



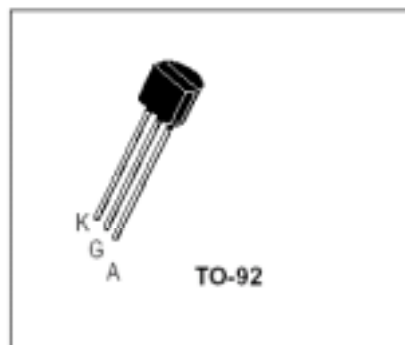
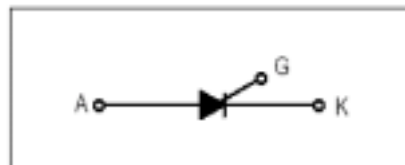
Sensitive Gate Silicon Controlled Rectifiers

Features

- * Repetitive Peak Off-State Voltage : 400V thru 600V
- * R.M.S On-State Current($I_{T(RMS)}$)=0.8A
- * Low On-State Voltage (1.2V(Typ.)@ I_{TM})

General Description

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits. Supplied in an inexpensive plastic TO-92 package which is readily adaptable for use in automatic insertion equipment.



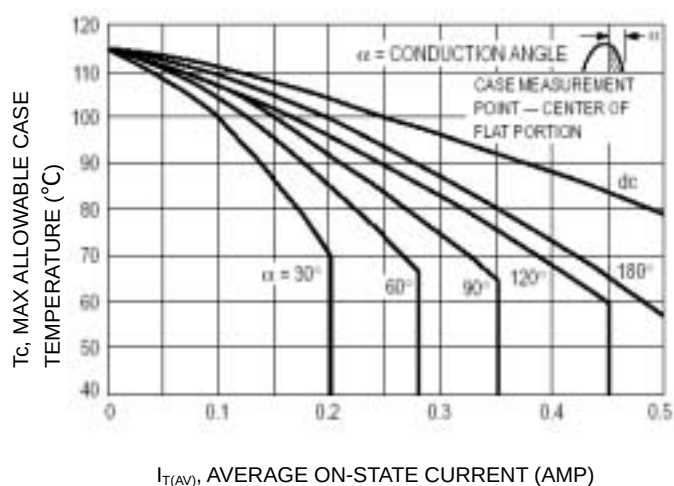
Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

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	MCR100-6 -----	400V
	MCR100-8 -----	600V
I_T (RMS) — R.M.S On-State Current (All Condition Angles)	-----	0.8A
$I_{T(AV)}$ — Average On-State Current (Half Sine Wave : $T_C = 74^{\circ}\text{C}$)	-----	0.5A
I_{TSM} — Surge On-State Current (1/2 Cycle, 60Hz, Sine Wave, Non-repetitive)	-----	10A
I^2t — Circuit Fusing Considerations($t = 8.3\text{ms}$)	-----	0.415 A^2s
P_{GM} — Forward Peak Gate Power Dissipation ($T_a=25^{\circ}\text{C}$)	-----	0.1W
$P_{G(AV)}$ — Forward Average Gate Power Dissipation ($T_a=25^{\circ}\text{C}$, $t=8.3\text{ms}$)	-----	0.01W
I_{FGM} — Forward Peak Gate Current	-----	1A
V_{RGM} — Reverse Peak Gate Voltage	-----	5V

**Electrical Characteristics** ($T_a=25^{\circ}\text{C}$, $R_{gk}=1\text{K ohm}$ unless otherwise specified)

Symbol	Items	Min.	Typ.	Max.	Unit	Conditions
I_{DRM}	Repetitive Peak Off-State Current			10 200	μA	$V_{\text{AK}}=V_{\text{DRM}}$ or V_{RRM} $T_a=25^{\circ}\text{C}$ $T_a=125^{\circ}\text{C}$
V_{TM}	Peak On-State Voltage (1)		1.2	1.7	V	$I_{\text{TM}}=1\text{A}$, Peak
I_{GT}	Gate Trigger Current (2)			200	μA	$V_{\text{AK}}=7\text{V}$, $R_L=100\text{ ohm}$
V_{GT}	Gate Trigger Voltage (2)			0.8 1.2	V	$V_{\text{AK}}=7\text{V}$, $R_L=100\text{ ohm}$ $T_a=25^{\circ}\text{C}$ $T_a=-40^{\circ}\text{C}$
V_{GD}	Non-Trigger Gate Voltage	0.2			V	$V_{\text{AK}}=12\text{V}$, $R_L=100\text{ ohm}$ $T_a=125^{\circ}\text{C}$
I_{H}	Holding Current		2	5.0 10	mA	$V_{\text{AK}}=12\text{V}$, Gate open, initiating current=50mA $T_a=25^{\circ}\text{C}$ $T_a=-40^{\circ}\text{C}$
$R_{\text{th(j-c)}}$	Thermal Resistance			60.0	$^{\circ}\text{C/W}$	Junction to Case
$R_{\text{th(j-a)}}$	Thermal Resistance			150	$^{\circ}\text{C/W}$	Junction to Ambient

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

Performance Curves**FIGURE 1 – HCR100-8 CURRENT DERATING**
(REFERENCE: CASE TEMPERATURE)**FIGURE 2 – HCR100-8 CURRENT DERATING**
(REFERENCE: AMBIENT TEMPERATURE)