

SCR Thyristor

03P2J/03P4J/03P5J

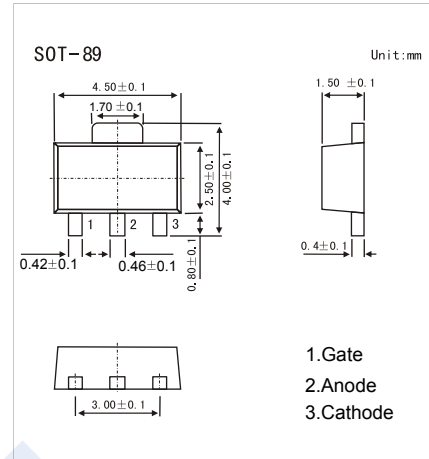
■ Features

- High Anode to Cathode Voltage

$V_{DRM}, V_{RRM}=200V(03P2J)$

$V_{DRM}, V_{RRM}=400V(03P4J)$

$V_{DRM}, V_{RRM}=500V(03P5J)$



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter | Symbol | 03P2J | 03P4J | 03P5J | Unit |
|---|---------------|------------|-------|-------|---------------------------|
| Repetitive Peak Reverse Voltages @ $I_{RRM}=100\mu\text{A}$ | V_{RRM} | 200 | 400 | 500 | |
| Repetitive Peak Off-State Voltages @ $I_{DRM}=100\mu\text{A}$ | V_{DRM} | 200 | 400 | 500 | |
| Average on-state Current ($T_a = 77^\circ\text{C}$ Single phase half wave) | $I_{T(AV)}$ | 0.3 | | | A |
| Forward Current RMS | $I_{T(RMS)}$ | 0.47 | | | |
| Non-Repetitive Peak on-state Current ($f=50\text{Hz}, 1\text{cycle}$) | I_{TSM} | 6 | | | |
| Circuit Fusing Considerations ($1\text{ms} \leq t \leq 10\text{ms}$) | I^2t | 0.15 | | | A^2s |
| Peak Gate Current — Forward ($f \geq 50\text{Hz}, \text{duty} \leq 10\%$) | I_{GFM} | 0.1 | | | A |
| Peak Gate Voltage — Reverse | V_{GRM} | 6 | | | V |
| Peak Gate Power — Forward ($f \geq 50\text{Hz}, \text{duty} \leq 10\%$) | P_{GM} | 100 | | | mW |
| Average Gate Power — Forward | $P_{GF(AV)}$ | 10 | | | |
| Thermal Resistance Junction to Ambient | $R_{th(j-a)}$ | 65 | | | $^\circ\text{C}/\text{W}$ |
| Junction Temperature | T_J | 125 | | | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to 150 | | | |

■ Electrical Characteristics ($T_a = 25^\circ\text{C}$, unless otherwise noted.)

| Parameter | Symbol | Test Conditions | Min | Typ. | Max | Unit |
|--|------------|---|-----|------|-----|---------------|
| Gate Non-Trigger Voltage | V_{GD} | $V_{DM}=1/2V_{DRM}, T_J = 125^\circ\text{C}$ | 0.1 | | | V |
| Off-state Leakage Current | $I_{D,IR}$ | $V_{DRM}=V_{RRM}, R_{GK}=1\text{K}\Omega, T_J=25^\circ\text{C};$ | | | 10 | μA |
| | | $V_{DRM}=V_{RRM}, T_J=125^\circ\text{C};$ | | | 100 | |
| On-state Voltage | V_{TM} | $I_T=1\text{A}$ | | | 1.6 | V |
| Gate Trigger Voltage | V_{GT} | $V_{DM}=6\text{V}, R_L=100\Omega$ | | | 0.8 | |
| Gate Trigger Current (Continuous dc) | I_{GT} | $V_{DM}=6\text{V}, R_L=100\Omega$ | | | 200 | μA |
| Holding Current | I_H | $V_D=12\text{V}, I_T=1\text{A}$ | | | 5 | mA |
| Critical Rate of rise of off-state Voltage | dV/dt | $V_{DM}=2/3V_{DRM}, T_J=125^\circ\text{C}$ | | 40 | | V/us |
| Circuit Commutated turn-off time | t_q | $V_D=2/3V_{DRM}, T_J=125^\circ\text{C}, T_M=200\text{mA};$ $V_R \geq 25\text{V}, dI_{TM}/dt=15\text{A/us}, dV_D/dt=20\text{V/us};$ | | 25 | | μs |

■ Marking

| | | | |
|---------|-------|-------|-------|
| NO | 03P2J | 03P4J | 03P5J |
| Marking | 03P2J | 03P4J | 03P5J |

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■ Typical Characteristics

Fig. 1 $I_{TM} - V_{TM}$ CHARACTERISTICS

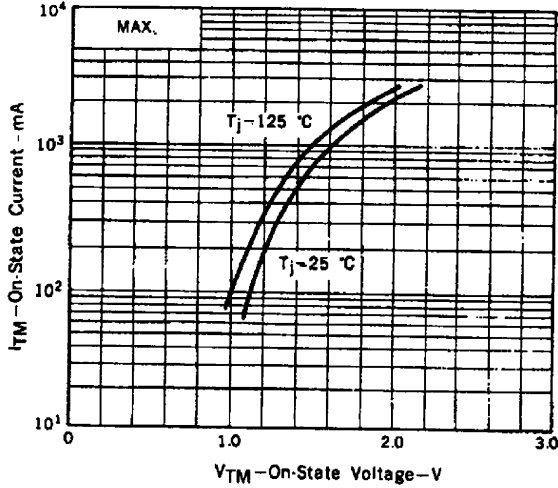


Fig. 2 I_{TSM} RATING

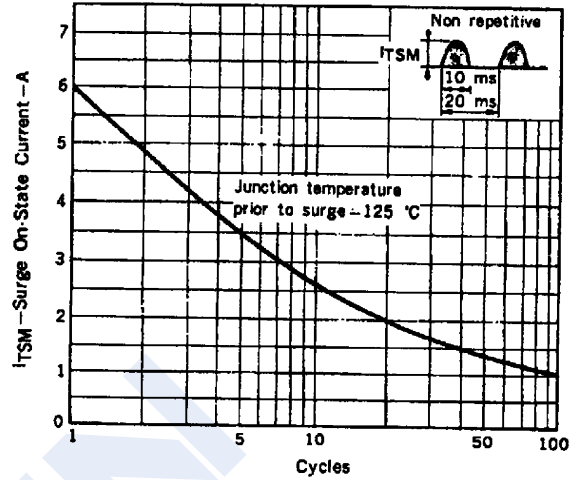


Fig. 3 GATE POWER RATINGS

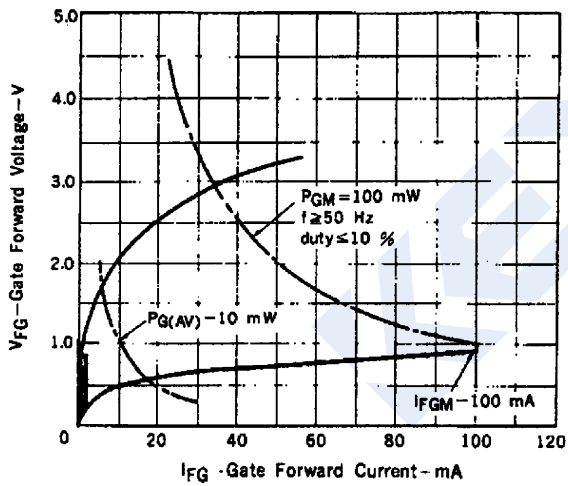


Fig. 4 $I_{GS} - V_{GT}$ DISTRIBUTION

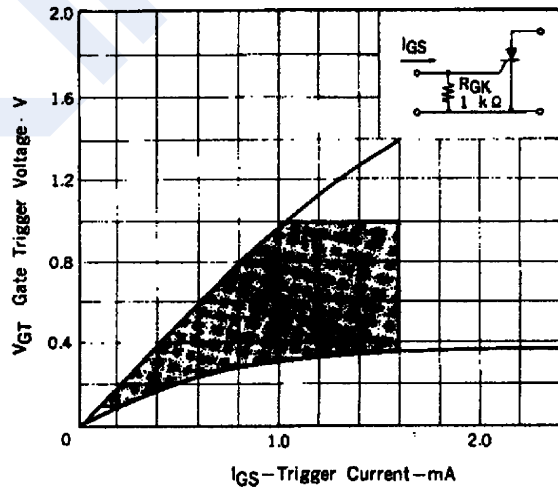


Fig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTION

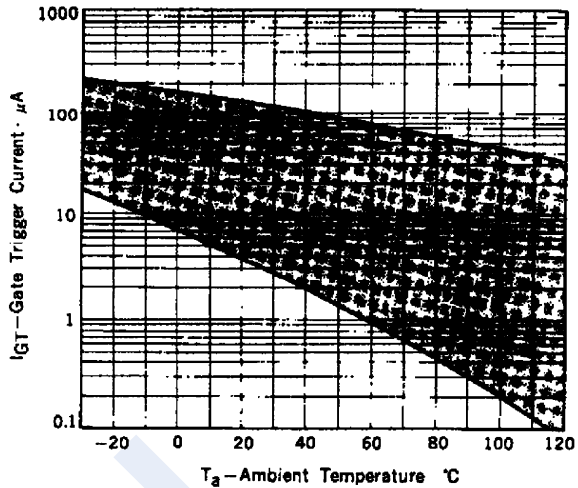
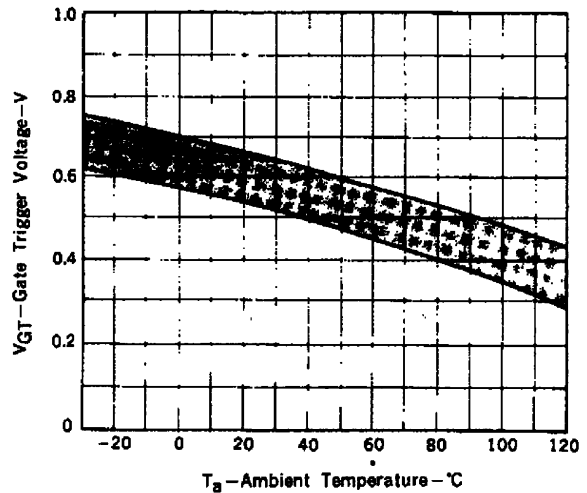


Fig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTION



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■ Typical Characteristics

