

# TRIAC(Surface Mount Device / Non-isolated)

# TMG3D60D

(Sensitive Gate)

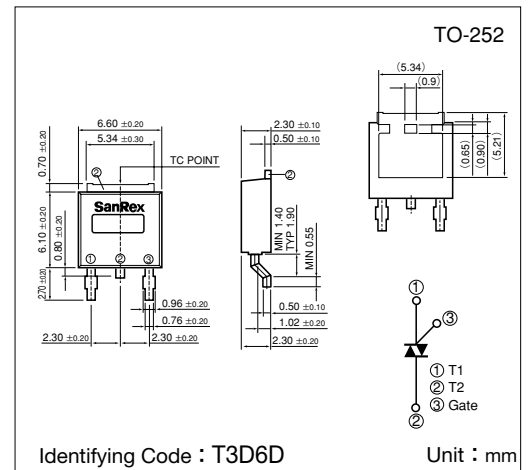
**SanRex** Triac TMG3D60D is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### 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

- $I_{T(RMS)}=3A$
- High Surge Current
- Low Voltage Drop
- Lead-Free Package



### Maximum Ratings

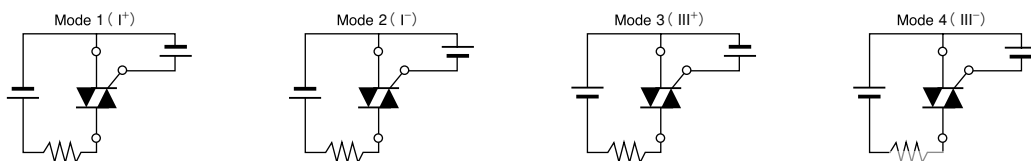
( $T_j=25^{\circ}C$  unless otherwise specified)

Symbol	Item	Reference	Ratings	Unit
$V_{DRM}$	Repetitive Peak Off-State Voltage		600	V
$I_{T(RMS)}$	R.M.S. On-State Current	$T_c=111^{\circ}C$	3	A
$I_{TSM}$	Surge On-State Current	One cycle, 50Hz/60Hz, Peak value non-repetitive	27/30	A
$I^2t$	$I^2t$ (for fusing)		3.7	$A^2S$
$P_{GM}$	Peak Gate Power Dissipation		1.5	W
$P_{G(AV)}$	Average Gate Power Dissipation		0.1	W
$I_{GM}$	Peak Gate Current		1	A
$V_{GM}$	Peak Gate Voltage		7	V
$T_j$	Operating Junction Temperature		$-40 \sim +125$	$^{\circ}C$
$T_{stg}$	Storage Temperature		$-40 \sim +150$	$^{\circ}C$
	Mass		0.32	g

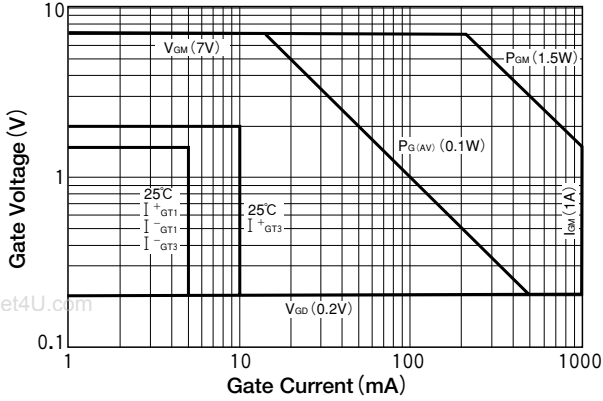
### Electrical Characteristics

Symbol	Item	Reference	Ratings			Unit	
			Min.	Typ.	Max.		
$I_{DRM}$	Repetitive Peak Off-State Current	$V_D=V_{DRM}$ , Single phase, half wave, $T_j=125^{\circ}C$			1	mA	
$V_{TM}$	Peak On-State Voltage	$I_T=4.5A$ , Inst. measurement			1.4	V	
$I_{GT1}^+$	Gate Trigger Current	$V_D=6V$ , $R_L=10\Omega$			5	mA	
$I_{GT1}^-$					5		
$I_{GT3}^+$					10		
$I_{GT3}^-$					5		
$V_{GT1}^+$	Gate Trigger Voltage					1.5	V
$V_{GT1}^-$						1.5	
$V_{GT3}^+$						2.0	
$V_{GT3}^-$						1.5	
$V_{GD}$	Non-Trigger Gate Voltage	$T_j=125^{\circ}C$ , $V_D=1/2 V_{DRM}$	0.2			V	
$[dv/dt]_c$	Critical Rate of Rise of Off-State Voltage at Commutation	$T_j=125^{\circ}C$ , $[di/dt]_c=-1.5A/ms$ , $V_D=2/3 V_{DRM}$	5			$V/\mu s$	
$I_H$	Holding Current			2		mA	
$R_{th(j-c)}$	Thermal Resistance	Junction to case			3.8	$^{\circ}C/W$	
$R_{th(j-a)}$		Junction to ambient			60		

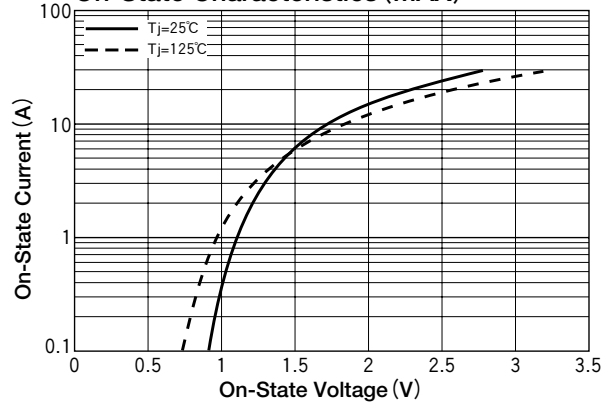
Trigger mode of the triac



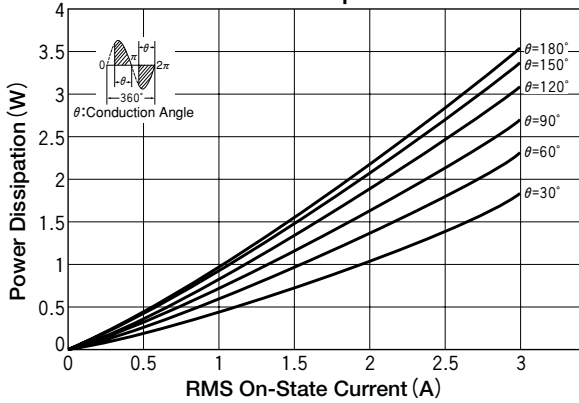
### Gate Characteristics



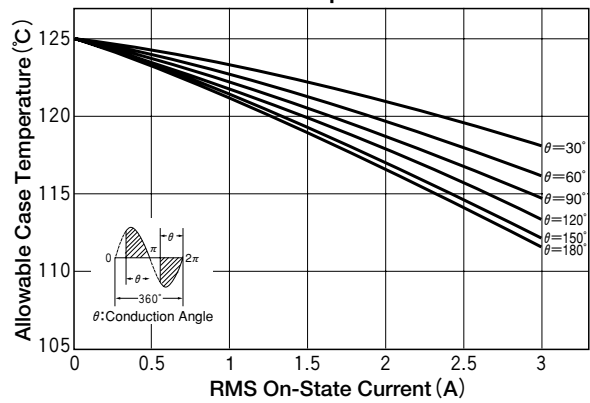
### On-State Characteristics (MAX)



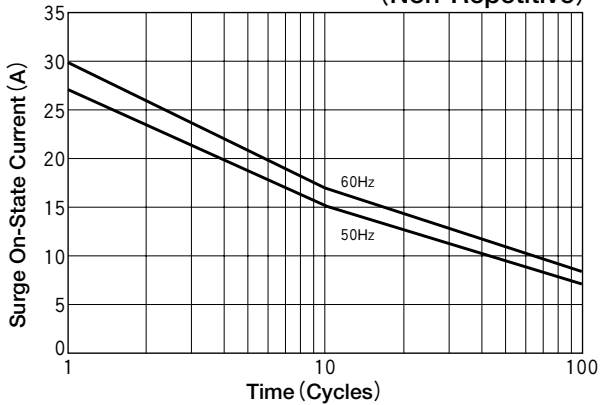
### RMS On-State Current vs Maximum Power Dissipation



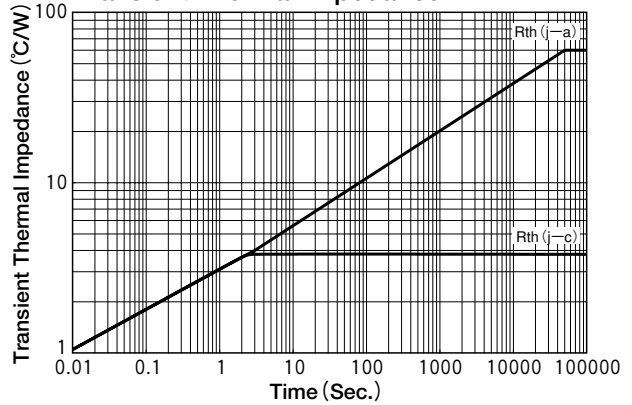
### RMS On-State vs Allowable Case Temperature



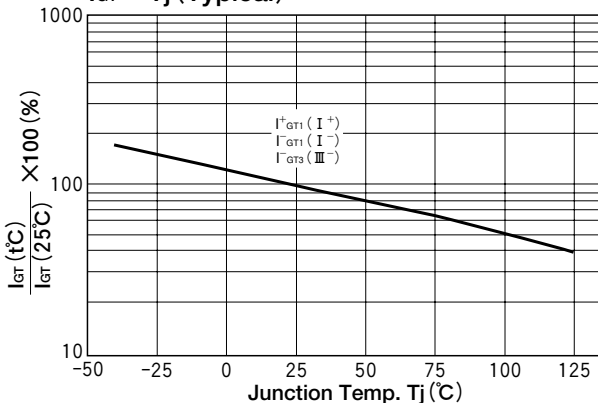
### Surge On-State Current Rating (Non-Repetitive)



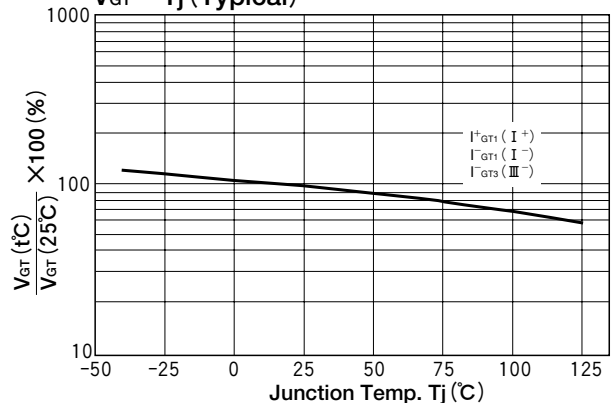
### Transient Thermal Impedance



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



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



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