

THYRISTOR

SMG05CB60

(Sensitive Gate)

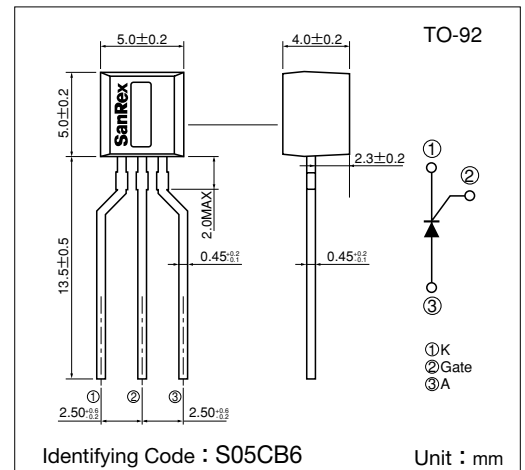
SanRex Thyristor **SMG05CB60** is designed for full wave AC control applications. It can be used as an ON/OFF function or for phase control operation.

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

- $I_{T(AV)}=0.5A$
- High Surge Current
- Low Voltage Drop



Maximum Ratings

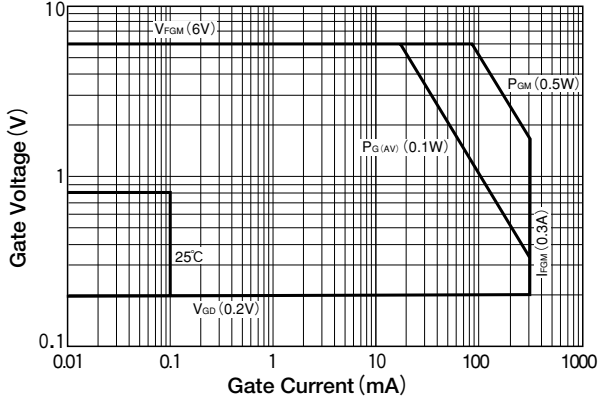
($T_j=25^\circ\text{C}$ unless otherwise specified)

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° , conduction, $T_a=39^\circ\text{C}$	0.5	A
$I_{T(RMS)}$	R.M.S. On-State Current	Single phase, half wave, 180° , conduction, $T_a=39^\circ\text{C}$	0.8	A
I_{TSM}	Surge On-State Current	50/60Hz, $\frac{1}{2}$ cycle Peak value, non-repetitive	18/20	A
I^2t	I^2t		1.65	A^2S
P_{GM}	Peak Gate Power Dissipation		0.5	W
$P_{G(AV)}$	Average Gate Power Dissipation		0.1	W
I_{FGM}	Peak Gate Current		0.3	A
V_{FGM}	Peak Gate Voltage (Forward)		6	V
V_{RGM}	Peak Gate Voltage (Reverse)		6	V
T_j	Operating Junction Temperature		$-40 \sim +125$	$^\circ\text{C}$
T_{stg}	Storage Temperature		$-40 \sim +150$	$^\circ\text{C}$
	Mass		0.2	g

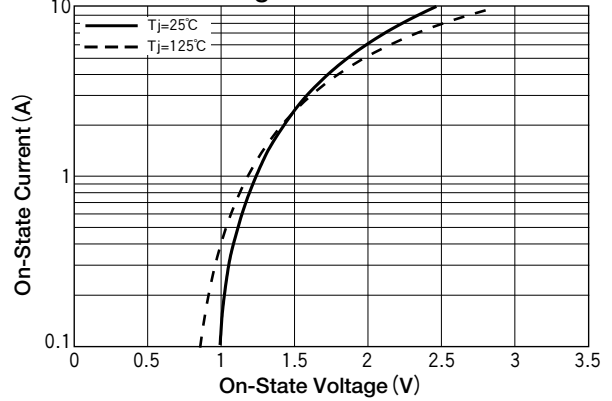
Electrical Characteristics

Symbol	Item	Reference	Ratings			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive Peak Off-State Current	$T_j=125^\circ\text{C}$, $V_D=V_{DRM}$, $R_{GK}=1k\Omega$			0.5	mA
		$T_j=110^\circ\text{C}$, $V_D=V_{DRM}$, $R_{GK}=1k\Omega$			0.1	mA
I_{RRM}	Repetitive Peak Reverse Current	$T_j=125^\circ\text{C}$, $V_R=V_{RRM}$, $R_{GK}=1k\Omega$			0.5	mA
		$T_j=110^\circ\text{C}$, $V_R=V_{RRM}$, $R_{GK}=1k\Omega$			0.1	mA
V_{TM}	Peak On-State Voltage	$I_T=1.5A$, Inst. measurement			1.2	V
I_{GT}	Gate Trigger Current	$V_D=6V$, $R_L=100\Omega$			200	μA
V_{GT}	Gate Trigger Voltage				0.8	V
V_{GD}	Non-Trigger Gate Voltage	$T_j=125^\circ\text{C}$, $V_D=\frac{1}{2}V_{DRM}$, $R_{GK}=1k\Omega$	0.2			V
I_H	Holding Current			500	μA	
$R_{th(j-a)}$	Thermal Resistance	Junction to ambient			150	$^\circ\text{C/W}$

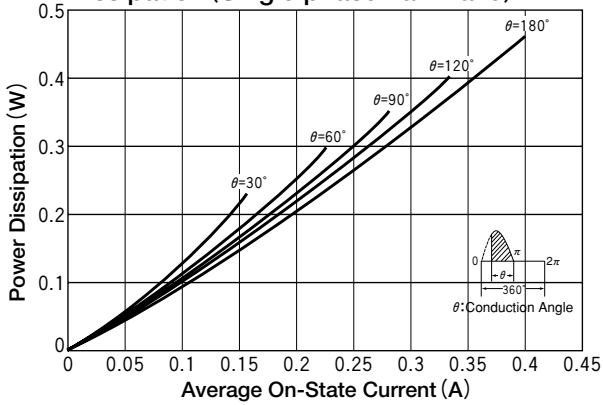
Gate Characteristics



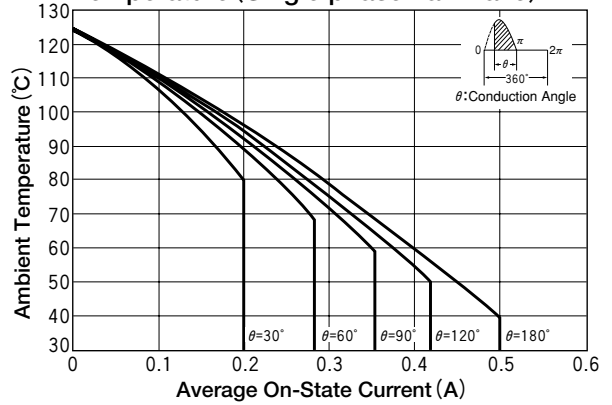
On-State Voltage (MAX)



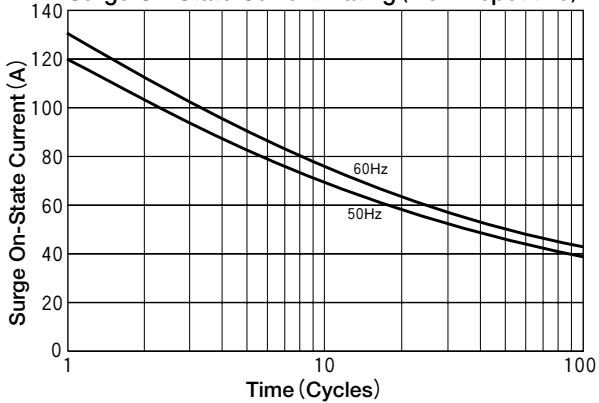
Average On-State Current vs Power Dissipation (Single phase half wave)



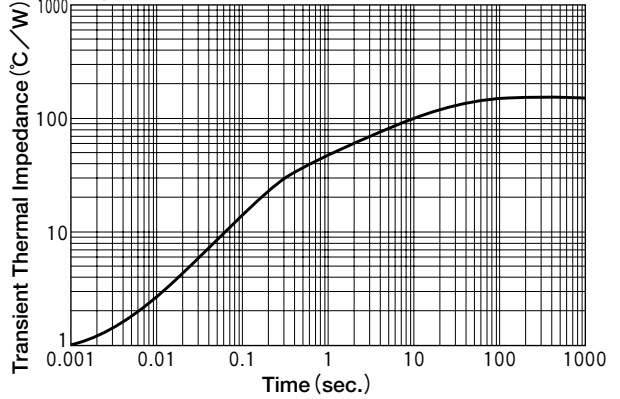
Average On-State Current vs Ambient Temperature (Single phase half wave)



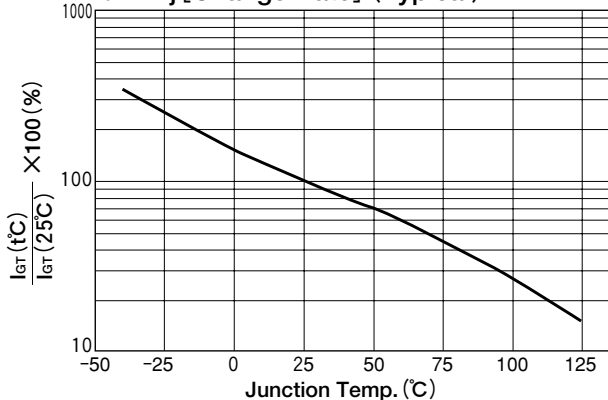
Surge On-State Current Rating (Non-Repetitive)



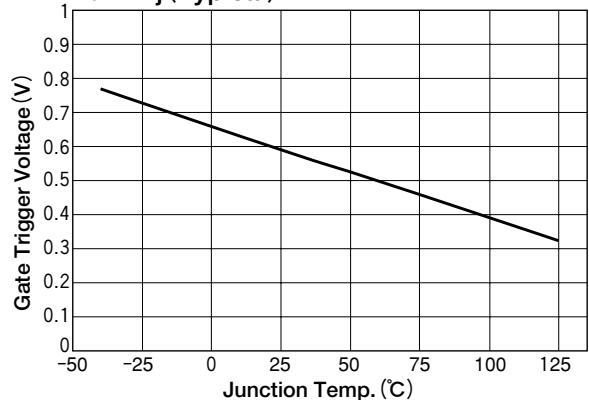
Maximum Transient Thermal Impedance Characteristics



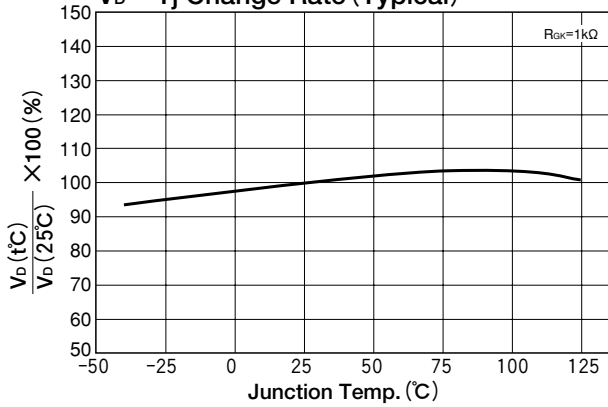
$I_{GT} - T_j$ [Change Rate] (Typical)



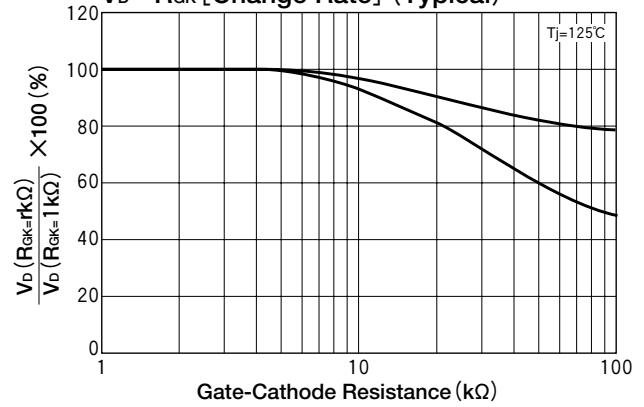
$V_{GT} - T_j$ (Typical)



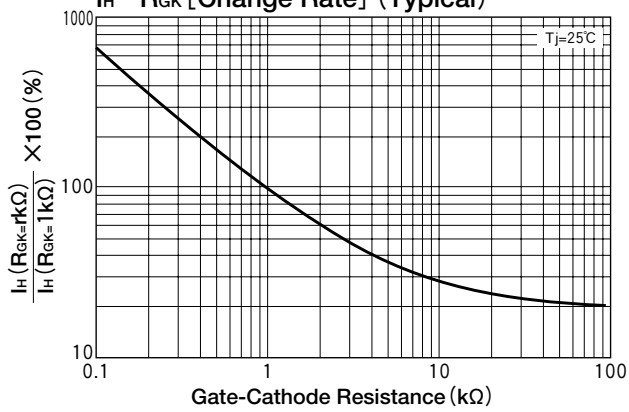
$V_D - T_j$ Change Rate (Typical)



$V_D - R_{GK}$ [Change Rate] (Typical)



$I_H - R_{GK}$ [Change Rate] (Typical)



$V_R - T_j$ Change Rate (Typical)

