

# TRIAC(Through Hole/Non-isolated)

## TMG5CQ60C

(T<sub>j</sub>=150°C)

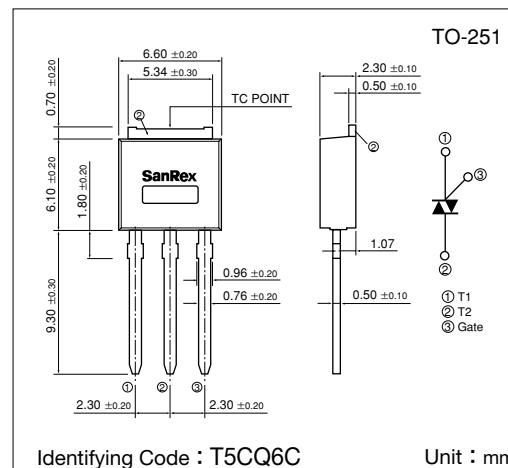
**SanRex** Triac TMG5CQ60C is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### Typical Applications

- Home Appliances : Washing Machines, Vacuum Cleaners, Rice Cookers, Micro Wave Ovens, Hair Dryers, other control applications
- Industrial Use : SMPS, Copier Machines, Motor Controls, Dimmer, SSR, Heater Controls, Vending Machines, other control applications

### Features

- I<sub>T(RMS)</sub>=5A
- High Surge Current
- Low Voltage Drop
- Lead-Free Package



### Maximum Ratings

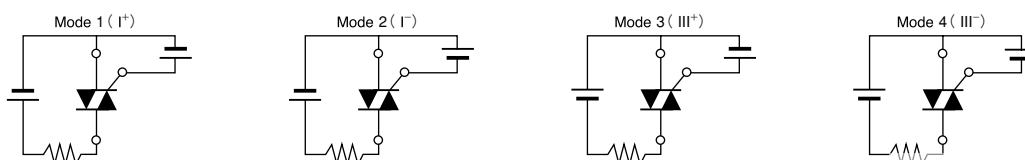
(T<sub>j</sub>=25°C unless otherwise specified)

| Symbol                      | Item                                     | Reference                                       | Ratings  | Unit             |
|-----------------------------|------------------------------------------|-------------------------------------------------|----------|------------------|
| V <sub>DRM</sub>            | Repetitive Peak Off-State Voltage        |                                                 | 600      | V                |
| I <sub>T(RMS)</sub>         | R.M.S. On-State Current                  | T <sub>c</sub> =131°C                           | 5        | A                |
| I <sub>TSM</sub>            | Surge On-State Current                   | One cycle, 50Hz/60Hz, Peak value non-repetitive | 50/55    | A                |
| I <sup>2</sup> <sub>t</sub> | I <sup>2</sup> <sub>t</sub> (for fusing) |                                                 | 12.6     | A <sup>2</sup> S |
| P <sub>GM</sub>             | Peak Gate Power Dissipation              |                                                 | 3        | W                |
| P <sub>G(AV)</sub>          | Average Gate Power Dissipation           |                                                 | 0.3      | W                |
| I <sub>GM</sub>             | Peak Gate Current                        |                                                 | 2        | A                |
| V <sub>GM</sub>             | Peak Gate Voltage                        |                                                 | 10       | V                |
| T <sub>j</sub>              | Operating Junction Temperature           |                                                 | -40~+150 | °C               |
| T <sub>stg</sub>            | Storage Temperature                      |                                                 | -40~+150 | °C               |
|                             | Mass                                     |                                                 | 0.39     | g                |

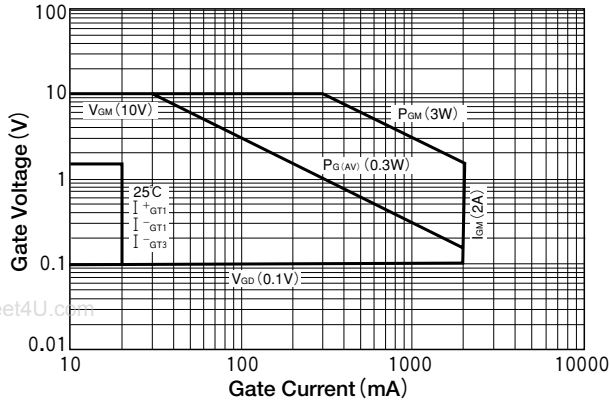
### Electrical Characteristics

| Symbol                        | Item                                                      | Reference                                                                                | Ratings              |      |      | Unit |   |
|-------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------|------|------|------|---|
|                               |                                                           |                                                                                          | Min.                 | Typ. | Max. |      |   |
| I <sub>DRM</sub>              | Repetitive Peak Off-State Current                         | V <sub>D</sub> =V <sub>DRM</sub> , Single phase, half wave, T <sub>J</sub> =150°C        |                      |      | 1    | mA   |   |
| V <sub>TM</sub>               | Peak On-State Voltage                                     | I <sub>T</sub> =7A, Inst. measurement                                                    |                      |      | 1.4  | V    |   |
| I <sub>GT1</sub> <sup>+</sup> | 1                                                         | V <sub>D</sub> =6V, R <sub>L</sub> =10 Ω                                                 |                      |      | 20   | mA   |   |
| I <sub>GT1</sub> <sup>−</sup> | 2                                                         |                                                                                          |                      |      | 20   |      |   |
| I <sub>GT3</sub> <sup>+</sup> | 3                                                         |                                                                                          |                      |      | —    |      |   |
| I <sub>GT3</sub> <sup>−</sup> | 4                                                         |                                                                                          |                      |      | 20   |      |   |
| V <sub>GT1</sub> <sup>+</sup> | 1                                                         |                                                                                          | Gate Trigger Voltage |      |      | 1.5  | V |
| V <sub>GT1</sub> <sup>−</sup> | 2                                                         |                                                                                          |                      |      |      | 1.5  |   |
| V <sub>GT3</sub> <sup>+</sup> | 3                                                         |                                                                                          |                      |      |      | —    |   |
| V <sub>GT3</sub> <sup>−</sup> | 4                                                         |                                                                                          |                      |      |      | 1.5  |   |
| V <sub>GD</sub>               | Non-Trigger Gate Voltage                                  | T <sub>J</sub> =150°C, V <sub>D</sub> =½V <sub>DRM</sub>                                 | 0.1                  |      |      | V    |   |
| (dv/dt) <sub>c</sub>          | Critical Rate of Rise of Off-State Voltage at Commutation | T <sub>J</sub> =150°C, (di/dt) <sub>c</sub> =−2.5A/ms, V <sub>D</sub> =⅔V <sub>DRM</sub> | 2                    |      |      | V/μs |   |
| I <sub>H</sub>                | Holding Current                                           |                                                                                          |                      | 10   |      | mA   |   |
| R <sub>th(i-c)</sub>          | Thermal Resistance                                        | Junction to case                                                                         |                      |      | 3.0  | °C/W |   |

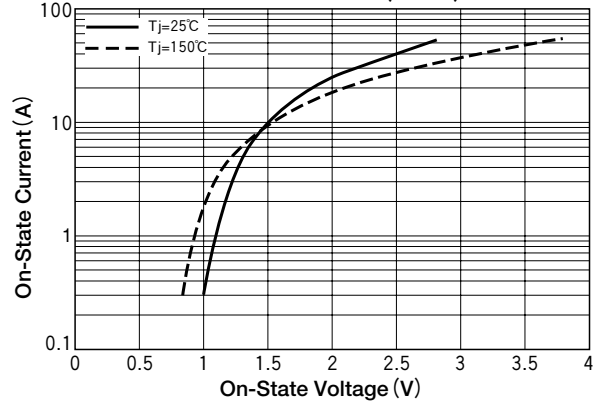
Trigger mode of the triac



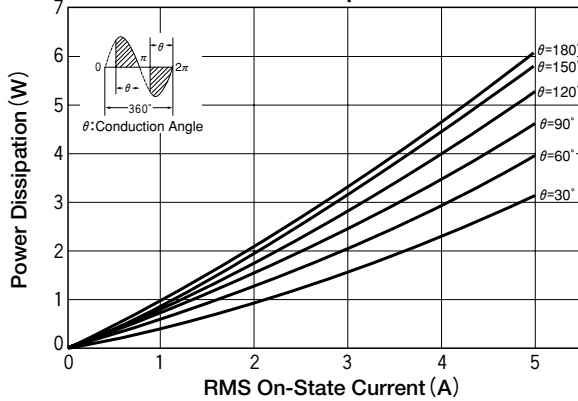
## Gate Characteristics



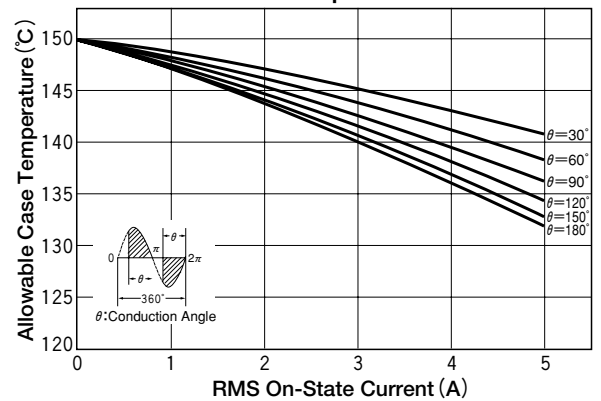
## On-State Characteristics (MAX)



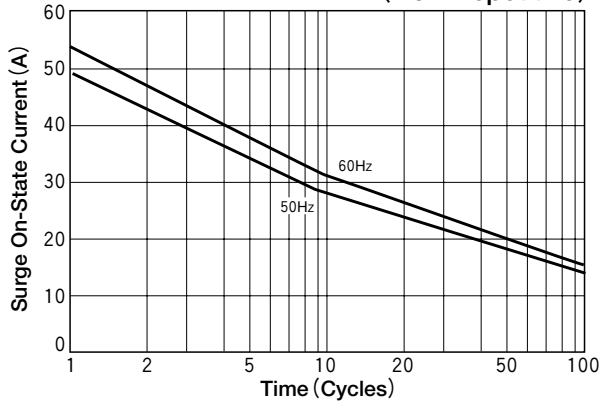
## RMS On-State Current vs Maximum Power Dissipation



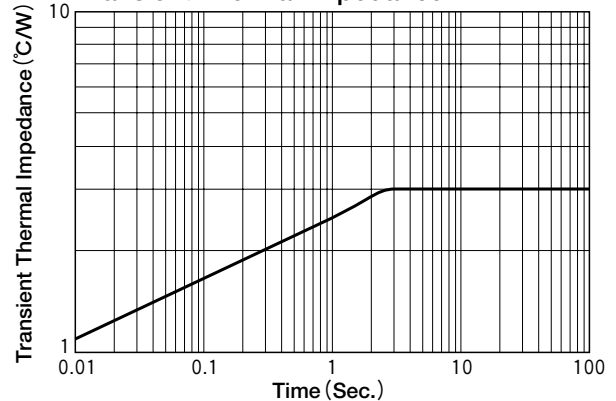
## RMS On-State vs Allowable Case Temperature



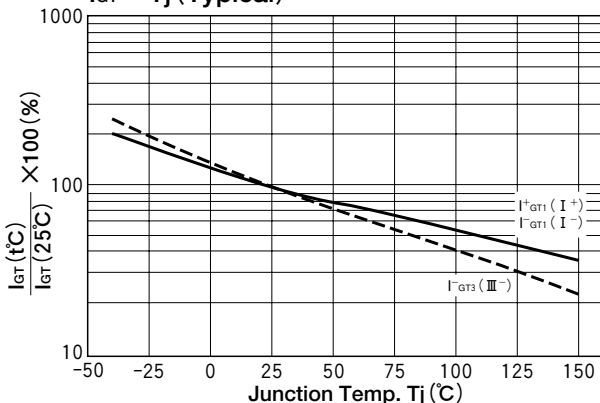
## Surge On-State Current Rating (Non-Repetitive)



## Transient Thermal Impedance



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



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

