

# THYRISTOR(Surface Mount Device/Non-isolated)

## SMG5C60H

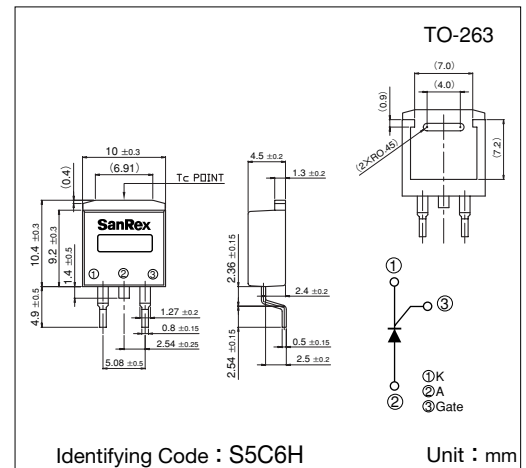
**SanRex** Thyristor **SMG5C60H** is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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

- $I_{T(AV)}=5A$
- High Surge Current
- Low Voltage Drop
- Lead-Free Package



### Maximum Ratings

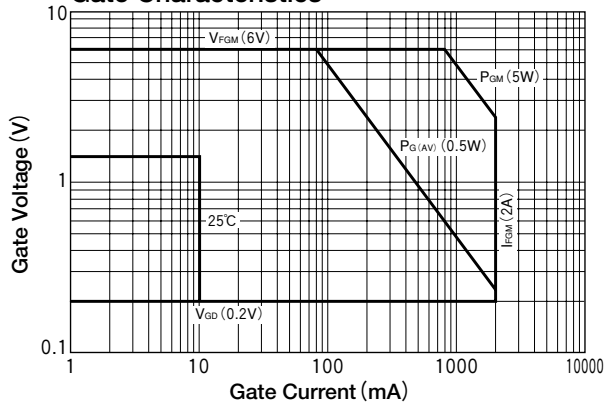
(T<sub>j</sub>=25°C unless otherwise specified)

| Symbol                      | Item                                | Reference                                                        | Ratings  | Unit             |
|-----------------------------|-------------------------------------|------------------------------------------------------------------|----------|------------------|
| V <sub>RRM</sub>            | Repetitive Peak Reverse Voltage     |                                                                  | 600      | V                |
| V <sub>RSM</sub>            | Non-Repetitive Peak Reverse Voltage |                                                                  | 720      | V                |
| V <sub>DRM</sub>            | Repetitive Peak Off-State Voltage   |                                                                  | 600      | V                |
| I <sub>T(AV)</sub>          | Average On-State Current            | Single phase, half wave, 180°, conduction, T <sub>c</sub> =103°C | 5        | A                |
| I <sub>T(RMS)</sub>         | R.M.S. On-State Current             | Single phase, half wave, 180°, conduction, T <sub>c</sub> =103°C | 7.8      | A                |
| I <sub>TSM</sub>            | Surge On-State Current              | 50Hz/60Hz, 1/2 cycle Peak value, non-repetitive                  | 80/88    | A                |
| I <sup>2</sup> <sub>t</sub> | I <sup>2</sup> <sub>t</sub>         |                                                                  | 32       | A <sup>2</sup> S |
| P <sub>GM</sub>             | Peak Gate Power Dissipation         |                                                                  | 5        | W                |
| P <sub>G(AV)</sub>          | Average Gate Power Dissipation      |                                                                  | 0.5      | W                |
| I <sub>FGM</sub>            | Peak Gate Current                   |                                                                  | 2        | A                |
| V <sub>FGM</sub>            | Peak Gate Voltage (Forward)         |                                                                  | 6        | V                |
| V <sub>RGM</sub>            | Peak Gate Voltage (Reverse)         |                                                                  | 10       | V                |
| T <sub>j</sub>              | Operating Junction Temperature      |                                                                  | -40~+125 | °C               |
| T <sub>stg</sub>            | Storage Temperature                 |                                                                  | -40~+150 | °C               |
|                             | Mass                                |                                                                  | 1.2      | g                |

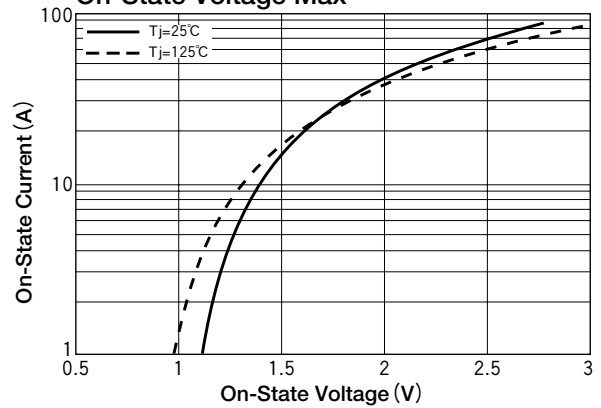
### Electrical Characteristics

| Symbol               | Item                              | Reference                                                  | Ratings |      |      | Unit |
|----------------------|-----------------------------------|------------------------------------------------------------|---------|------|------|------|
|                      |                                   |                                                            | Min.    | Typ. | Max. |      |
| I <sub>DRM</sub>     | Repetitive Peak Off-State Current | T <sub>j</sub> =125°C, V <sub>D</sub> =V <sub>DRM</sub>    |         |      | 2    | mA   |
| I <sub>RRM</sub>     | Repetitive Peak Reverse Current   | T <sub>j</sub> =125°C, V <sub>R</sub> =V <sub>RRM</sub>    |         |      | 2    | mA   |
| V <sub>TM</sub>      | Peak On-State Voltage             | I <sub>T</sub> =15A, Inst. measurement                     |         |      | 1.5  | V    |
| I <sub>GT</sub>      | Gate Trigger Current              | V <sub>D</sub> =6V, R <sub>L</sub> =10Ω                    |         |      | 10   | mA   |
| V <sub>GT</sub>      | Gate Trigger Voltage              |                                                            |         |      | 1.4  | V    |
| V <sub>GD</sub>      | Non-Trigger Gate Voltage          | T <sub>j</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub> | 0.2     |      |      | V    |
| I <sub>H</sub>       | Holding Current                   |                                                            |         | 15   |      | mA   |
| R <sub>th(j-c)</sub> | Thermal Resistance                | Junction to case                                           |         |      | 3    | °C/W |

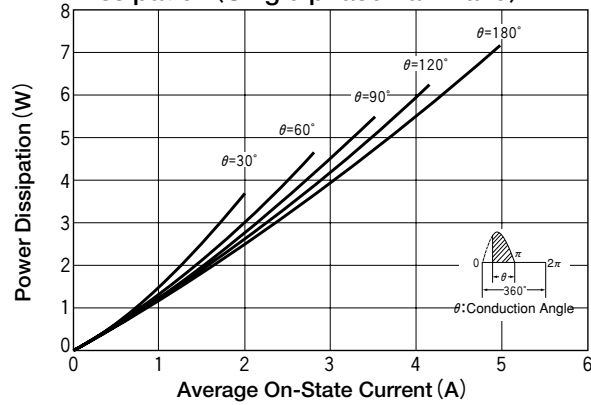
## Gate Characteristics



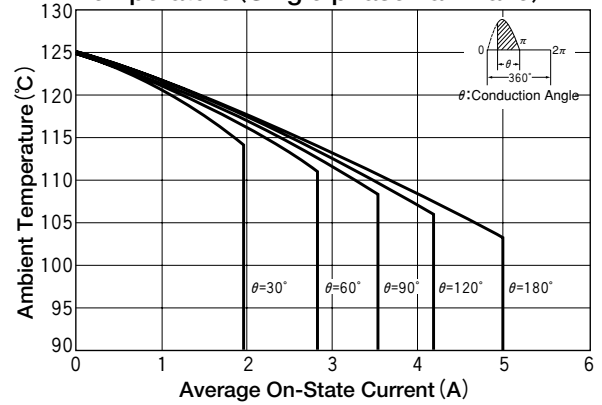
## On-State Voltage Max



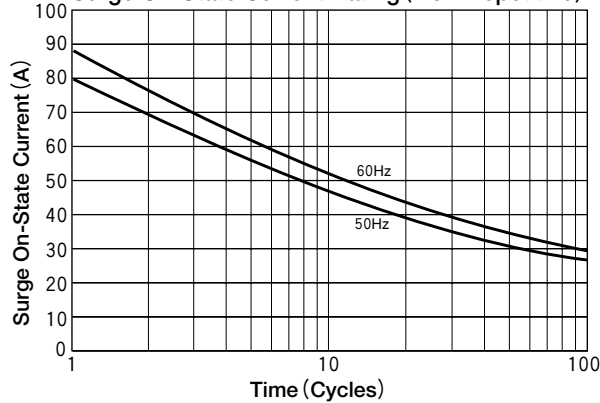
## Average On-State Current vs Power Dissipation (Single phase half wave)



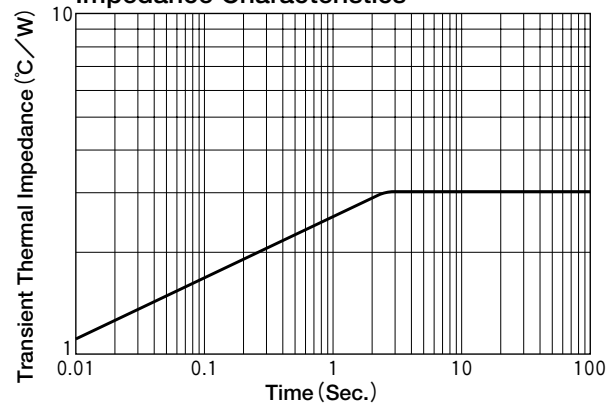
## Average On-State Current vs Ambient Temperature (Single phase half wave)



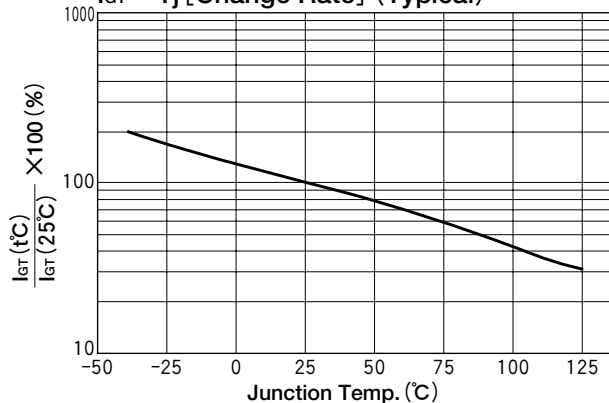
## Surge On-State Current Rating (Non-Repetitive)



## Maximum Transient Thermal Impedance Characteristics



## $I_{GT} - T_j$ [Change Rate] (Typical)



## $V_{GT} - T_j$ (Typical)

