

# TRIAC(Surface Mount Device / Non-isolated)

# TMG3CQ60D

(T<sub>j</sub>=150°C)

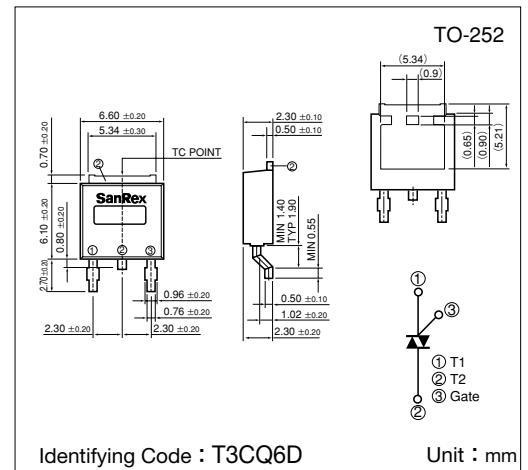
**SanRex** Triac TMG3CQ60D is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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>=3A
- High Surge Current
- Low Voltage Drop
- Lead-Free Package



### Maximum Ratings

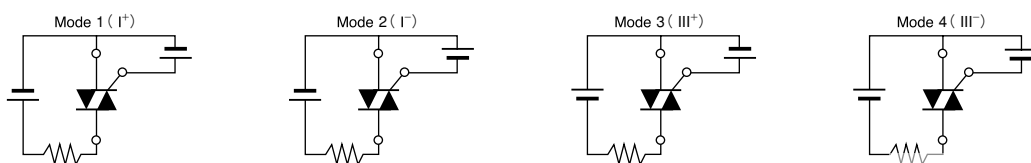
(T<sub>j</sub>=25°C unless otherwise specified)

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> =136°C	3	A
I <sub>TSM</sub>	Surge On-State Current	One cycle, 50Hz/60Hz, Peak value non-repetitive	27/30	A
I <sup>2</sup> t	I <sup>2</sup> t (for fusing)		3.7	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~+150	°C
T <sub>stg</sub>	Storage Temperature		-40~+150	°C
	Mass		0.32	g

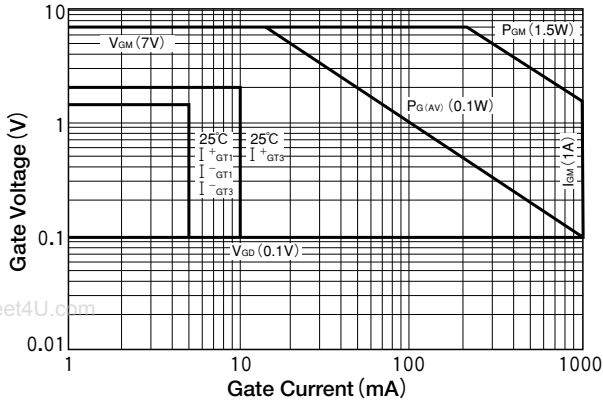
### Electrical Characteristics

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			1	mA
V <sub>TM</sub>	Peak On-State Voltage	I <sub>T</sub> =4.5A, Inst. measurement			1.4	V
I <sub>GT1</sub> <sup>+</sup>	Gate Trigger Current	V <sub>D</sub> =6V, R <sub>L</sub> =10Ω			15	mA
I <sub>GT1</sub> <sup>-</sup>					15	
I <sub>GT3</sub> <sup>+</sup>					—	
I <sub>GT3</sub> <sup>-</sup>					15	
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> =-1.5A/ms, V <sub>D</sub> =2/3V <sub>DRM</sub>	5			V/μs
I <sub>H</sub>	Holding Current			2		mA
R <sub>th(j-c)</sub>	Thermal Resistance	Junction to case			3.8	°C/W
R <sub>th(j-a)</sub>		Junction to ambient			60	

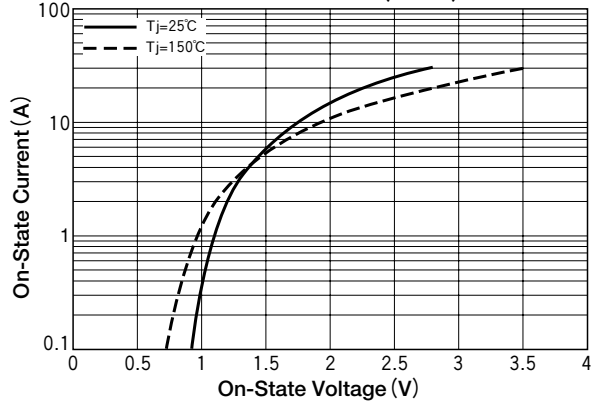
Trigger mode of the triac



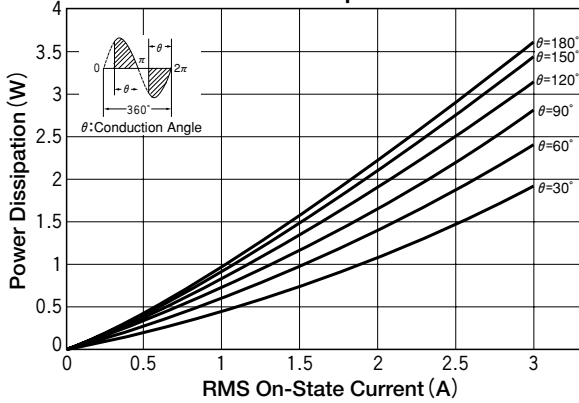
### Gate Characteristics



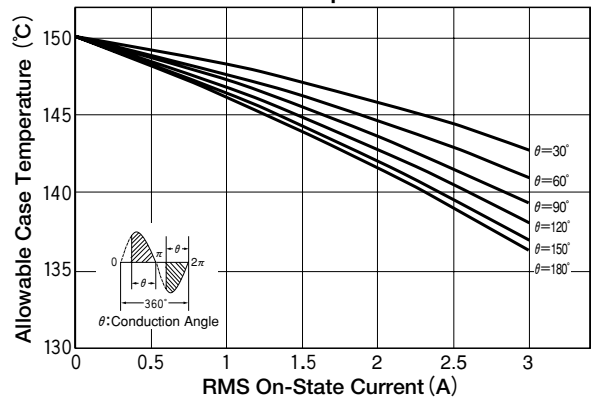
### On-State Characteristics (MAX)



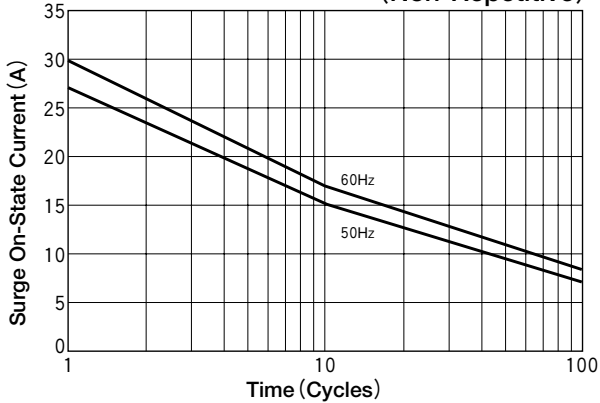
### RMS On-State Current vs Maximum Power Dissipation



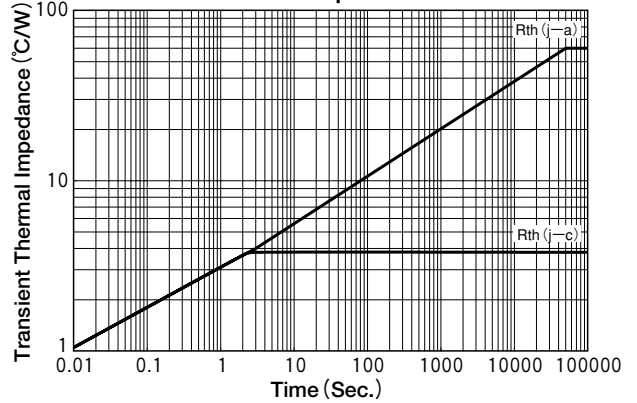
### RMS On-State vs Allowable Case Temperature



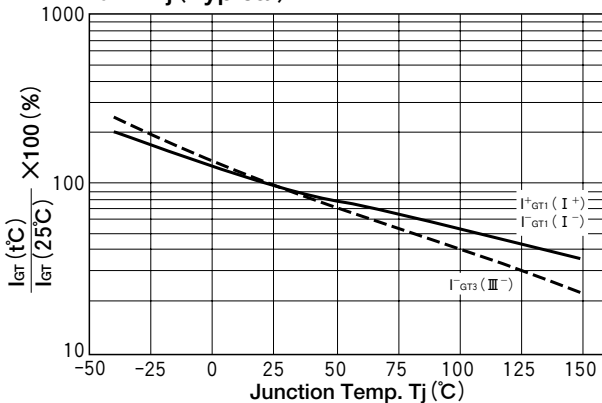
### Surge On-State Current Rating (Non-Repetitive)



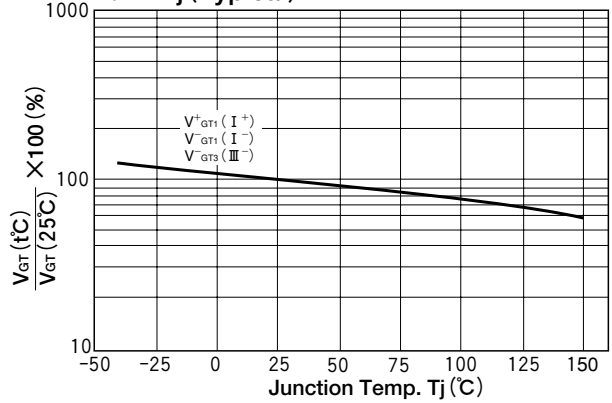
### Transient Thermal Impedance



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



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



**R.M.S On-State vs  
Allowable Ambient Temperature**

