

# TRIAC(Surface Mount Device / Non-isolated)

# TMG2CQ60D

(T<sub>j</sub>=150°C)

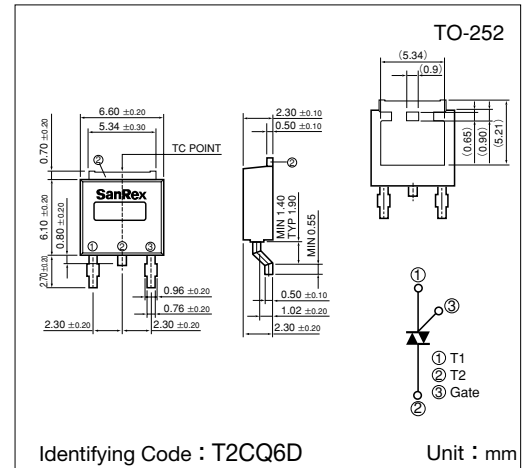
**SanRex** Triac TMG2CQ60D is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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>=2A
- High Surge Current
- 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> =134°C                           | 2        | A                |
| I <sub>TSM</sub>    | Surge On-State Current            | One cycle, 50Hz/60Hz, Peak value non-repetitive | 18/20    | A                |
| I <sup>2</sup> t    | I <sup>2</sup> t (for fusing)     |   | 1.67     | A <sup>2</sup> S |
| P <sub>GM</sub>     | Peak Gate Power Dissipation       |   | 1.5      | W                |
| P <sub>G(AV)</sub>  | Average Gate Power Dissipation    |   | 0.1      | W                |
| I <sub>GM</sub>     | Peak Gate Current                 |   | 1        | A                |
| V <sub>GM</sub>     | Peak Gate Voltage                 |   | 7        | V                |
| T <sub>j</sub>      | Operating Junction Temperature    |   | -40~+150 | °C               |
| T <sub>stg</sub>    | Storage Temperature               |   | -40~+150 | °C               |
|                     | Mass                              |   | 0.32     | g                |

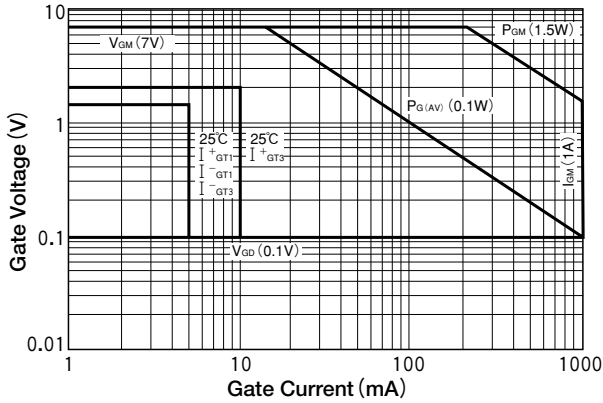
### Electrical Characteristics

| 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> =3A, Inst. measurement  |         |      | 1.6  | V    |
| I <sub>GT1</sub> <sup>+</sup> | Gate Trigger Current                                      | V <sub>D</sub> =6V, R <sub>L</sub> =10Ω  |         |      | 15   | mA   |
| I <sub>GT1</sub> <sup>-</sup> |   |  |         |      | 15   |      |
| I <sub>GT3</sub> <sup>+</sup> |   |  |         |      | —    |      |
| I <sub>GT3</sub> <sup>-</sup> |   |  |         |      | 15   |      |
| V <sub>GT1</sub> <sup>+</sup> | Gate Trigger Voltage                                      |  |         |      | 1.5  | V    |
| V <sub>GT1</sub> <sup>-</sup> |   |  |         |      | 1.5  |      |
| V <sub>GT3</sub> <sup>+</sup> |   |  |         |      | —    |      |
| V <sub>GT3</sub> <sup>-</sup> |   |  |         |      | 1.5  |      |
| V <sub>GD</sub>               | Non-Trigger Gate Voltage                                  | T <sub>j</sub> =150°C, V <sub>D</sub> =1/2V <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> =-1A/ms, V <sub>D</sub> =2/3V <sub>DRM</sub> | 1       |      |      | V/μs |
| I <sub>H</sub>                | Holding Current   |  |         | 2    |      | mA   |
| R <sub>th(j-c)</sub>          | Thermal Resistance  | Junction to case   |         |      | 5.8  | °C/W |
| R <sub>th(j-a)</sub>          |   | Junction to ambient  |         |      | 60   | °C/W |

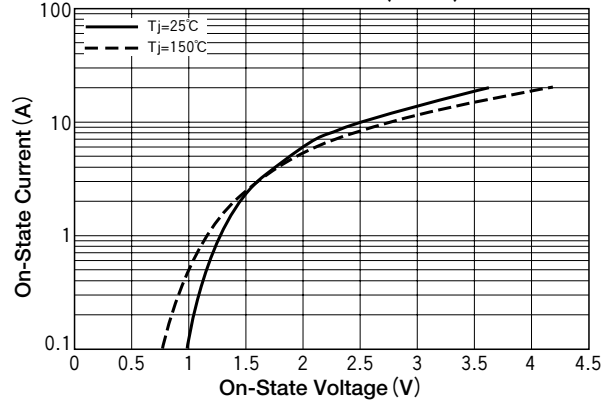
Trigger mode of the triac



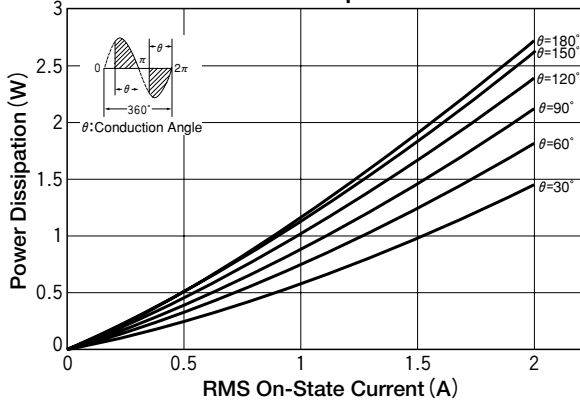
## Gate Characteristics



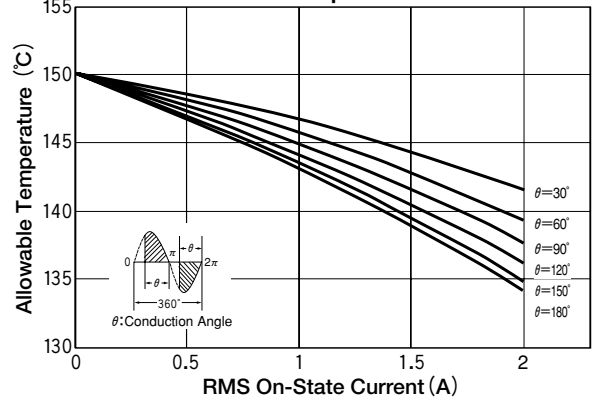
## On-State Characteristics (MAX)



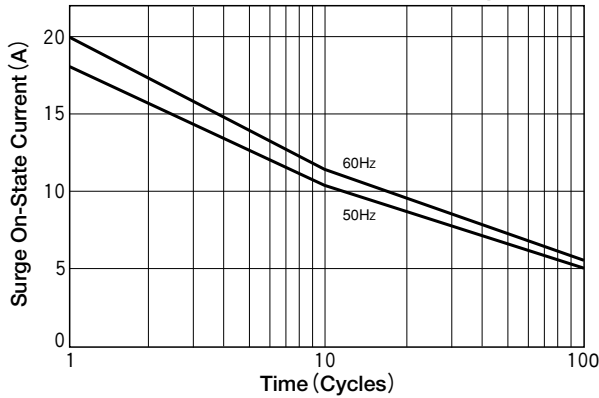
## RMS On-State Current vs Maximum Power Dissipation



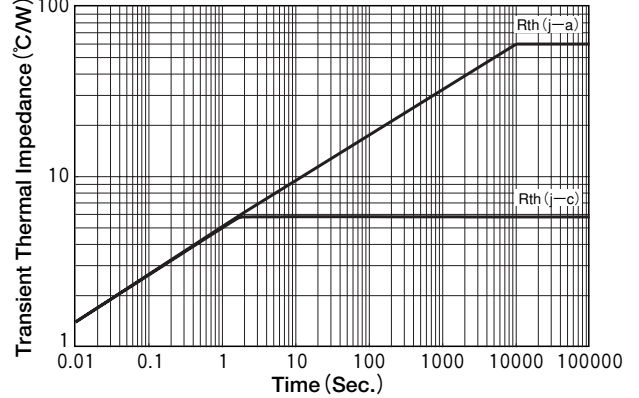
## RMS On-State vs Allowable Case Temperature



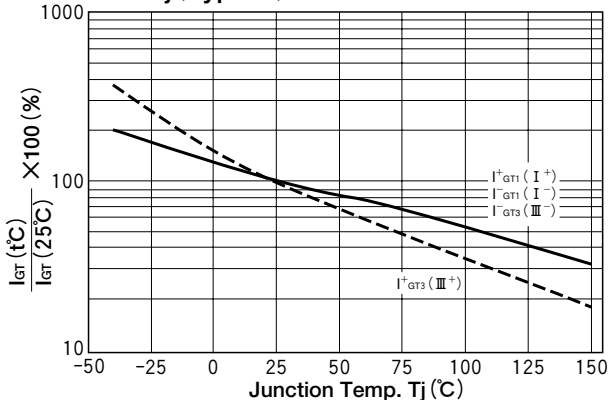
## Surge On-State Current Rating (Non-Repetitive)



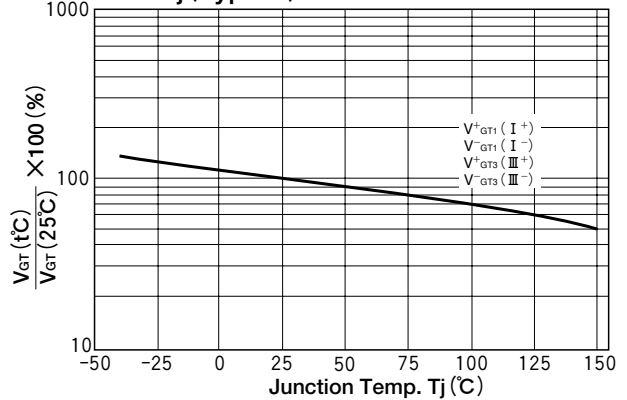
## Transient Thermal Impedance



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



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



**RMS On-State vs  
Allowable Ambient Temperature**