

# TRIAC(Through Hole / Isolated)

# TMG5C80F

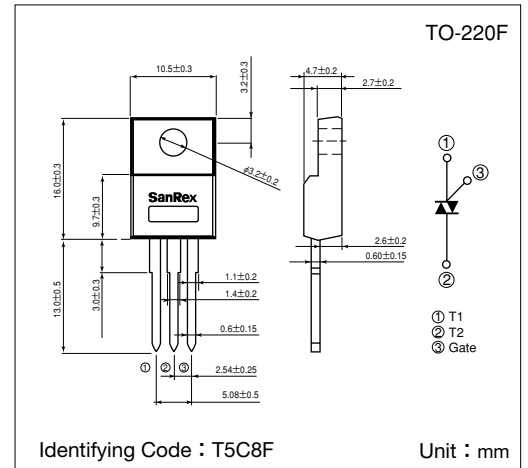
**SanRex** Triac TMG5C80F is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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

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



### Maximum Ratings

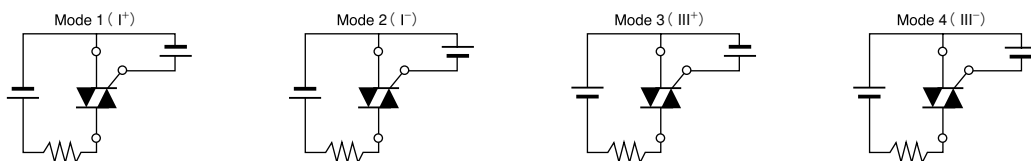
( $T_j=25^\circ\text{C}$  unless otherwise specified)

| Symbol       | Item                                 | Reference                                       | Ratings         | Unit                 |
|--------------|--------------------------------------|---|-----------------|----------------------|
| $V_{DRM}$    | Repetitive Peak Off-State Voltage    |   | 800             | V                    |
| $I_{T(RMS)}$ | R.M.S. On-State Current              | $T_c=100^\circ\text{C}$                         | 5               | A                    |
| $I_{TSM}$    | Surge On-State Current               | One cycle, 50Hz/60Hz, Peak value non-repetitive | 50/55           | A                    |
| $I^2t$       | $I^2t$ (for fusing)                  |   | 12.6            | $\text{A}^2\text{S}$ |
| $P_{GM}$     | Peak Gate Power Dissipation          |   | 3               | W                    |
| $P_{G(AV)}$  | Average Gate Power Dissipation       |   | 0.3             | W                    |
| $I_{GM}$     | Peak Gate Current                    |   | 2               | A                    |
| $V_{GM}$     | Peak Gate Voltage                    |   | 10              | V                    |
| $V_{ISO}$    | Isolation Breakdown Voltage (R.M.S.) | A.C. 1minute                                    | 1500            | V                    |
| $T_j$        | Operating Junction Temperature       |   | $-40 \sim +125$ | $^\circ\text{C}$     |
| $T_{stg}$    | Storage Temperature                  |   | $-40 \sim +150$ | $^\circ\text{C}$     |
|              | Mass                                 |   | 2               | g                    |

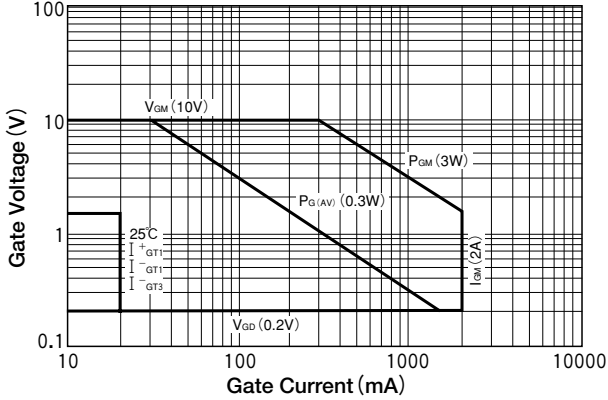
### Electrical Characteristics

| Symbol      | Item  | Reference  | Ratings |      |      | Unit               |   |
|-------------|---|--|---------|------|------|--------------------|---|
|             |   |  | Min.    | Typ. | Max. |                    |   |
| $I_{DRM}$   | Repetitive Peak Off-State Current                         | $V_D=V_{DRM}$ , Single phase, half wave, $T_j=125^\circ\text{C}$ |         |      | 1    | mA                 |   |
| $V_{TM}$    | Peak On-State Voltage                                     | $I_T=7A$ , Inst. measurement                                     |         |      | 1.4  | V                  |   |
| $I_{GT1}^+$ | Gate Trigger Current                                      | $V_D=6V$ , $R_L=10\Omega$  |         |      | 20   | mA                 |   |
| $I_{GT1}^-$ |   |  |         |      | 20   |                    |   |
| $I_{GT3}^+$ |   |  |         |      | —    |                    |   |
| $I_{GT3}^-$ |   |  |         |      | 20   |                    |   |
| $V_{GT1}^+$ | Gate Trigger Voltage                                      |  |         |      |      | 1.5                | V |
| $V_{GT1}^-$ |   |  |         |      |      | 1.5                |   |
| $V_{GT3}^+$ |   |  |         |      |      | —                  |   |
| $V_{GT3}^-$ |   |  |         |      |      | 1.5                |   |
| $V_{GD}$    | Non-Trigger Gate Voltage                                  | $T_j=125^\circ\text{C}$ , $V_D=1/2V_{DRM}$                       | 0.2     |      |      | V                  |   |
| $(dv/dt)_c$ | Critical Rate of Rise of Off-State Voltage at Commutation | $T_j=125^\circ\text{C}$ , $(di/dt)_c=-2.5A/ms$ , $V_D=400V$      | 5       |      |      | $V/\mu s$          |   |
| $I_H$       | Holding Current   |  |         | 10   |      | mA                 |   |
| $R_{th}$    | Thermal Resistance  | Junction to case   |         |      | 4.0  | $^\circ\text{C}/W$ |   |

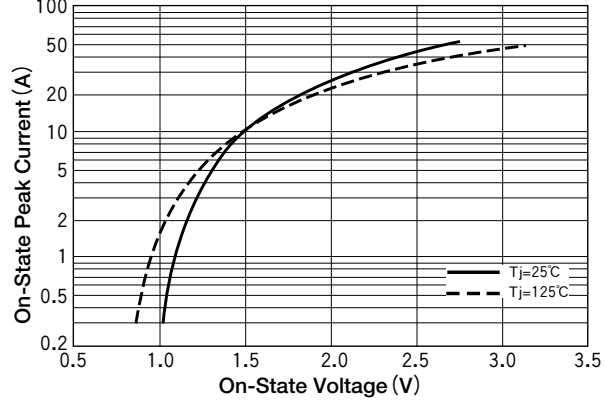
Trigger mode of the triac



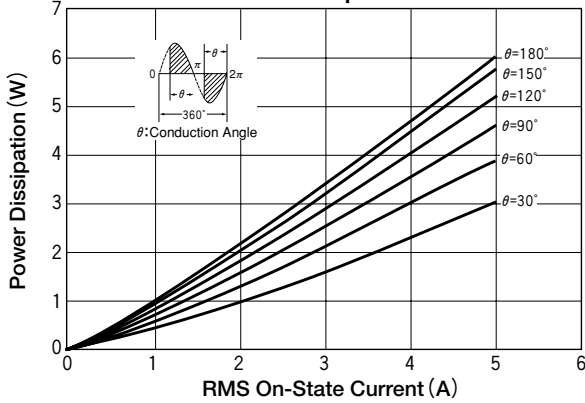
### Gate Characteristics



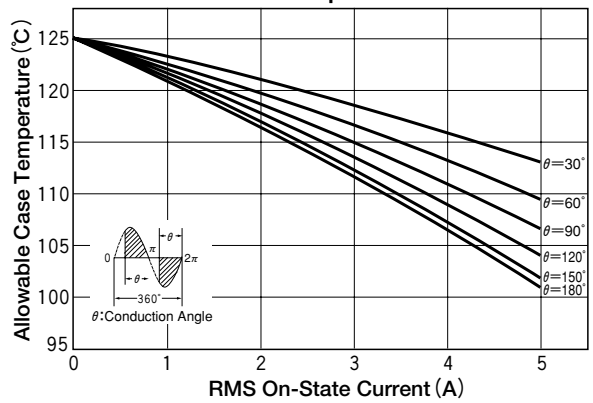
### On-State Characteristics (MAX)



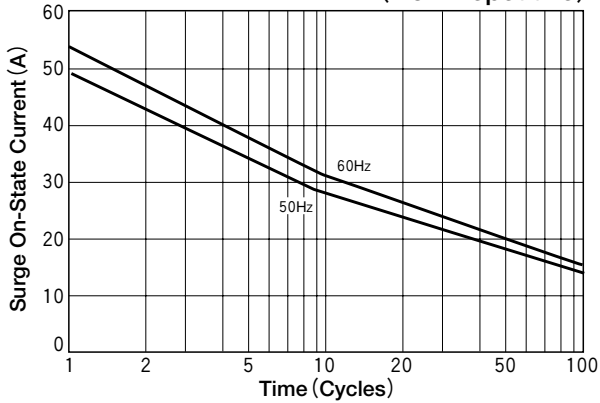
### RMS On-State Current vs Maximum Power Dissipation



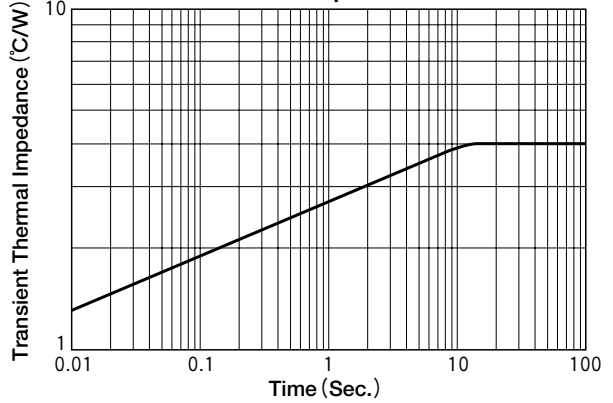
### RMS On-State vs Allowable Case Temperature



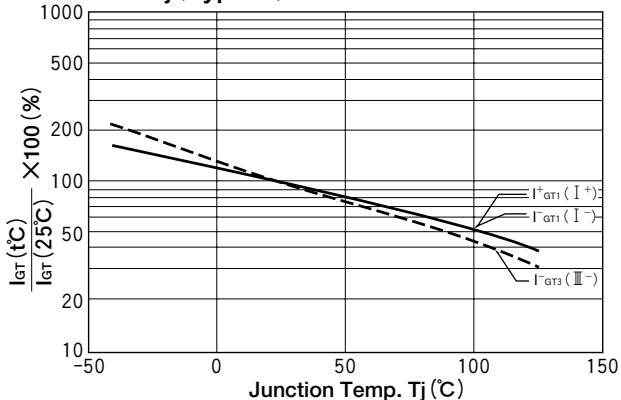
### Surge On-State Current Rating (Non-Repetitive)



### Transient Thermal Impedance



### I<sub>GT</sub> - T<sub>j</sub> (Typical)



### V<sub>GT</sub> - T<sub>j</sub> (Typical)

