

# TRIAC(Surface Mount Device / Non-isolated)

## TMG2D80D

(Sensitive Gate)

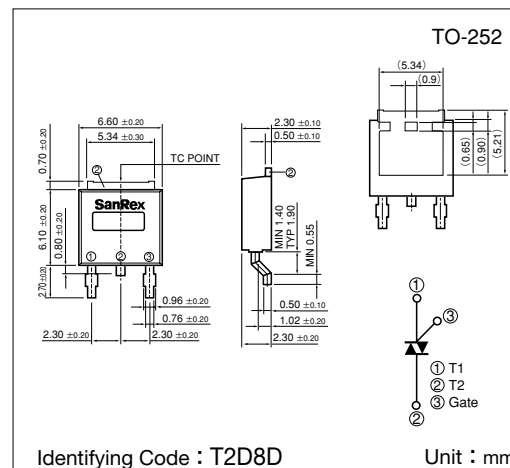
**SanRex** Triac TMG2D80D is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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

- $I_{T(RMS)}=2A$
- High Surge Current
- Lead-Free Package



### Maximum Ratings

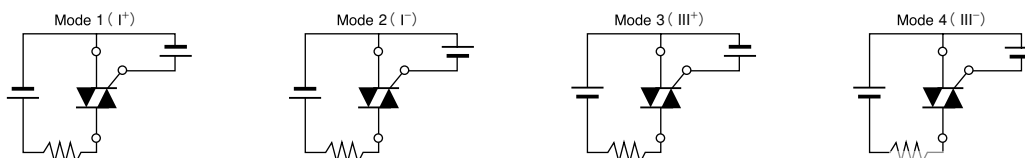
(Tj=25°C unless otherwise specified)

| Symbol                      | Item                                     | Reference                                       | Ratings  | Unit             |
|-----------------------------|------------------------------------------|-------------------------------------------------|----------|------------------|
| V <sub>DRM</sub>            | Repetitive Peak Off-State Voltage        |                                                 | 800      | V                |
| I <sub>T(RMS)</sub>         | R.M.S. On-State Current                  | T <sub>c</sub> =109°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> <sub>t</sub> | I <sup>2</sup> <sub>t</sub> (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~+125 | °C               |
| T <sub>stg</sub>            | Storage Temperature                      |                                                 | -40~+150 | °C               |
|                             | Mass                                     |                                                 | 0.32     | g                |

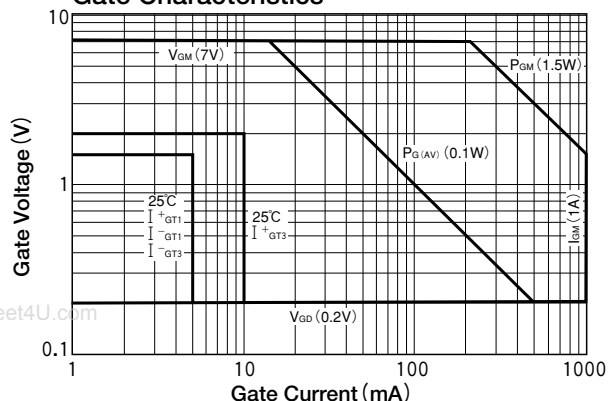
### Electrical Characteristics

| Symbol            | Item                                                      |                      | Reference                                  | Ratings |      |      | Unit |
|-------------------|-----------------------------------------------------------|----------------------|--------------------------------------------|---------|------|------|------|
|                   |                                                           |                      |                                            | Min.    | Typ. | Max. |      |
| IDRM              | Repetitive Peak Off-State Current                         |                      | VD=VDRM, Single phase, half wave, Tj=125°C |         |      | 1    | mA   |
| VTM               | Peak On-State Voltage                                     |                      | IT=3A, Inst. measurement                   |         |      | 1.6  | V    |
| IGT1 <sup>+</sup> | 1                                                         | Gate Trigger Current | VD=6V, RL=10 Ω                             |         |      | 5    | mA   |
| IGT1 <sup>-</sup> | 2                                                         |                      |                                            |         |      | 5    |      |
| IGT3 <sup>+</sup> | 3                                                         |                      |                                            |         |      | 10   |      |
| IGT3 <sup>-</sup> | 4                                                         |                      |                                            |         |      | 5    |      |
| VGT1 <sup>+</sup> | 1                                                         | Gate Trigger Voltage |                                            |         |      | 1.5  | V    |
| VGT1 <sup>-</sup> | 2                                                         |                      |                                            |         |      | 1.5  |      |
| VGT3 <sup>+</sup> | 3                                                         |                      |                                            |         |      | 2.0  |      |
| VGT3 <sup>-</sup> | 4                                                         |                      |                                            |         |      | 1.5  |      |
| VGD               | Non-Trigger Gate Voltage                                  |                      | Tj=125°C, VD=1/2VDRM                       | 0.2     |      |      | V    |
| (dv/dt)c          | Critical Rate of Rise of Off-State Voltage at Commutation |                      | Tj=125°C, [di/dt]c=-1A/ms, VD=400V         | 3       |      |      | V/μs |
| IH                | Holding Current                                           |                      |                                            |         | 2    |      | mA   |
| Rth(j-c)          | Thermal Resistance                                        |                      | Junction to case                           |         |      | 5.8  | °C/W |
| Rth(j-a)          |                                                           |                      | Junction to ambient                        |         |      | 60   | °C/W |

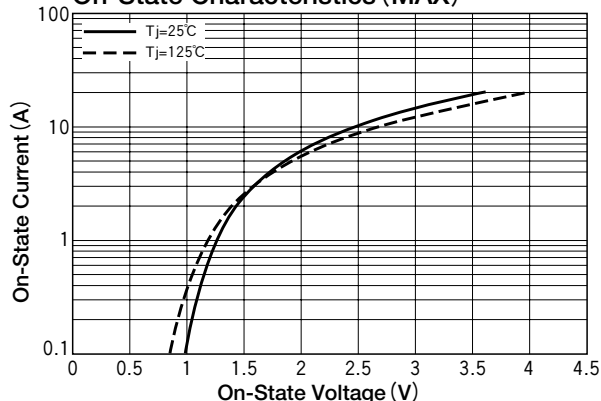
Trigger mode of the triac



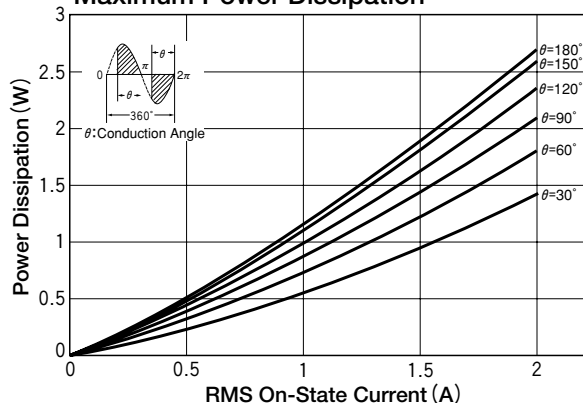
## Gate Characteristics



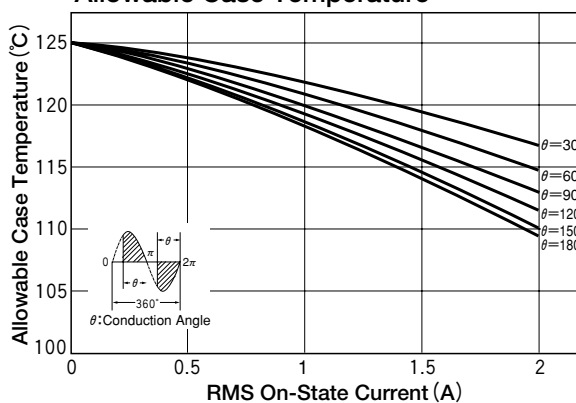
## On-State Characteristics (MAX)



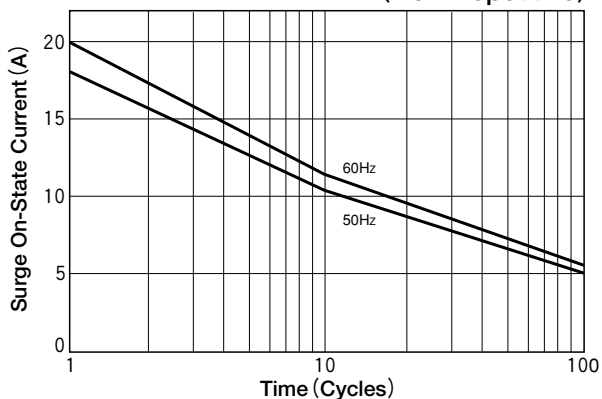
## RMS On-State Current vs Maximum Power Dissipation



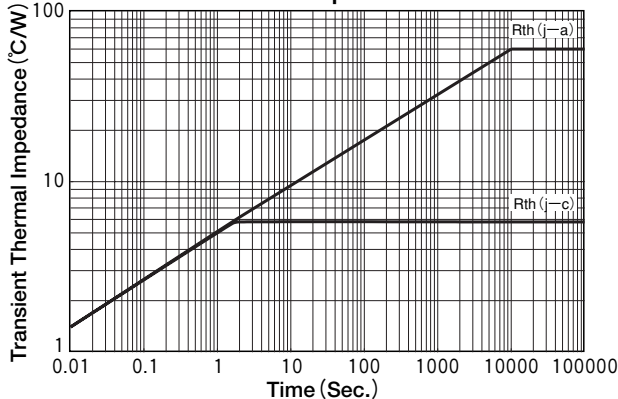
## RMS On-State vs Allowable Case Temperature



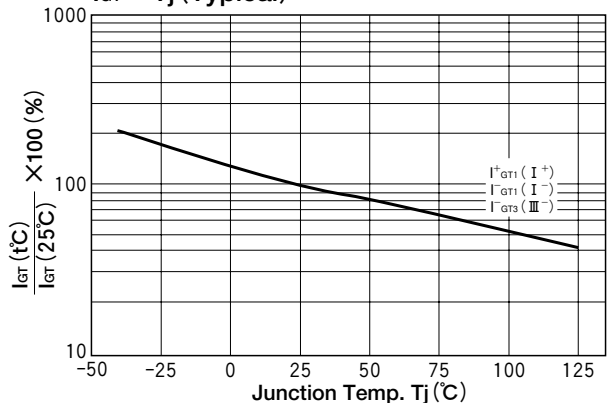
## Surge On-State Current Rating (Non-Repetitive)



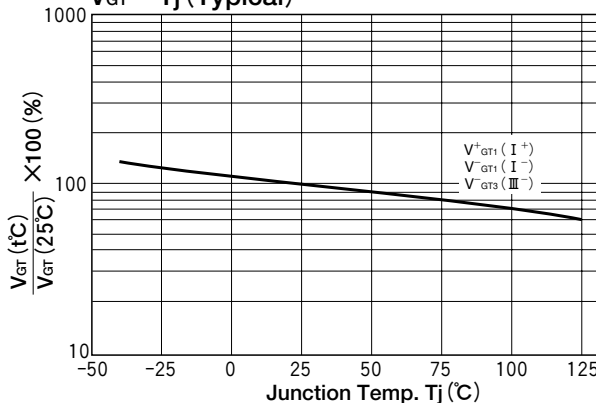
## Transient Thermal Impedance



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



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



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

