

# TRIAC(Through Hole / Isolated)

# TMG16CQ60J

(Tj=150°C)

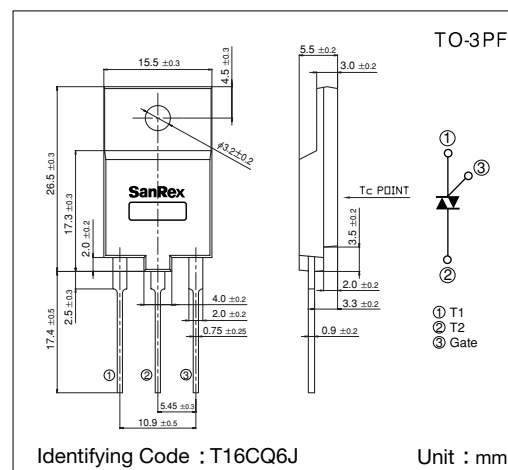
**SanRex** Triac TMG16CQ60J is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

## 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

- IT(RMS)=16A
- High Surge Current
- Low Voltage Drop
- Lead-Free Package



## Maximum Ratings

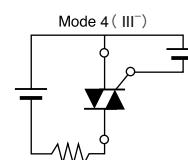
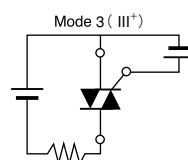
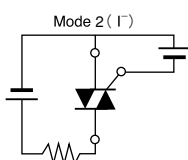
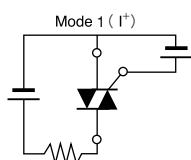
(Tj=25°C unless otherwise specified)

| 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> = 116 °C                         | 16         | A                |
| I <sub>TSM</sub>            | Surge On-State Current                   | One cycle, 50Hz/60Hz, Peak value non-repetitive | 155/170    | A                |
| I <sup>2</sup> <sub>t</sub> | I <sup>2</sup> <sub>t</sub> (for fusing) |                                                 | 120        | 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>GM</sub>             | Peak Gate Current                        |                                                 | 2          | A                |
| V <sub>GM</sub>             | Peak Gate Voltage                        |                                                 | 10         | V                |
| V <sub>ISO</sub>            | Isolation Breakdown Voltage (R.M.S.)     | A.C. 1minute                                    | 1500       | V                |
| T <sub>j</sub>              | Operating Junction Temperature           |                                                 | -40 ~ +150 | °C               |
| T <sub>stg</sub>            | Storage Temperature                      |                                                 | -40 ~ +150 | °C               |
|                             | Mass                                     |                                                 | 5.6        | g                |

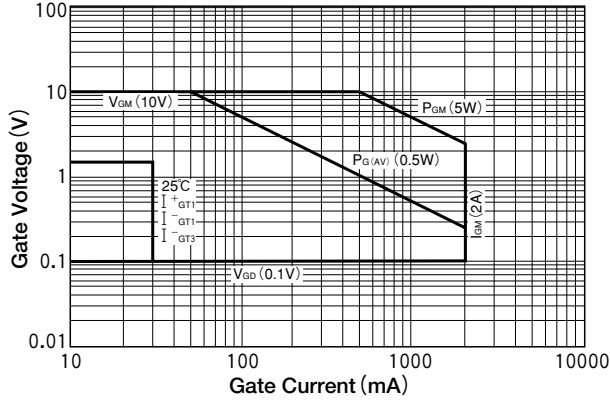
## Electrical Characteristics

| 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        |         |      | 2    | mA   |
| V <sub>TM</sub>               | Peak On-State Voltage                                     | I <sub>T</sub> =25A, Inst. measurement                                                    |         |      | 1.4  | V    |
| I <sub>GT1</sub> <sup>+</sup> | 1                                                         | V <sub>D</sub> =6V, R <sub>L</sub> =10 Ω                                                  |         |      | 30   | mA   |
| I <sub>GT1</sub> <sup>-</sup> | 2                                                         |                                                                                           |         |      | 30   |      |
| I <sub>GT3</sub> <sup>+</sup> | 3                                                         |                                                                                           |         |      | —    |      |
| I <sub>GT3</sub> <sup>-</sup> | 4                                                         |                                                                                           |         |      | 30   |      |
| V <sub>GT1</sub> <sup>+</sup> | 1                                                         |                                                                                           |         |      | 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> =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> =−8A/ms, V <sub>D</sub> =2/3V <sub>DRM</sub> | 5       |      |      | V/μs |
| I <sub>H</sub>                | Holding Current                                           |                                                                                           |         | 25   |      | mA   |
| R <sub>th</sub>               | Thermal Resistance                                        | Junction to case                                                                          |         |      | 1.8  | °C/W |

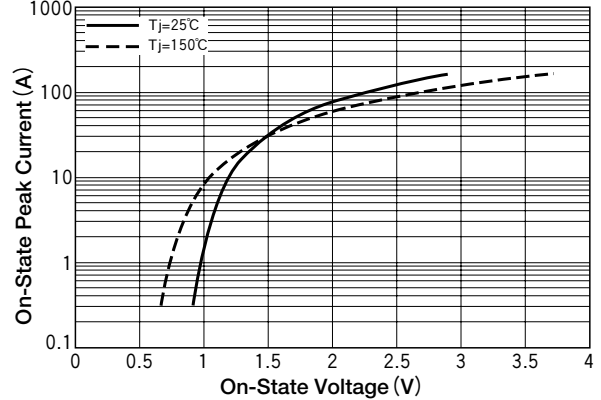
Trigger mode of the triac



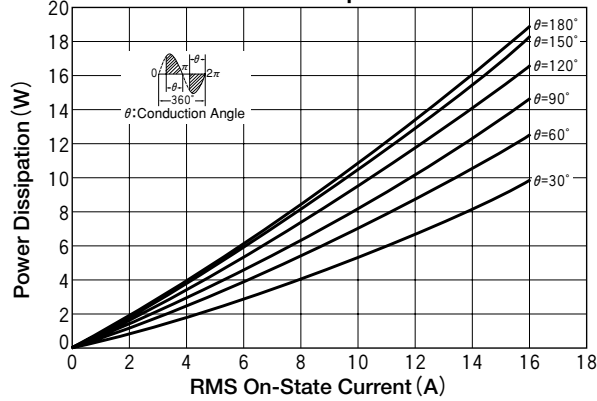
## Gate Characteristics



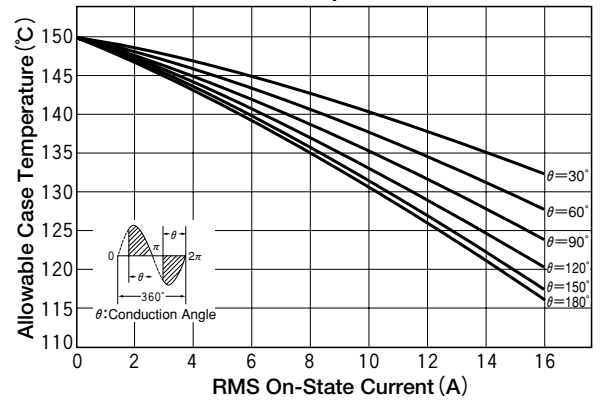
## On-State Characteristics (MAX)



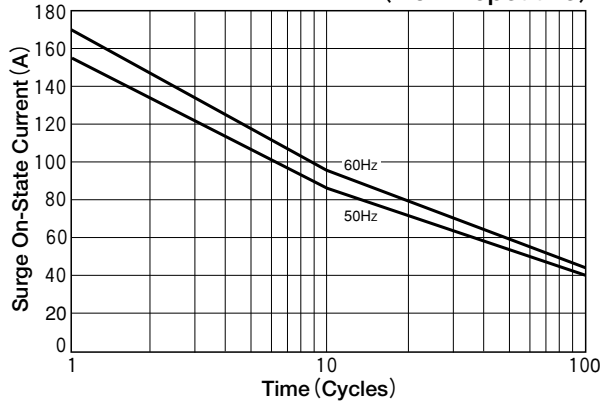
## RMS On-State vs Maximum Power Dissipation



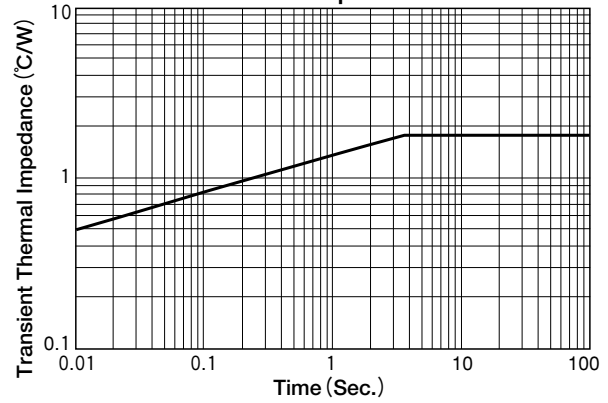
## RMS On-State vs Allowable Case Temperature



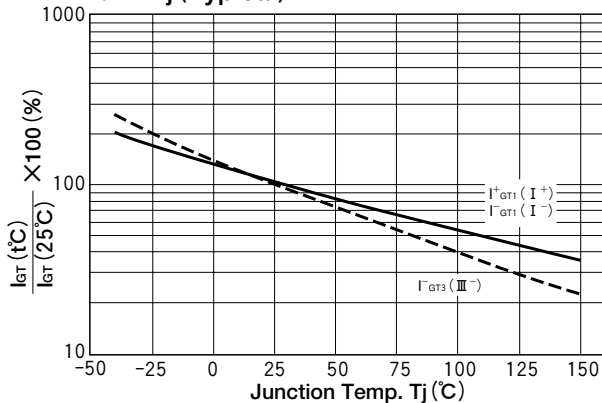
## Surge On-State Current Rating (Non-Repetitive)



## Transient Thermal Impedance



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



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

