

# TRIAC(Through Hole / Isolated)

# TMG12D80F

(Sensitive Gate)

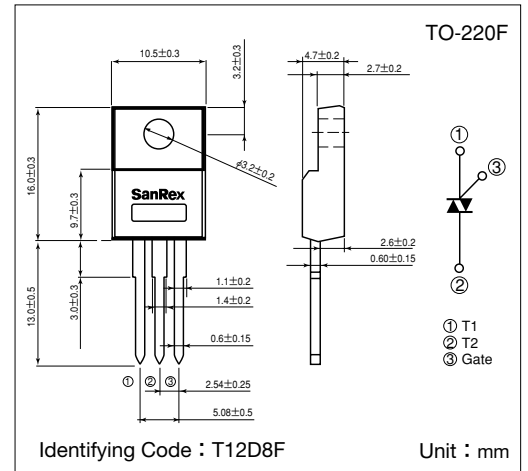
**SanRex** Triac TMG12D80F is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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

- $I_{T(RMS)}=12A$
- High Surge Current
- Low Voltage Drop
- Lead-Free Package



### Maximum Ratings

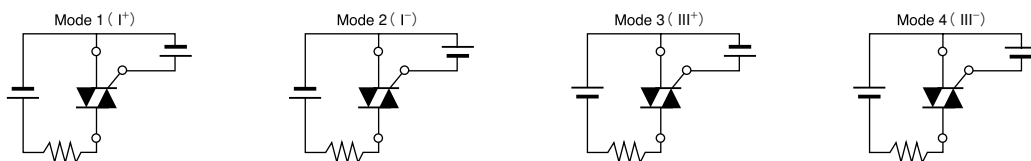
( $T_j=25^\circ\text{C}$  unless otherwise specified)

Symbol	Item	Reference	Ratings	Unit
$V_{DRM}$	Repetitive Peak Off-State Voltage		800	V
$I_{T(RMS)}$	R.M.S. On-State Current	$T_c=79^\circ\text{C}$	12	A
$I_{TSM}$	Surge On-State Current	One cycle, 50Hz/60Hz, Peak value non-repetitive	119/130	A
$I^2t$	$I^2t$ (for fusing)		71	$\text{A}^2\text{S}$
$P_{GM}$	Peak Gate Power Dissipation		5	W
$P_{G(AV)}$	Average Gate Power Dissipation		0.5	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

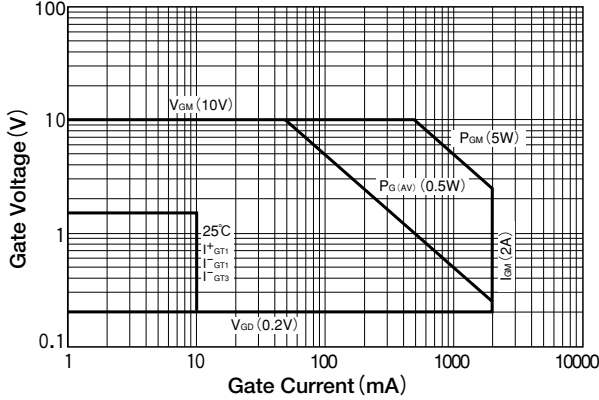
### Electrical Characteristics

Symbol	Item	Reference	Ratings			Unit	
			Min.	Typ.	Max.		
$I_{DRM}$	Repetitive Peak Off-State Current	$V_D=V_{DRM}$ , Single phase, half wave, $T_j=125^\circ\text{C}$			2	mA	
$V_{TM}$	Peak On-State Voltage	$I_T=20A$ , Inst. measurement			1.4	V	
$I_{GT1}^+$	Gate Trigger Current	$V_D=6V$ , $R_L=10\Omega$			10	mA	
$I_{GT1}^-$					10		
$I_{GT3}^+$					—		
$I_{GT3}^-$					10		
$V_{GT1}^+$	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	$T_j=125^\circ\text{C}$ , $[di/dt]_c=-6A/ms$ , $V_D=400V$	10			$V/\mu s$	
$I_H$	Holding Current			20		mA	
$R_{th}$	Thermal Resistance	Junction to case			3.3	$^\circ\text{C}/W$	

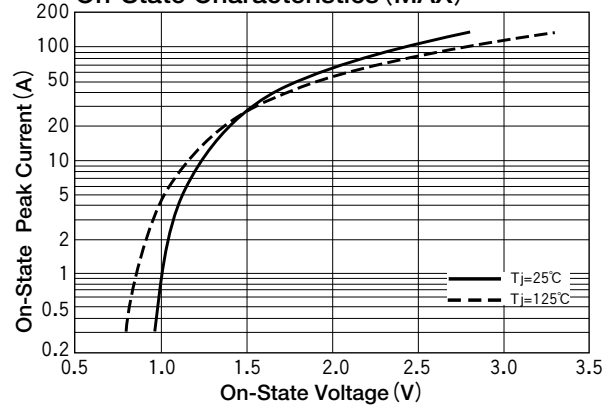
Trigger mode of the triac



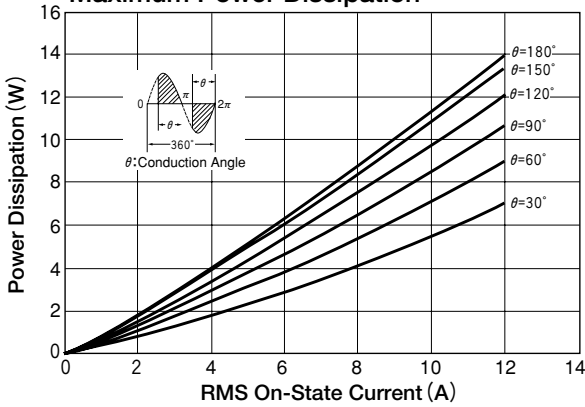
### Gate Characteristics



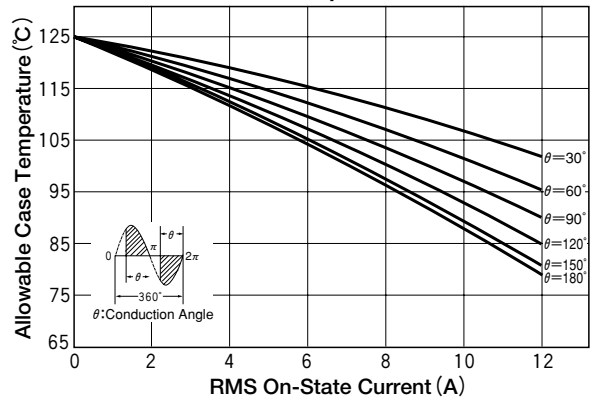
### On-State Characteristics (MAX)



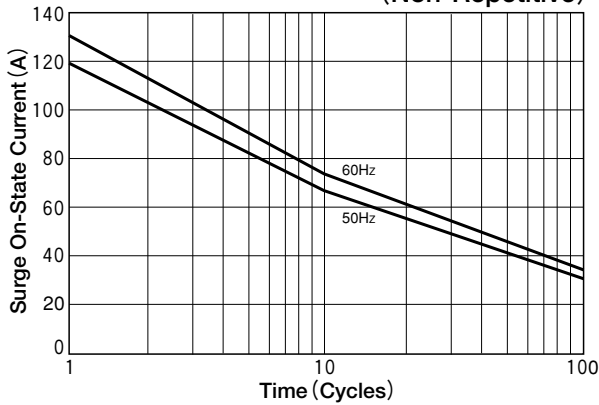
### RMS On-State Current vs Maximum Power Dissipation



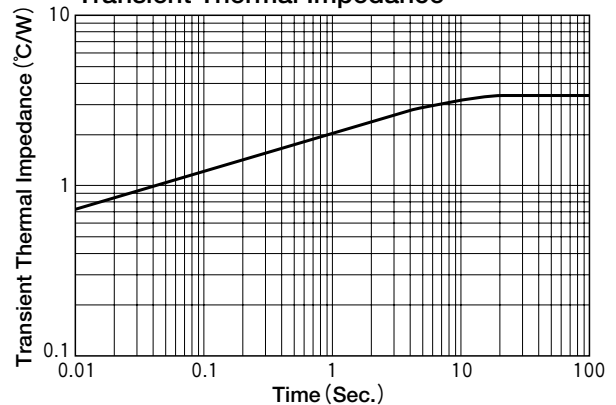
### RMS On-State vs Allowable Case Temperature



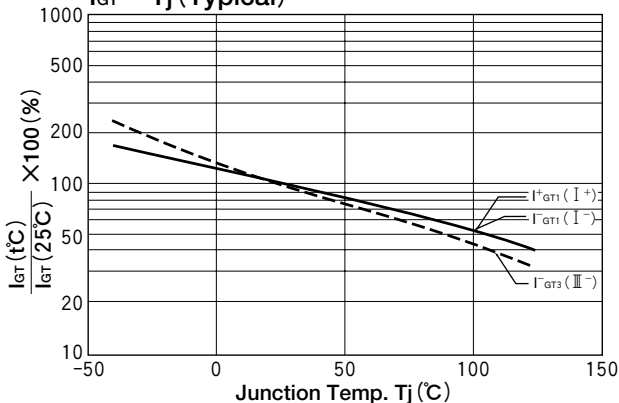
### Surge On-State Current Rating (Non-Repetitive)



### Transient Thermal Impedance



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



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

