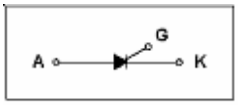
Shantou Huashan Electronic Devices Co.,Ltd.

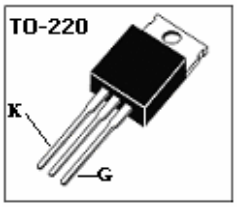
HCP20C60

Silicon Controlled Rectifier

Features

*** Repetitive Peak Off-State Voltage : 600V**
*** R.M.S On-State Current($I_{T(RMS)}$=20A)**
*** 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 cicuit in power tool,inrush current limit circuit and heating control system.

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 ---------- 600V
I_T（RMS）——R.M.S On-State Current（180º Conduction Angles）---------- 20A
$I_{T(AV)}$ ——Average On-State Current (Half Sine Wave : T_C = 102 °C) ----------13A
I_{TSM} ——Surge On-State Current (1/2 Cycle, 60Hz, Sine Wave, Non-repetitive) ---------- 220A
I^2t ——Circuit Fusing Considerations(t = 8.3ms) ---------- 242 A^2s
P_{GM} ——Forward Peak Gate Power Dissipation (T_a=25℃） ---------- 20W
$P_{G(AV)}$ ——Forward Average Gate Power Dissipation (T_a=25℃，t=8.3ms） ---------- 1W
I_{FGM} ——Forward Peak Gate Current ---------- 5A
V_{RGM} ——Reverse Peak Gate Voltage ---------- 5V

Electrical Characteristics (T_a=25℃ unless otherwise specified)

Symbol	Items	Min.	Typ.	Max.	Unit	Conditions
I_{DRM}	Repetitive Peak Off-State Current			10 200	uA	$V_{AK}=V_{DRM}$ T_c=25℃ T_c=125℃
V_{TM}	Peak On-State Voltage (1)			1.6	V	I_{TM}=40A,tp=380μs
I_{GT}	Gate Trigger Current（2）			15	mA	V_{AK} =6V(DC), R_L=10 ohm
V_{GT}	Gate Trigger Voltage (2)			1.5	V	V_{AK} =6V(DC), R_L=10 ohm T_c=25℃
V_{GD}	Non-Trigger Gate Voltage	0.2			V	V_{AK} =12V, R_L=100 ohm T_c=125℃
I_H	Holding Current			20	mA	I_T=100mA,Gate open, T_c=25℃
Rth(j-c)	Thermal Resistance			1.1	℃/W	Junction to Case
Rth(j-a)	Thermal Resistance			60	℃/W	Junction to Ambient
dv/dt	Critical Rate of Rise Off-state Voltage	200			V/μs	Linear slope up to V_D=V_{DRM}67% Gate open Tj=125℃

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 – Gate Characteristics

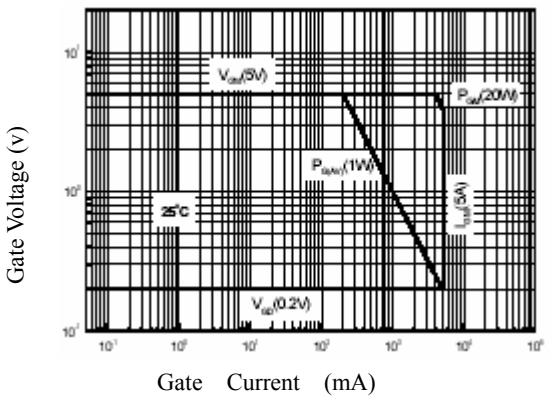


FIGURE 2 – Maximum CaseTemperture

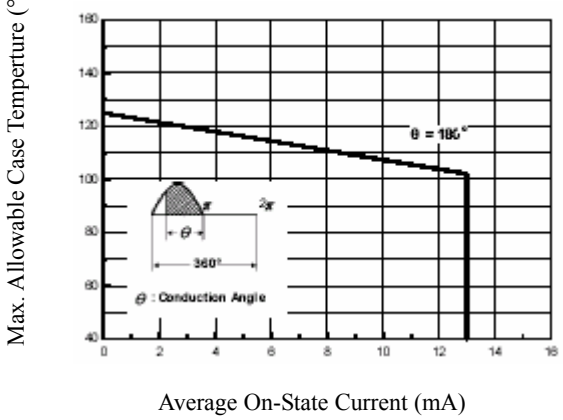


FIGURE 3-Typical Forward Voltage(V)

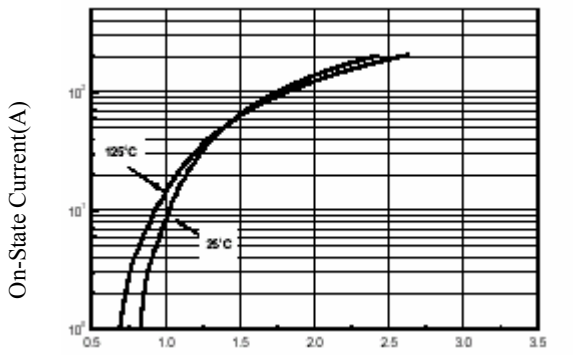


FIGURE 4-Thermal Response

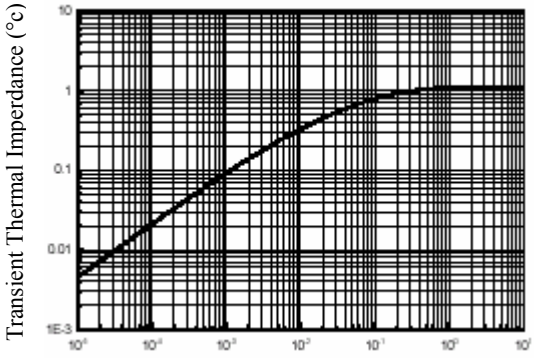


FIGURE 5-Typical Gate Trigger Voltage VS Junction Temperature

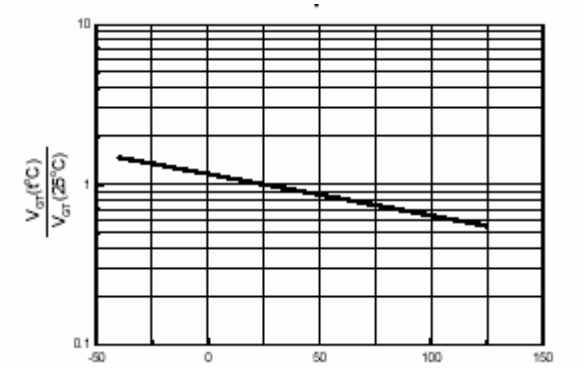


FIGURE 6-Typical Gate Trigger Current VS Junction Temperature

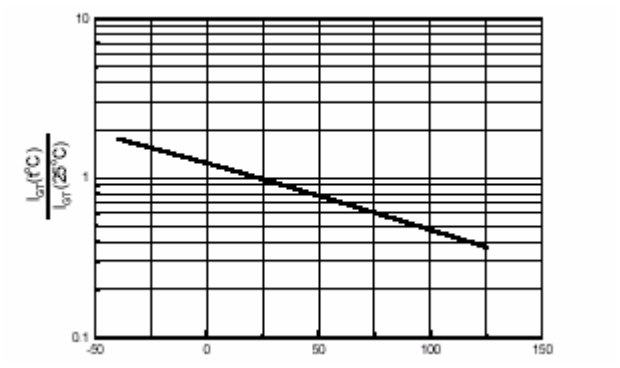


FIGURE 7-Typical Holding Current

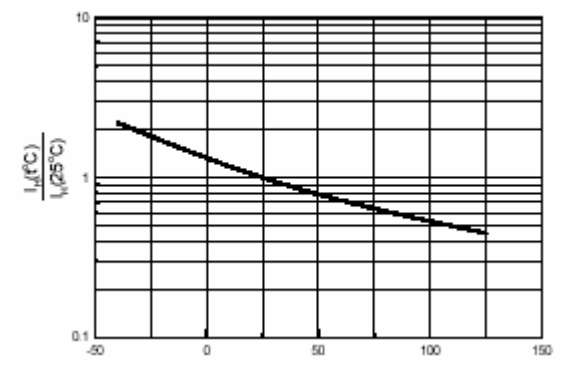


FIGURE 8-Power Dissipation