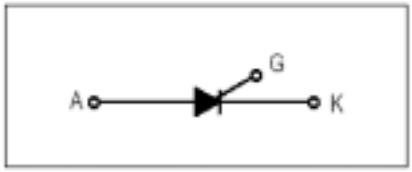
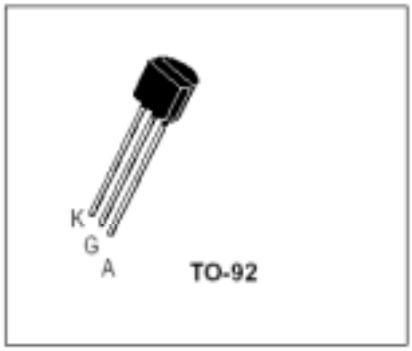
HCR100 Series

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℃ unless otherwise specified)

T_{stg}——Storage Temperature ---------- -40~125℃
T_j ——Operating Junction Temperature ---------- -40~125℃
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 °C) ---------- 0.5A
I_{TSM} ——Surge On-State Current (1/2 Cycle, 60Hz, Sine Wave, Non-repetitive) ---------- 10A
I^2t ——Circuit Fusing Considerations(t = 8.3ms) ---------- 0.415 A^2s
P_{GM} ——Forward Peak Gate Power Dissipation (T_a=25℃) ---------- 0.1W
$P_{G(AV)}$ ——Forward Average Gate Power Dissipation (T_a=25℃, t=8.3ms) ---------- 0.01W
I_{FGM} ——Forward Peak Gate Current ---------- 1A
V_{RGM} ——Reverse Peak Gate Voltage ---------- 5V

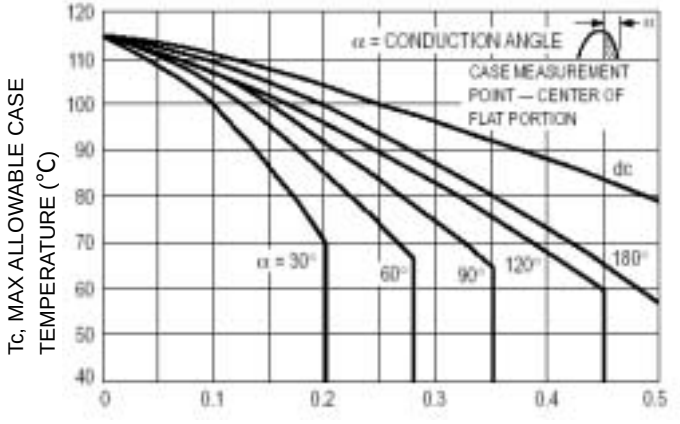
Electrical Characteristics (T_a=25℃, Rgk=1K ohm unless otherwise specified)

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

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

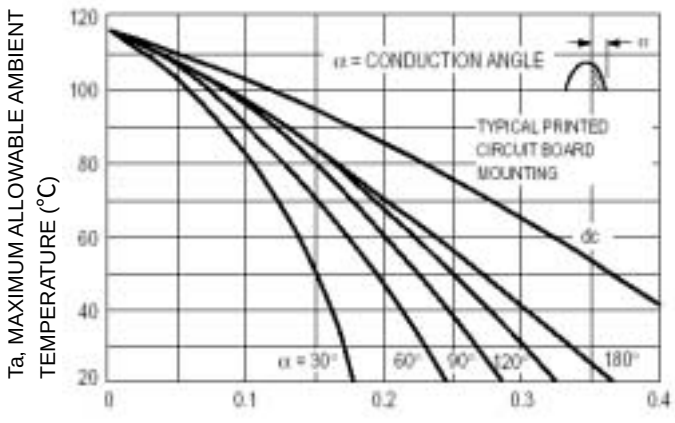
Performance Curves

FIGURE 1 – HCR100-8 CURRENT DERATING (REFERENCE: CASE TEMPERATURE)



$I_{T(AV)}$, AVERAGE ON-STATE CURRENT (AMP)

FIGURE 2 – HCR100-8 CURRENT DERATING (REFERENCE: AMBIENT TEMPERATURE)



$I_{T(AV)}$, AVERAGE ON-STATE CURRENT