# THYRISTOR(Through Hole)

# SMG05C60

**(Sensitive Gate)**

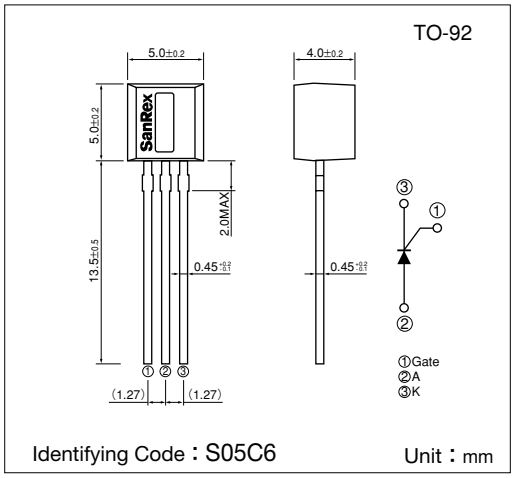
**SanRex** Thyristor **SMG05C60** is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

**Typical Applications**

- Home Appliances : Electric Blankets, Starter for FL, other control applications
- Industrial Use : SMPS, Solenoid for Breakers, Motor Controls, Heater Controls, other control applications

**Features**

- $I_{T(AV)}$=0.5A
- High Surge Current
- Low Voltage Drop




## ■Maximum Ratings

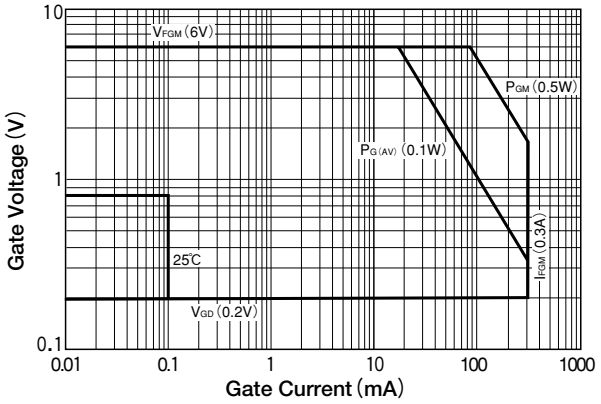
(Tj=25℃ unless otherwise specified)

| Symbol | Item | Reference | Ratings | Unit |
|---|---|---|---|---|
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | | 600 | V |
| $V_{RSM}$ | Non-Repetitive Peak Reverse Voltage | | 720 | V |
| $V_{DRM}$ | Repetitive Peak Off-State Voltage | | 600 | V |
| $I_{T(AV)}$ | Average On-State Current | Single phase, half wave, 180°, conduction, Ta=39℃ | 0.5 | A |
| $I_{T(RMS)}$ | R.M.S. On-State Current | Single phase, half wave, 180°, conduction, Ta=39℃ | 0.78 | A |
| $I_{TSM}$ | Surge On-State Current | 50/60Hz, ½ cycle Peak value, non-repetitive | 18/20 | A |
| $I^2t$ | $I^2t$ | | 1.65 | $A^2S$ |
| $P_{GM}$ | Peak Gate Power Dissipation | | 0.5 | W |
| $P_{G(AV)}$ | Average Gate Power Dissipation | | 0.1 | W |
| $I_{FGM}$ | Peak Gate Current | | 0.3 | A |
| $V_{FGM}$ | Peak Gate Voltage (Forward) | | 6 | V |
| $V_{RGM}$ | Peak Gate Voltage (Reverse) | | 6 | V |
| Tj | Operating Junction Temperature | | −40～+125 | ℃ |
| Tstg | Storage Temperature | | −40～+150 | ℃ |
| | Mass | | 0.2 | g |

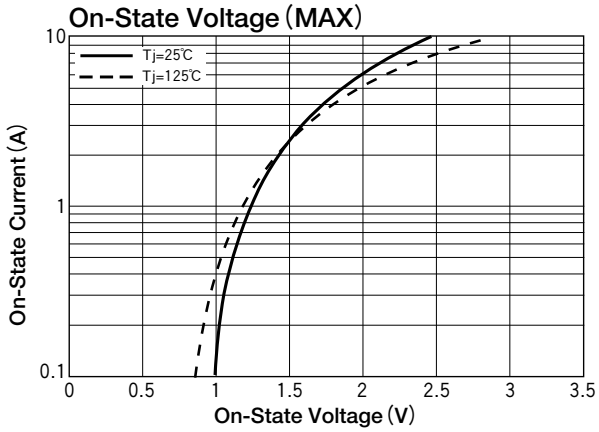
## ■Electrical Characteristics

| Symbol | Item | Reference | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| $I_{DRM}$ | Repetitive Peak Off-State Current | Tj=125℃, $V_D=V_{DRM}$, $R_{GK}$=1kΩ | | | 0.5 | mA |
| $I_{RRM}$ | Repetitive Peak Reverse Current | Tj=125℃, $V_R=V_{RRM}$, $R_{GK}$=1kΩ | | | 0.5 | mA |
| $V_{TM}$ | Peak On-State Voltage | $I_T$=1.5A, Inst. measurement | | | 1.2 | V |
| $I_{GT}$ | Gate Trigger Current | $V_D$=6V, $R_L$=100Ω | | | 100 | μA |
| $V_{GT}$ | Gate Trigger Voltage | | | | 0.8 | V |
| $V_{GD}$ | Non-Trigger Gate Voltage | Tj=125℃, $V_D=½V_{DRM}$, $R_{GK}$=1kΩ | 0.2 | | | V |
| $I_H$ | Holding Current | | | 300 | | μA |
| Rth(j-a) | Thermal Resistance | Junction to ambient | | | 150 | ℃/W |

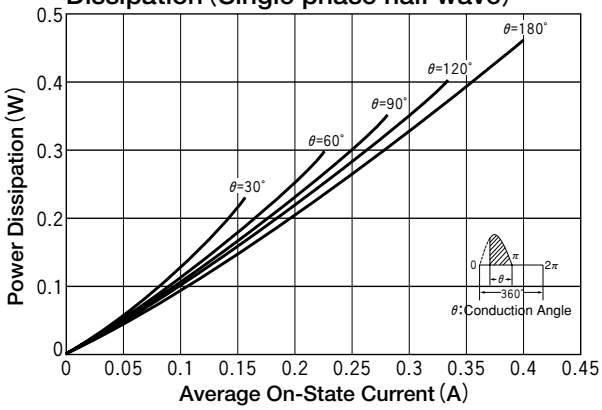
## Gate Characteristics



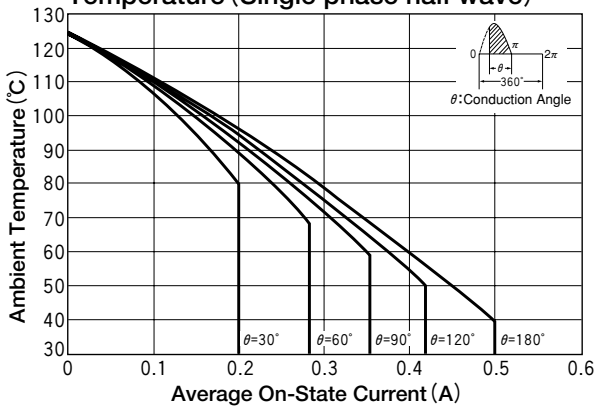

## On-State Voltage (MAX)



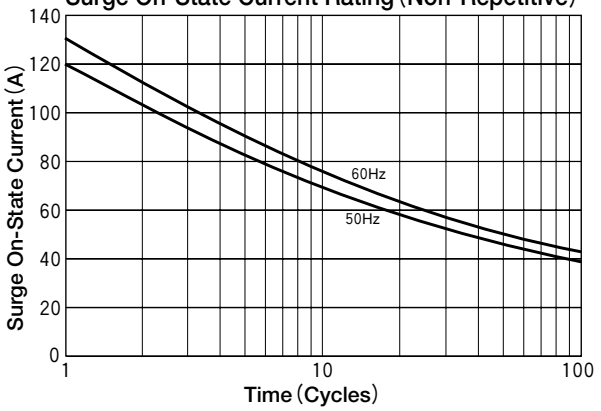

## Average On-State Current vs Power Dissipation (Single phase half wave)



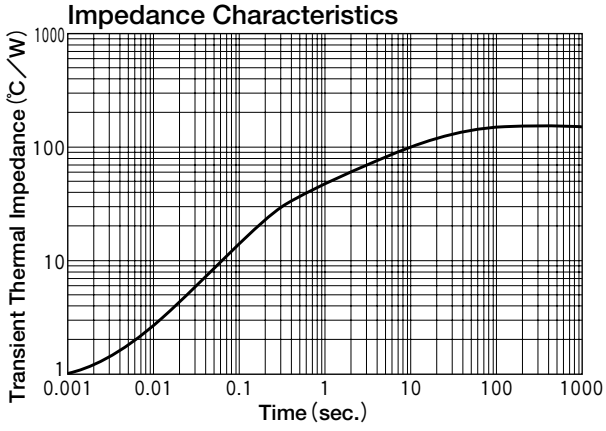

## Average On-State Current vs Ambient Temperature (Single phase half wave)



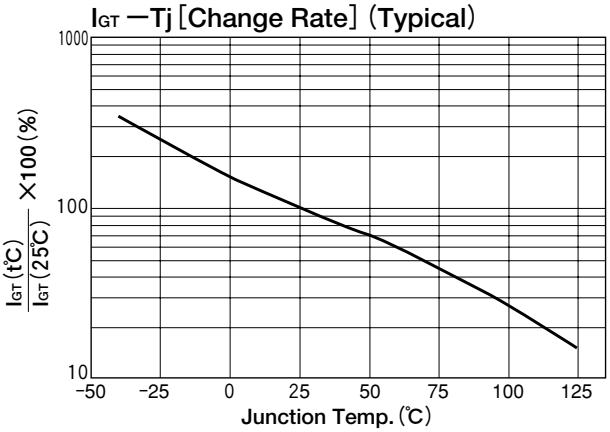

## Surge On-State Current Rating (Non-Repetitive)



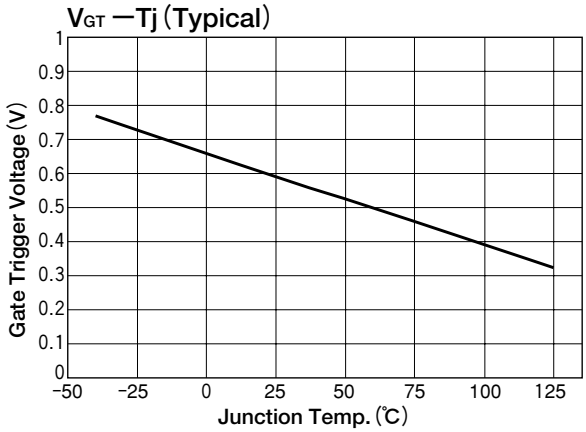

## Maximum Transient Thermal Impedance Characteristics



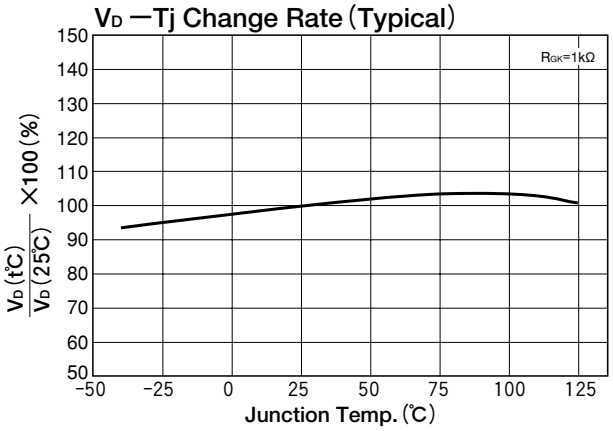

## IGT —Tj [Change Rate] (Typical)



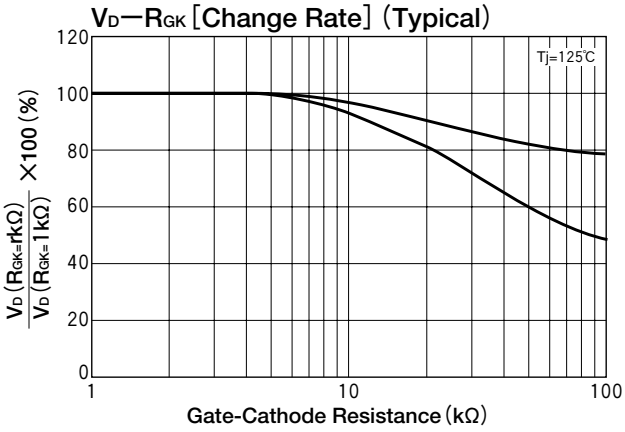

## VGT —Tj (Typical)



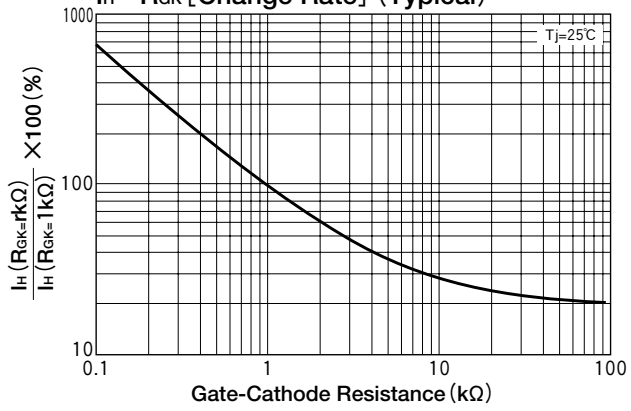
$V_D$ —Tj Change Rate (Typical)




$V_D$—$R_{GK}$ [Change Rate] (Typical)




$I_H$—$R_{GK}$ [Change Rate] (Typical)




$V_R$ —$T_j$ Change Rate (Typical)