

# THYRISTOR(Through Hole/Non-isolated)

## SMG12C60

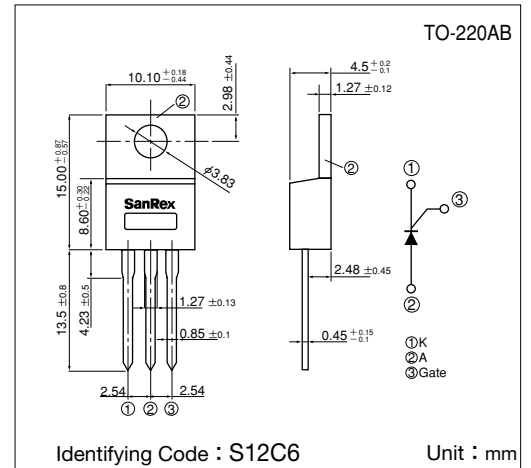
**SanRex** Thyristor **SMG12C60** is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

### Typical Applications

- Home Appliances : Electric Blankets, Starter for FL, other control applications
- Industrial Use : SMPS, Solenoid for Breakers, Motor Controls, Heater Controls, other control applications

### Features

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



### Maximum Ratings

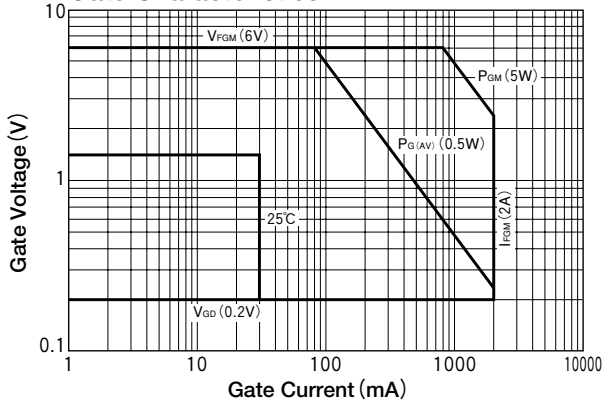
( $T_j=25^{\circ}C$  unless otherwise specified)

Symbol	Item	Reference	Ratings	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage		600	V
$V_{RSM}$	Non-Repetitive Peak Reverse Voltage		720	V
$V_{DRM}$	Repetitive Peak Off-State Voltage		600	V
$I_{T(AV)}$	Average On-State Current	Single phase, half wave, $180^{\circ}$ conduction, $T_c=94^{\circ}C$	12	A
$I_{T(RMS)}$	R.M.S. On-State Current	Single phase, half wave, $180^{\circ}$ conduction, $T_c=94^{\circ}C$	18.8	A
$I_{TSM}$	Surge On-State Current	50Hz/60Hz, $\frac{1}{2}$ cycle Peak value, non-repetitive	180/197	A
$I^2t$	$I^2t$		162	A <sup>2</sup> S
$P_{GM}$	Peak Gate Power Dissipation		5	W
$P_{G(AV)}$	Average Gate Power Dissipation		0.5	W
$I_{FGM}$	Peak Gate Current		2	A
$V_{FGM}$	Peak Gate Voltage (Forward)			V
$V_{RGM}$	Peak Gate Voltage (Reverse)		10	V
$T_j$	Operating Junction Temperature		$-40 \sim +125$	$^{\circ}C$
$T_{stg}$	Storage Temperature		$-40 \sim +150$	$^{\circ}C$
	Mass		2	g

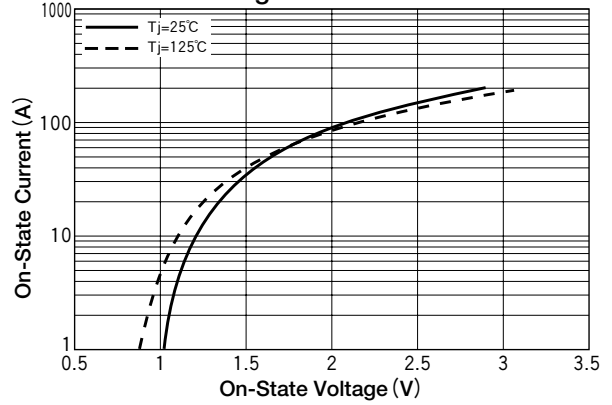
### Electrical Characteristics

Symbol	Item	Reference	Ratings			Unit
			Min.	Typ.	Max.	
$I_{DRM}$	Repetitive Peak Off-State Current	$T_j=125^{\circ}C, V_D=V_{DRM},$			2	mA
$I_{RRM}$	Repetitive Peak Reverse Current	$T_j=125^{\circ}C, V_R=V_{RRM},$			2	mA
$V_{TM}$	Peak On-State Voltage	$I_T=35A, \text{Inst. measurement}$			1.5	V
$I_{GT}$	Gate Trigger Current	$V_D=6V, R_L=10\Omega$			30	mA
$V_{GT}$	Gate Trigger Voltage				1.4	V
$V_{GD}$	Non-Trigger Gate Voltage	$T_j=125^{\circ}C, V_D=\frac{1}{2}V_{DRM},$	0.2			V
$I_H$	Holding Current			15		mA
$R_{th(j-c)}$	Thermal Resistance	Junction to case			1.8	$^{\circ}C/W$

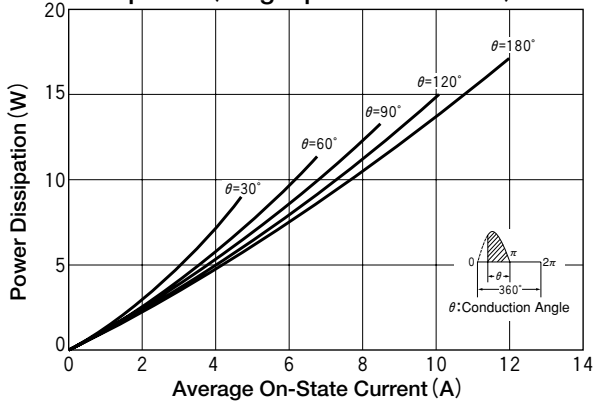
### Gate Characteristics



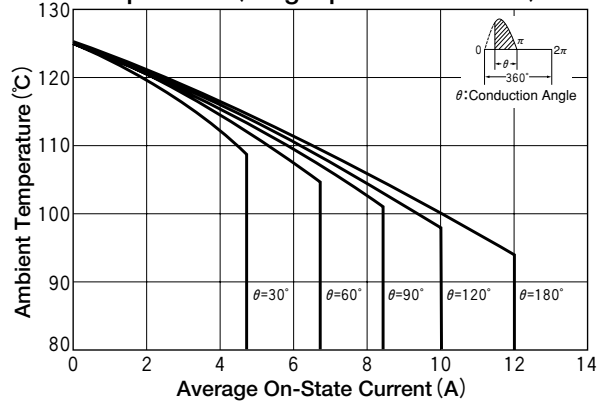
### On-State Voltage Max



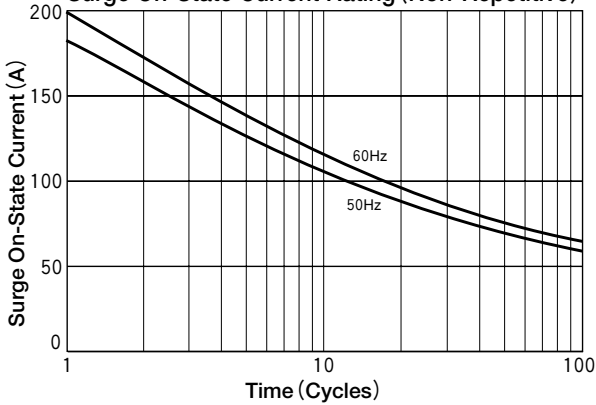
### Average On-State Current vs Power Dissipation (Single phase half wave)



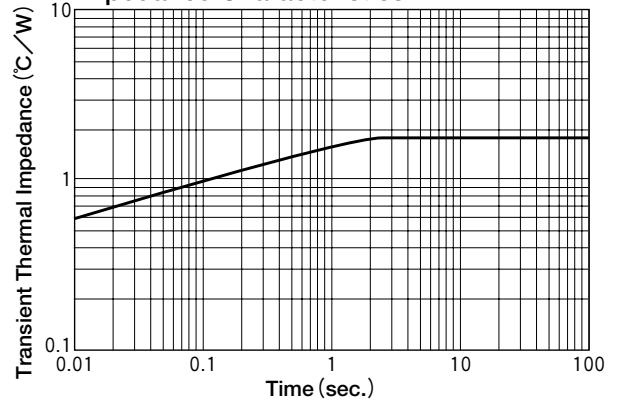
### Average On-State Current vs Ambient Temperature (Single phase half wave)



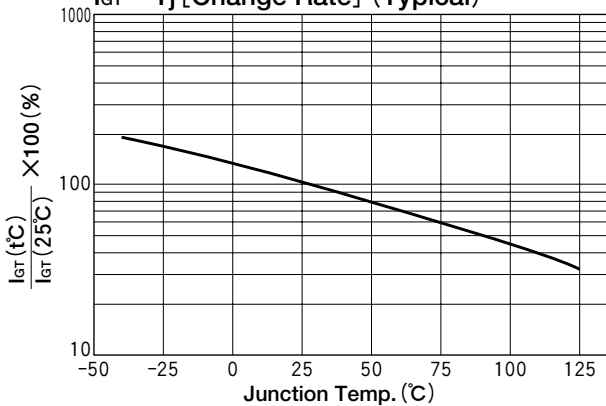
### Surge On-State Current Rating (Non-Repetitive)



### Maximum Transient Thermal Impedance Characteristics



### $I_{GT} - T_j$ [Change Rate] (Typical)



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

