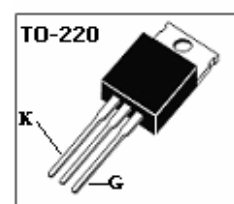


Silicon Controlled Rectifier

■ Features

- * Repetitive Peak Off-State Voltage : 600V
- * R.M.S On-State Current($I_{T(RMS)}=12A$)
- * Low On-State Voltage (1.3V(Typ.)@ I_{TM})
- * Non-isolated Type



■ General Description

Standard gate triggering SCR is suitable for the application where requiring high bi-directional blocking voltage capability and also suitable for over voltage protection, motor control circuit in power tool, inrush current limit circuit and heating control system.

■ Absolute Maximum Ratings ($T_a=25^\circ\text{C}$ unless otherwise specified)

T_{stg}	—Storage Temperature	-----	-40~125 $^\circ\text{C}$
T_j	—Operating Junction Temperature	-----	-40~125 $^\circ\text{C}$
V_{DRM}	—Repetitive Peak Off-State Voltage	-----	600V
I_T (RMS)	—R.M.S On-State Current (180 $^\circ$ Conduction Angles)	-----	12A
$I_{T(AV)}$	—Average On-State Current (Half Sine Wave : $T_C = 109^\circ\text{C}$)	-----	7.6A
I_{TSM}	—Surge On-State Current (1/2 Cycle, 60Hz, Sine Wave, Non-repetitive)	-----	132A
I^2t	—Circuit Fusing Considerations($t = 8.3\text{ms}$)	-----	87A ^2s
P_{GM}	—Forward Peak Gate Power Dissipation ($T_a=25^\circ\text{C}$)	-----	5W
$P_{G(AV)}$	—Forward Average Gate Power Dissipation ($T_a=25^\circ\text{C}$, $t=8.3\text{ms}$)	-----	0.5W
I_{FGM}	—Forward Peak Gate Current	-----	2A
V_{RGM}	—Reverse Peak Gate Voltage	-----	5V



Electrical Characteristics ($T_a=25^\circ\text{C}$ unless otherwise specified)

Symbol	Items	Min.	Typ.	Max.	Unit	Conditions
I_{DRM}	Repetitive Peak Off-State Current			10 200	μA	$V_{\text{AK}}=V_{\text{DRM}}$ $T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$
V_{TM}	Peak On-State Voltage (1)			1.6	V	$I_{\text{TM}}=24\text{A}, t_p=380\mu\text{s}$
I_{GT}	Gate Trigger Current (2)			15	mA	$V_{\text{AK}}=6\text{V(DC)}, R_L=10\text{ ohm}$
V_{GT}	Gate Trigger Voltage (2)			1.5	V	$V_{\text{AK}}=6\text{V(DC)}, R_L=10\text{ ohm}$ $T_c=25^\circ\text{C}$
V_{GD}	Non-Trigger Gate Voltage	0.2			V	$V_{\text{AK}}=12\text{V}, R_L=100\text{ ohm}$ $T_c=125^\circ\text{C}$
I_{H}	Holding Current			20	mA	$I_T=100\text{mA}, \text{Gate open},$ $T_c=25^\circ\text{C}$
$R_{\text{th(j-c)}}$	Thermal Resistance			1.3	$^\circ\text{C/W}$	Junction to Case
$R_{\text{th(j-a)}}$	Thermal Resistance			60	$^\circ\text{C/W}$	Junction to Ambient
dv/dt	Critical Rate of Rise Off-state Voltage	200			$\text{V}/\mu\text{s}$	Linear slope up to $V_D=V_{\text{DRM}}67\%$ Gate open $T_j=125^\circ\text{C}$

1. Forward current applied for 1 ms maximum duration, duty cycle $\leq 1\%$.
2. R_{GK} current is not included in measurement

Performance Curves

FIGURE 1 – Gate Characteristics

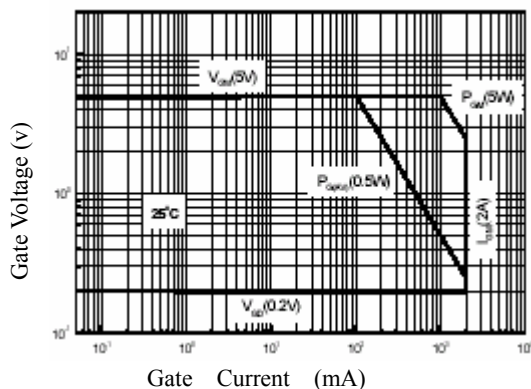
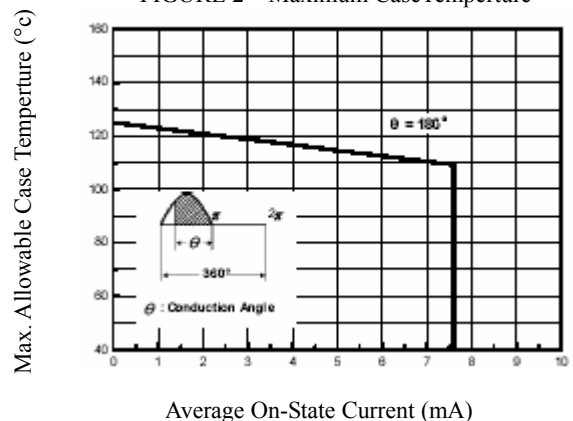


FIGURE 2 – Maximum Case Temperature



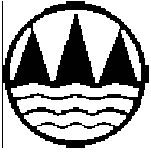
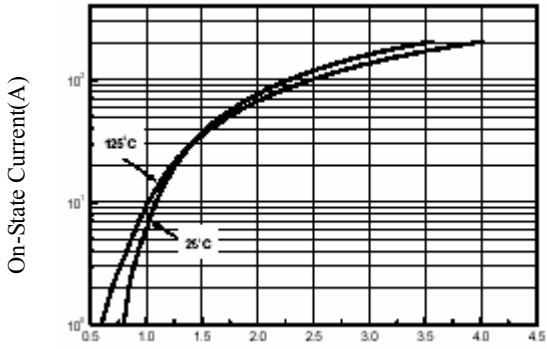
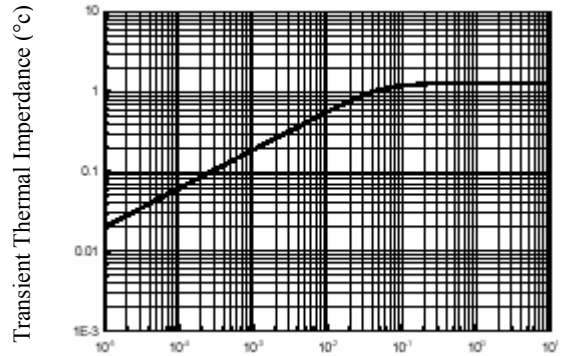


FIGURE 3-Typical Forward Voltage(V)



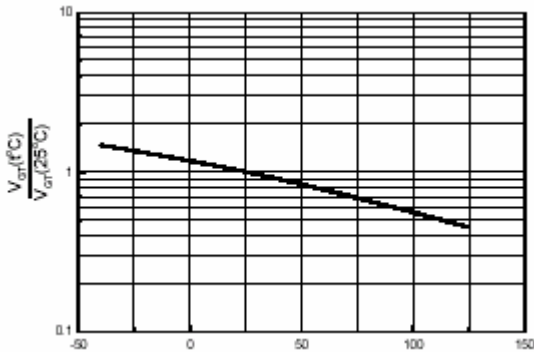
On-State Voltage (V)

FIGURE 4-Thermal Response



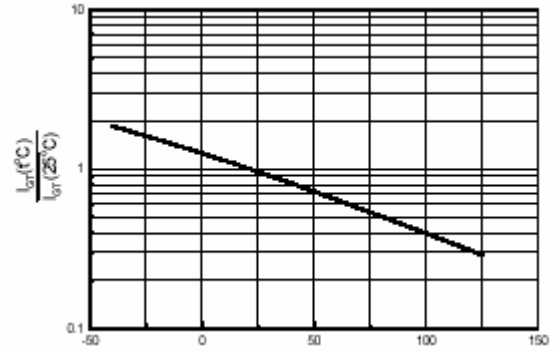
Time (sec)

FIGURE 5-Typical Gate Trigger Voltage VS Junction Temperature



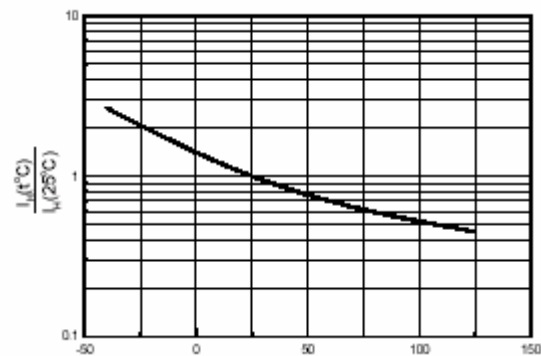
Junction Temperature (°C)

FIGURE 6-Typical Gate Trigger Current VS Junction Temperature



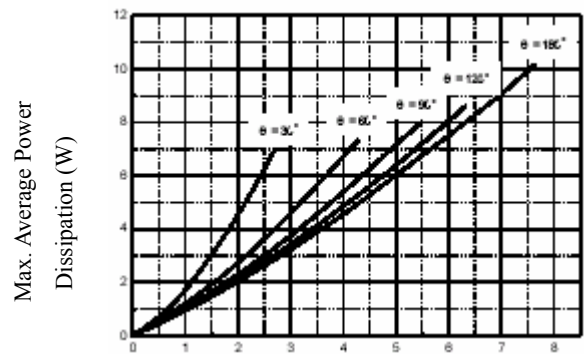
Junction Temperature (°C)

FIGURE 7-Typical Holding Current



Junction Temperature (°C)

FIGURE 8-Power Dissipation



Average On-State Current (A)