

# TRIAC(Through Hole / Isolated)

# TMG12CQ60F

(T<sub>j</sub>=150°C)

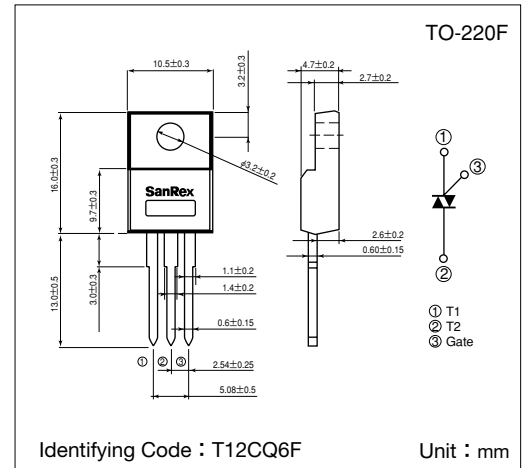
**SanRex** Triac TMG12CQ60F is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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>=12A
- High Surge Current
- Low Voltage Drop
- Lead-Free Package



### Maximum Ratings

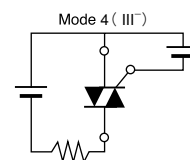
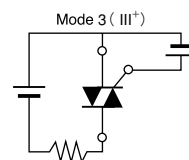
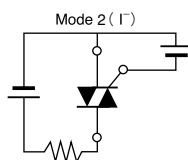
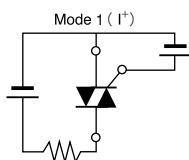
(T<sub>j</sub>=25°C unless otherwise specified)

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> =103°C	12	A
I <sub>TSM</sub>	Surge On-State Current	One cycle, 50Hz/60Hz, Peak value non-repetitive	119/130	A
I <sup>2</sup> <sub>t</sub>	I <sup>2</sup> <sub>t</sub> (for fusing)		71	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		2	g

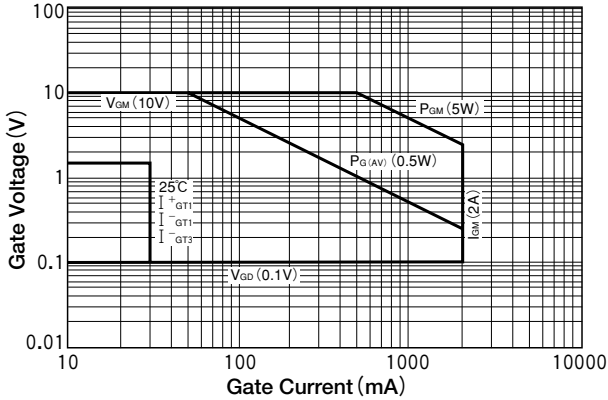
### Electrical Characteristics

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> =20A, Inst. measurement			1.4	V
I <sub>GT1</sub> <sup>+</sup>	Gate Trigger Current	V <sub>D</sub> =6V, R <sub>L</sub> =10Ω			30	mA
I <sub>GT1</sub> <sup>-</sup>					30	
I <sub>GT3</sub> <sup>+</sup>					—	
I <sub>GT3</sub> <sup>-</sup>					30	
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> =-6A/ms, V <sub>D</sub> =2/3V <sub>DRM</sub>	5			V/μs
I <sub>H</sub>	Holding Current			20		mA
R <sub>th</sub>	Thermal Resistance	Junction to case			3.3	°C/W

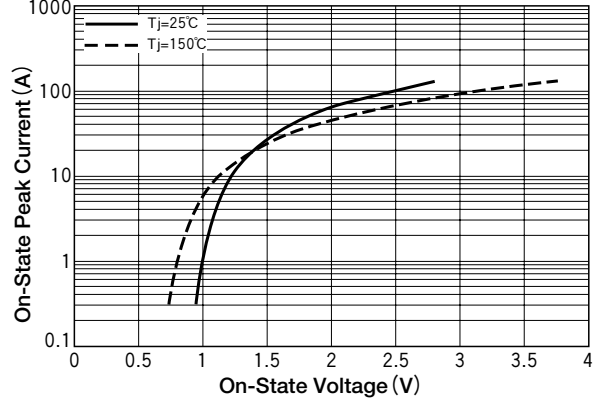
Trigger mode of the triac



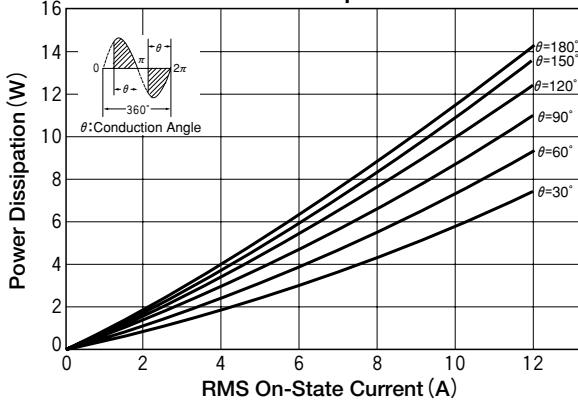
### Gate Characteristics



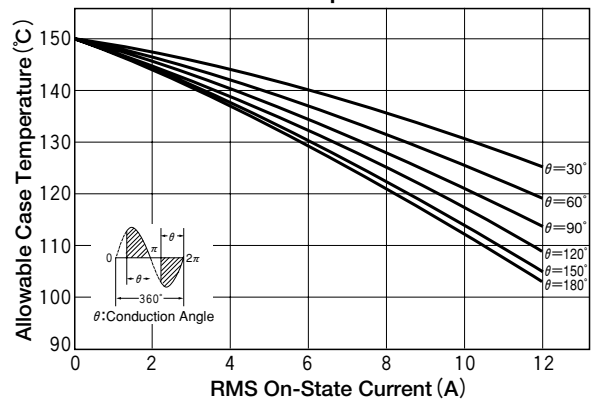
### On-State Characteristics (MAX)



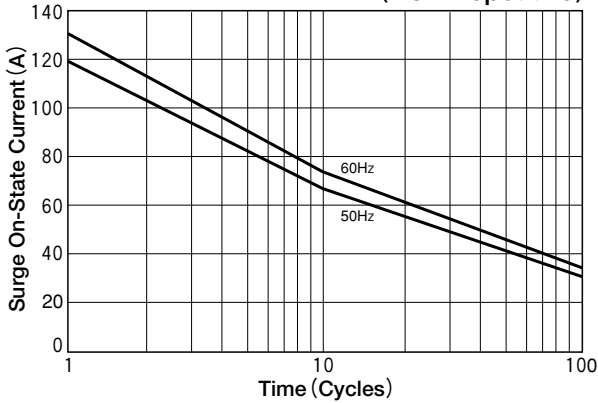
### RMS On-State Current vs Maximum Power Dissipation



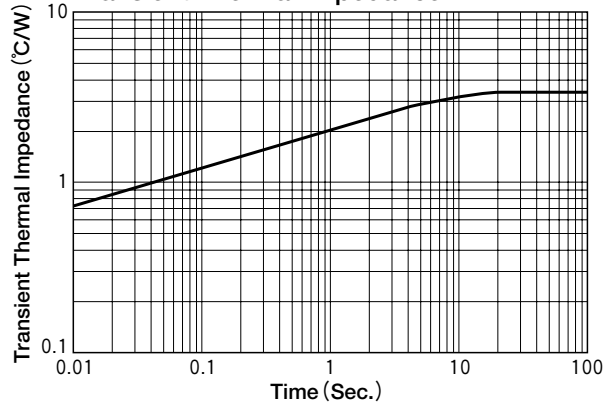
### RMS On-State vs Allowable Case Temperature



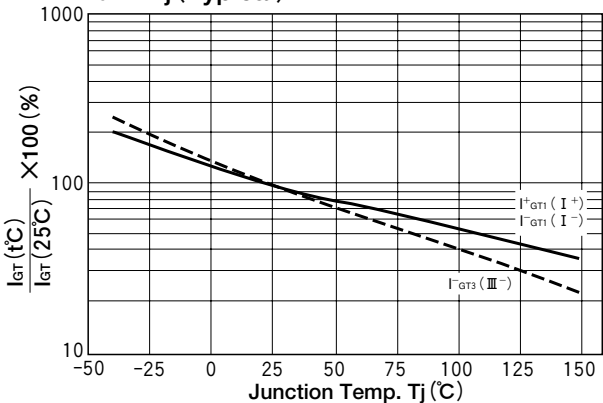
### Surge On-State Current Rating (Non-Repetitive)



### Transient Thermal Impedance



### I\_GT - T\_j (Typical)



### V\_GT - T\_j (Typical)

