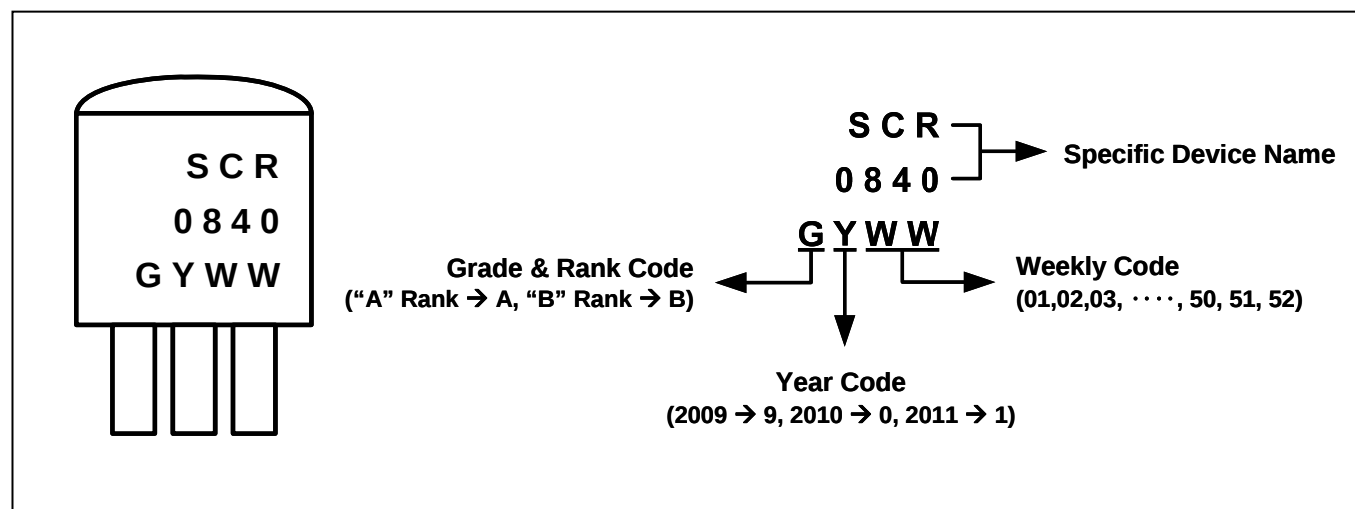
### Product Characteristics

|              |      |
|--------------|------|
| $I_{T(RMS)}$ | 0.8A |
| $V_{DRM}$    | 400V |
| $V_{TM}$     | 1.2V |

### Ordering Information

| Device  | Marking Code | Package | Packaging |
|---------|--------------|---------|-----------|
| SCR0840 | SCR0840      | TO-92   | Ammo Tape |

### Marking Information



**Absolute Maximum Ratings** (T<sub>j</sub>=25°C unless otherwise specified)

| Symbol              | Parameter                                                           | Ratings | Unit             |
|---------------------|---------------------------------------------------------------------|---------|------------------|
| V <sub>DRM</sub>    | Repetitive Peak Off-State Voltage                                   | 400     | V                |
| I <sub>T(RMS)</sub> | R.M.S On-State Current (180° conduction angles)                     | 0.8     | A                |
| I <sub>T(AV)</sub>  | Average On-State Current<br>(Half Sine Wave : T <sub>C</sub> =74°C) | 0.5     | A                |
| I <sub>TSM</sub>    | Surge On-State Current<br>(1/2 Cycle, 60Hz, Peak, Non Repetitive)   | 10      | A                |
| I <sup>2</sup> t    | Circuit Fusing Considerations (t=8.3mS)                             | 0.415   | A <sup>2</sup> s |
| P <sub>GM</sub>     | Forward Peak Gate Power Dissipation (Ta=25°C)                       | 0.1     | W                |
| P <sub>G(AV)</sub>  | Forward Average Gate Power Dissipation<br>(Ta=25°C, t=8.3mS)        | 0.10    | W                |
| V <sub>RGM</sub>    | Reverse Peak Gate Voltage                                           | 5       | V                |
| I <sub>FGM</sub>    | Forward Peak Gate Current                                           | 1       | A                |
| T <sub>STG</sub>    | Storage Temperature Range                                           | -40~125 | °C               |
| T <sub>j</sub>      | Operating Junction Temperature                                      | -40~125 | °C               |

**Thermal Characteristics**

| Symbol               | Parameter          | Test Conditions     | Min. | Typ. | Max. | Unit |
|----------------------|--------------------|---------------------|------|------|------|------|
| R <sub>th(J-C)</sub> | Thermal Resistance | Junction to Case    | -    | -    | 1.3  | °C/W |
| R <sub>th(J-A)</sub> | Thermal Resistance | Junction to Ambient | -    | 60   | -    | °C/W |

\*R<sub>th(J-A)</sub> : t= 10sec

**Electrical Characteristics** (Ta=25°C)

| Symbol           |   | Parameter                            | Test Conditions                                                                                                                                               | Min. | Typ. | Max.       | Unit     |
|------------------|---|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|----------|
| I <sub>GT</sub>  | A | Gate Trigger Current <sup>(1)</sup>  | V <sub>AK</sub> =7V, R <sub>L</sub> =100Ω                                                                                                                     | -    | -    | 200        | μA       |
|                  | B |                                      |                                                                                                                                                               | 15   | -    | 30         |          |
| V <sub>GT</sub>  |   | Gate Trigger Voltage <sup>(1)</sup>  | V <sub>AK</sub> =7V, R <sub>L</sub> =100Ω, Ta=25°C<br>V <sub>AK</sub> =7V, R <sub>L</sub> =100Ω, Ta=-40°C                                                     | -    | -    | 0.8<br>1.2 | V<br>V   |
| V <sub>GD</sub>  |   | Non Trigger Gate Voltage             | V <sub>AK</sub> =12V, R <sub>L</sub> =100Ω, Ta=125°C                                                                                                          | 0.2  | -    | -          | V        |
| I <sub>H</sub>   |   | Holding Current                      | V <sub>AK</sub> =12V, Gate open,<br>Initiating current=50mA<br>Ta=25°C<br>Ta=-40°C                                                                            | -    | 2    | 5<br>10    | mA<br>mA |
| I <sub>DRM</sub> |   | Repetitive Peak<br>Off-Stage Current | V <sub>AK</sub> =V <sub>DRM</sub> or V <sub>RRM</sub> , T <sub>C</sub> =25°C<br>V <sub>AK</sub> =V <sub>DRM</sub> or V <sub>RRM</sub> , T <sub>C</sub> =125°C | -    | -    | 10<br>200  | μA<br>μA |
| V <sub>TM</sub>  |   | Peak On-Stage Voltage <sup>(2)</sup> | I <sub>TM</sub> =1A, Peak                                                                                                                                     | -    | 1.2  | 1.7        | V        |

(1) R<sub>GK</sub> Current is not included in measurement

(2) Forward current applied for 1ms maximum duration, duty cycle ≤1%

# Electrical Characteristic Curves

Fig. 1  $I_{GT}$  - Junction Temperature

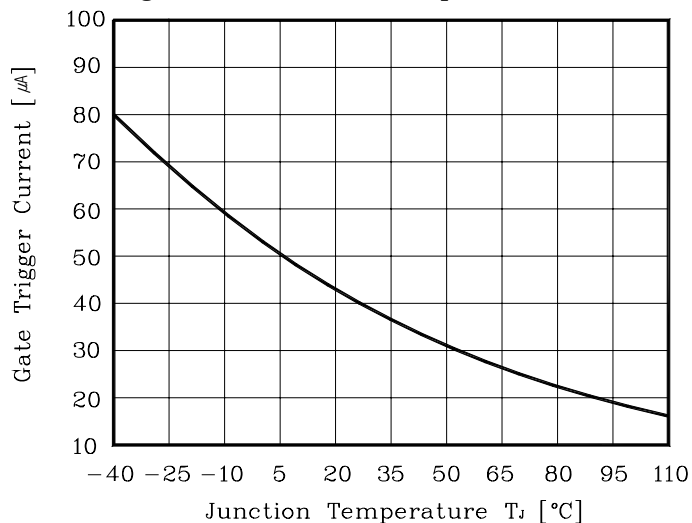


Fig. 2  $V_{GT}$  - Junction Temperature

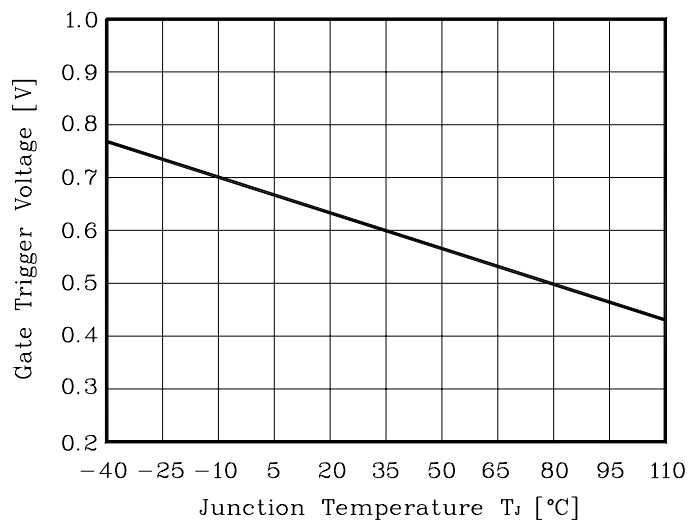


Fig. 3  $I_H$  - Junction Temperature

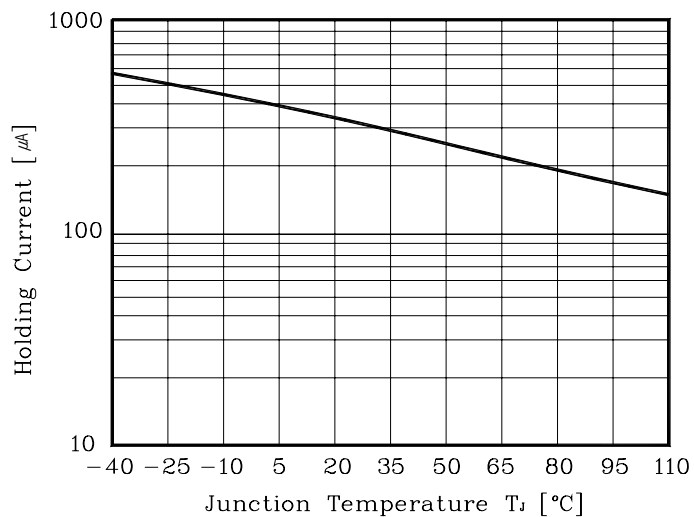


Fig. 4  $I_L$  - Junction Temperature

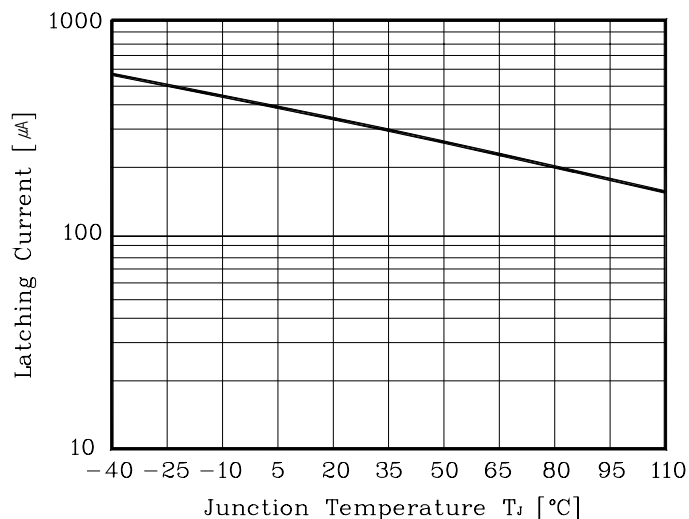


Fig. 5 Current Derating [ Ref. : Case Temp. ]

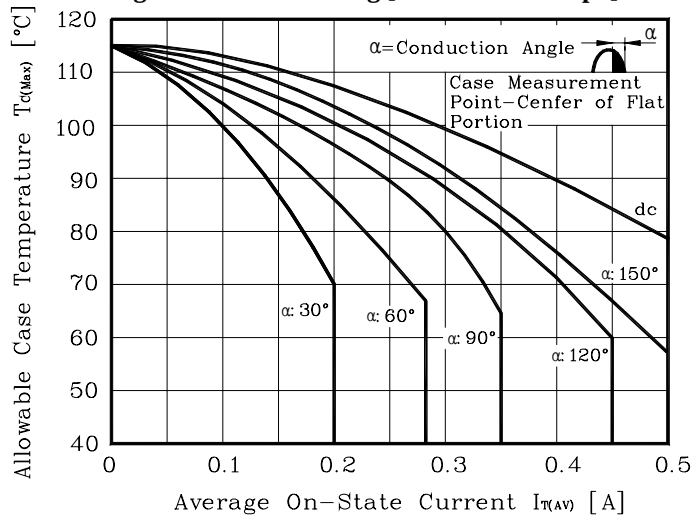
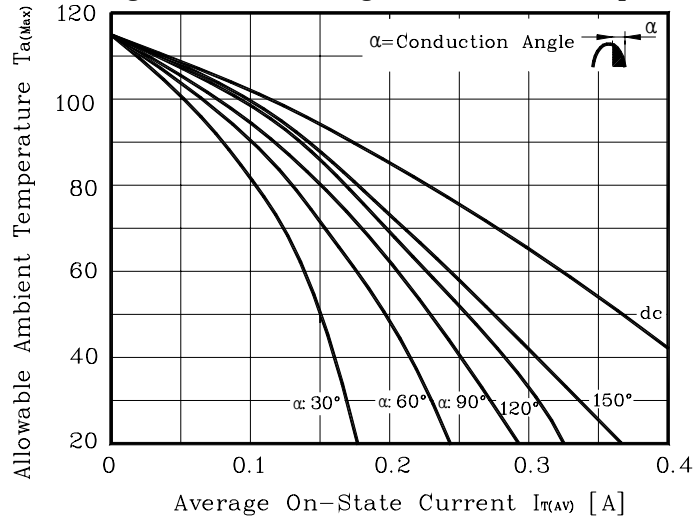
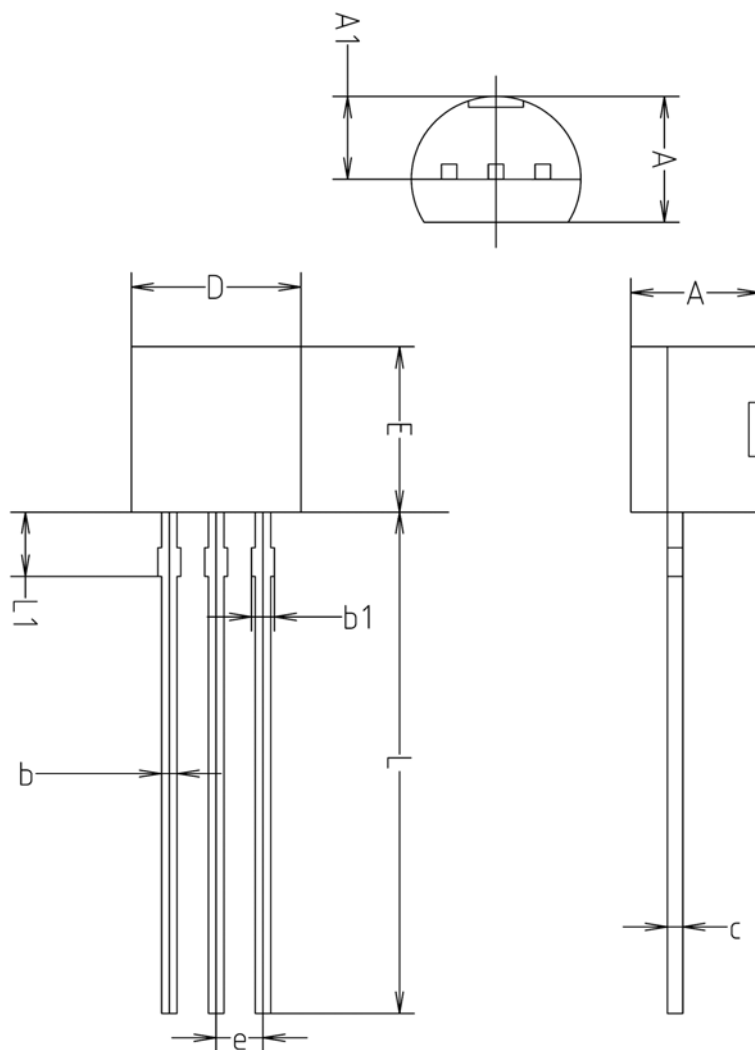


Fig. 6 Current Derating [ Ref. : Ambient Temp ]



# Package Outline Dimension



| SYMBOL | MILLIMETERS(mm) |         |         |
|--------|-----------------|---------|---------|
|        | MINIMUM         | NOMINAL | MAXIMUM |
| A      | 3.40            | 3.50    | 3.66    |
| A1     | 2.46            | 2.51    | 2.59    |
| b      | 0.39            | 0.44    | 0.53    |
| b1     | 0.39            | —       | 0.63    |
| c      | 0.35            | 0.42    | 0.47    |
| D      | 4.48            | 4.60    | 4.70    |
| E      | 4.48            | 4.60    | 4.70    |
| e      | 1.17            | 1.27    | 1.37    |
| L      | 13.70           | 14.00   | 14.77   |
| L1     | 1.55            | 1.70    | 2.15    |

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