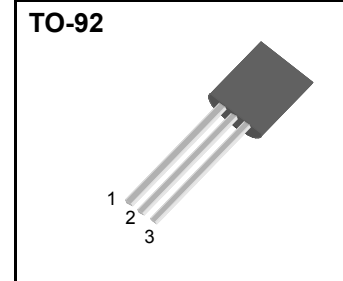
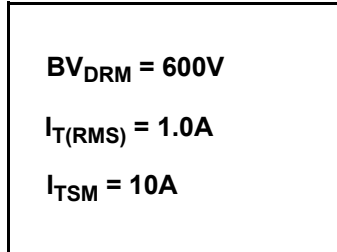
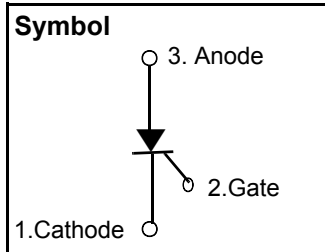


Sensitive Gate Silicon Controlled Rectifiers



Features

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 1.0 A$)
- ◆ Low On-State Voltage (1.3V(Typ.))

General Description

Sensitive-gate triggering thyristor is suitable for the application where gate current limited such as small motor control, gate driver for large thyristor, sensing and detecting circuits.

This device may substitute for MCR100-6, MCR100-8 series.

Absolute Maximum Ratings ($T_J = 25^\circ C$ unless otherwise specified)

| Symbol | Parameter | Condition | Ratings | Units |
|--------------|--|---|------------|------------|
| V_{DRM} | Repetitive Peak Off-State Voltage | sine wave, 50 to 60Hz | 600 | V |
| $I_{T(AV)}$ | Average On-State Current | half sine wave : $T_C = 83^\circ C$ | 0.5 | A |
| $I_{T(RMS)}$ | R.M.S On-State Current | All Conduction Angle | 1.0 | A |
| I_{TSM} | Surge On-State Current | 1/2 Cycle, 60Hz, sine wave non-repetitive , $t = 8.3ms$ | 10 | A |
| I^2t | I^2t for Fusing | $t = 8.3ms$ | 0.415 | A^2s |
| P_{GM} | Forward Peak Gate Power Dissipation | $T_A = 25^\circ C$, pulse width $\leq 1.0\mu s$ | 2 | W |
| $P_{G(AV)}$ | Forward Average Gate Power Dissipation | $T_A = 25^\circ C$, $t = 8.3ms$ | 0.1 | W |
| I_{FGM} | Forward Peak Gate Current | $T_A = 25^\circ C$, pulse width $\leq 1.0\mu s$ | 1 | A |
| V_{RGM} | Reverse Peak Gate Voltage | $T_A = 25^\circ C$, pulse width $\leq 1.0\mu s$ | 5.0 | V |
| T_J | Operating Junction Temperature | | - 40 ~ 110 | $^\circ C$ |
| T_{STG} | Storage Temperature | | - 40 ~ 150 | $^\circ C$ |

CR100-8



Electrical Characteristics ($T_j = 25\text{ }^\circ\text{C}$ unless otherwise noted)

| Symbol | Items | Conditions | Ratings | | | Unit |
|----------------------|---|--|---------|--------|-----------|---------------------------|
| | | | Min. | Typ. | Max. | |
| I_{DRM} | Repetitive Peak Off-State Current | $V_{\text{AK}} = V_{\text{DRM}}$ or V_{RRM} ; $R_{\text{GK}} = 1000\ \Omega$ $T_{\text{C}} = 25\text{ }^\circ\text{C}$ $T_{\text{C}} = 110\text{ }^\circ\text{C}$ | — — | — — | 10 100 | μA |
| V_{TM} | Peak On-State Voltage (1) | ($I_{\text{TM}} = 1\ \text{A}$, Peak) | — | 1.3 | 1.7 | V |
| I_{GT} | Gate Trigger Current (2) | $V_{\text{AK}} = 12\ \text{V}$, $R_{\text{L}} = 100\ \Omega$ | — | -- | 200 | μA |
| V_{GT} | Gate Trigger Voltage (2) | $V_{\text{D}} = 12\ \text{V}$, $R_{\text{L}} = 100\ \Omega$ | -- | -- | 0.8 | V |
| V_{GD} | Non-Trigger Gate Voltage (1) | $V_{\text{AK}} = 12\ \text{V}$, $R_{\text{L}} = 100\ \Omega$ $T_j = 125\text{ }^\circ\text{C}$ | 0.2 | — | — | V |
| dv/dt | Critical Rate of Rise Off-State Voltage | | 10 | -- | -- | $\text{V}/\mu\text{s}$ |
| di/dt | Critical Rate of Rise On-State Voltage | $I_{\text{TM}} = 2\ \text{A}$; $I_{\text{g}} = 10\ \text{mA}$ | — | — | 50 | $\text{A}/\mu\text{s}$ |
| I_{H} | Holding Current | $V_{\text{AK}} = 12\ \text{V}$, Gate Open Initiating Current = 20mA | --- | 0.8 | 10 | mA |
| $R_{\text{th(j-c)}}$ | Thermal Impedance | Junction to case | — | — | 60 | $^\circ\text{C}/\text{W}$ |
| $R_{\text{th(j-a)}}$ | Thermal Impedance | Junction to Ambient | — | — | 150 | $^\circ\text{C}/\text{W}$ |



Fig 1. Gate Characteristics

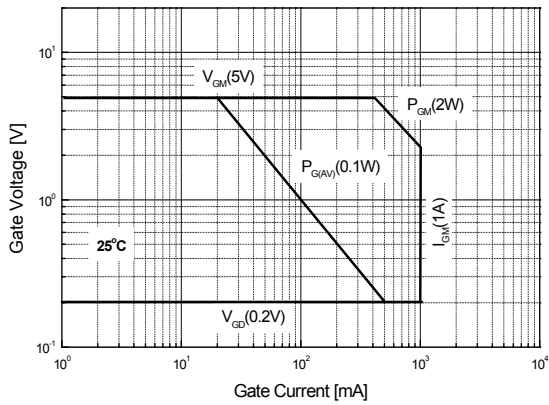


Fig 2. Maximum Case Temperature

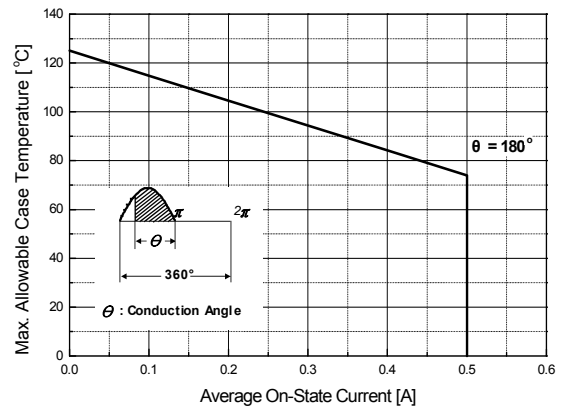


Fig 3. Typical Forward Voltage

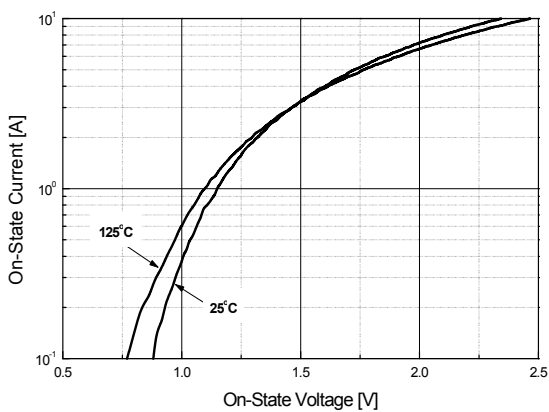


Fig 4. Thermal Response

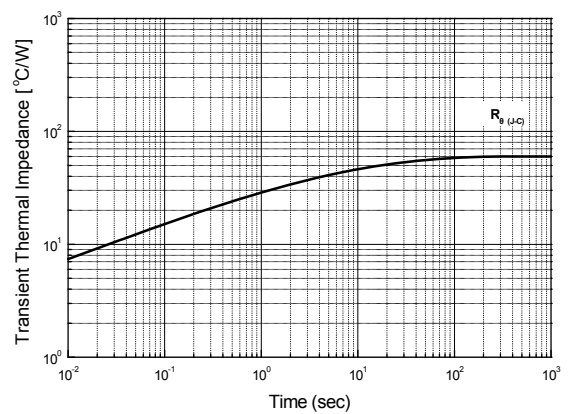


Fig 5. Typical Gate Trigger Voltage vs.

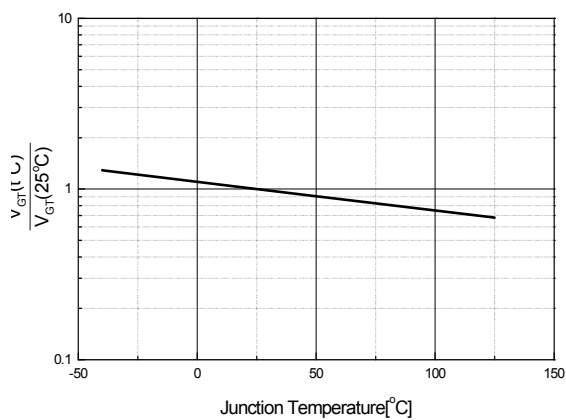
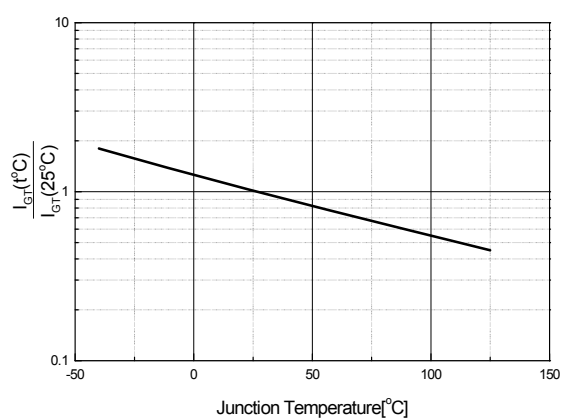


Fig 6. Typical Gate Trigger Current vs. Junction Temperature





CR100-8

Fig 7. Typical Holding Current

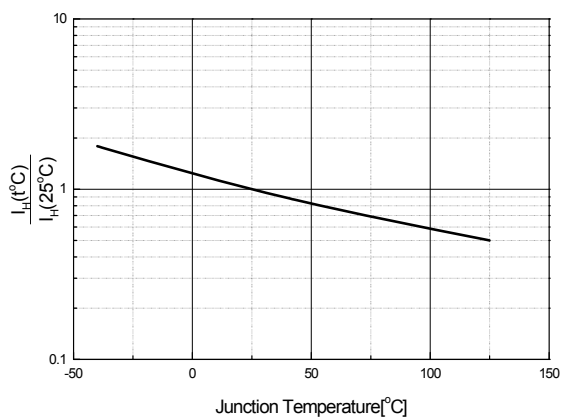
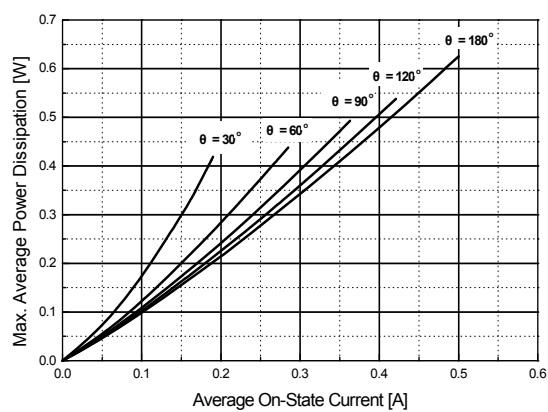


Fig 8. Power Dissipation





TO-92 Package Dimension

| Dim. | mm | | | Inch | | |
|------|-------|------|-------|-------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | | 4.2 | | | 0.165 | |
| B | | | 3.7 | | | 0.146 |
| C | 4.43 | | 4.83 | 0.174 | | 0.190 |
| D | 14.07 | | 14.87 | 0.554 | | 0.585 |
| E | | | 0.4 | | | 0.016 |
| F | 4.43 | | 4.83 | 0.174 | | 0.190 |
| G | | | 0.45 | | | 0.017 |
| H | | 2.54 | | | 0.100 | |
| I | | 2.54 | | | 0.100 | |
| J | 0.33 | | 0.48 | 0.013 | | 0.019 |

