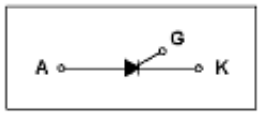
Shantou Huashan Electronic Devices Co.,Ltd.

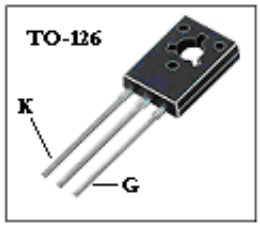
HC106D

Sensitive Gate Silicon Controlled Rectifier

General Description

Glassivated PNPN devices designed for high volume consumer applications such as temperature,light,and speed control;process and remote control, and warning systems where reliability of operation is important.





Features

- **Glassivated Surface for Reliability and Uniformity**
- **Power Rated at Economical Prices**
- **Practical Level Triggering and Holding Characteristics**
- **Flat,Rugged,Thermopad Construction for Low Thermal Resistance**
- **Sensitive Gate Triggering**

Maximum Ratings (T_j=25℃ unless otherwise specified)

T_{stg}——Storage Temperature ---------- -40~150℃

T_j ——Operating Junction Temperature ---------- -40~110℃

V_{DRM} —— Peak Repetitive Off-State Voltage(Forward) ---------- 400V

V_{RRM} —— Peak Repetitive Off-State Voltage(Reverse) ---------- 400V

$I_{T(RMS)}$ ——On-State R.M.S Current (180º Conduction Angles, T_C = 80 °C) ----------4A

$I_{T(AV)}$ ——On-State Average Current (180º Conduction Angles, T_C = 80 °C) ----------2.55A

I_{TSM} ——Surge On-State Current (1/2 Cycle, 60Hz, Sine Wave, Non-repetitive, T_j = 110 °C) --------- 20A

I^2t ——Circuit Fusing Considerations(t = 8.3ms) ---------- 1.65A^2s

P_{GM} ——Forward Peak Gate Power Dissipation (Pulse Width ≤1.0 μsec,T_c=80℃) ---------- 0.5W

$P_{G(AV)}$ ——Forward Average Gate Power Dissipation (Pulse Width ≤1.0 μsec, T_c=80℃)----------0.1W

I_{GM} ——Forward Peak Gate Current (Pulse Width ≤1.0 μsec, T_c=80℃)---------- 0.2A

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Symbol	Items	Min.	Typ.	Max.	Unit	Conditions
I_{DRM} or I_{RRM}	Peak Repetitive Forward or Reverse Blocking Current.			10 100	uA	V_{AK}=Rated V_{DRM} or V_{RRM} R_{KG}=1000 ohms T_j=25℃ T_j=110℃
V_{TM}	Peak Forward On-State Voltage (1)			2.2	V	I_{FM}=1A
I_{GT}	Gate Trigger Current (2)		15 35	200 500	uA	V_{AK} =6V(DC), R_L=100 ohms T_j=25℃ T_j=-40℃
V_{GT}	Gate Trigger Voltage (2)	0.4 0.5	0.6 0.75	0.8 1.0	V	V_{AK} =6V(DC), R_L=100 ohms T_j=25℃ T_j=-40℃
V_{GRM}	Peak Reverse Gate Voltage			6.0	V	I_{GR}=10 uA
V_{GD}	Gate Non-Trigger Voltage	0.2			V	V_{AK} =12V, R_L=100 ohms T_j=110℃
I_H	Holding Current		0.19 0.33 0.07	3.0 6.0 2.0	mA	Initiating current=20mA, Gate open, V_D =12V(DC) T_j=25℃ T_j=-40℃ T_j=110℃
I_L	Latching Current		0.2 0.35	5.0	mA	V_{AK} =12V, I_G=20mA T_j=25℃ T_j=-40℃
Rth(j-c)	Thermal Resistance			3.0	℃/W	Junction to Case
Rth(j-a)	Thermal Resistance			75	℃/W	Junction to Ambient
TL	Maximum Lead Temperature for Soldering Purpose 1/8'',from case for 10 Seconds			260	℃	
dv/dt	Critical Rate-of-Rise Off-state Voltage		8.0		V/μs	V_{AK}= RatedV_{DRM} ,Exponential waveform , R_{GK}=1000 ohms Gate open Tj=110℃

(1) Pulse Test : Pulse Width ≤2.0ms,Duty Cycle≤2%

(2) R_{GK} is not included in measurement

Performance Curves

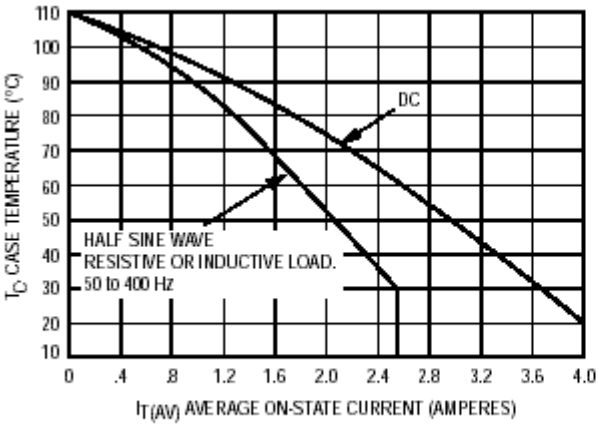


Figure 1. Average Current Derating

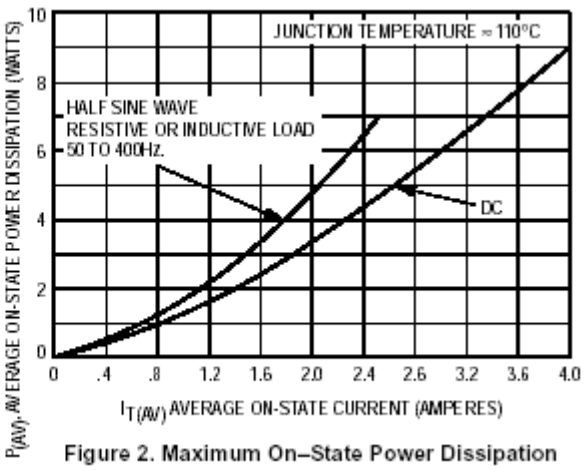


Figure 2. Maximum On–State Power Dissipation

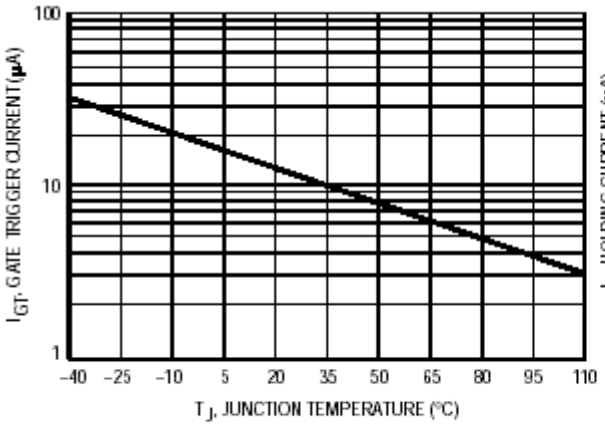


Figure 3. Typical Gate Trigger Current versus Junction Temperature

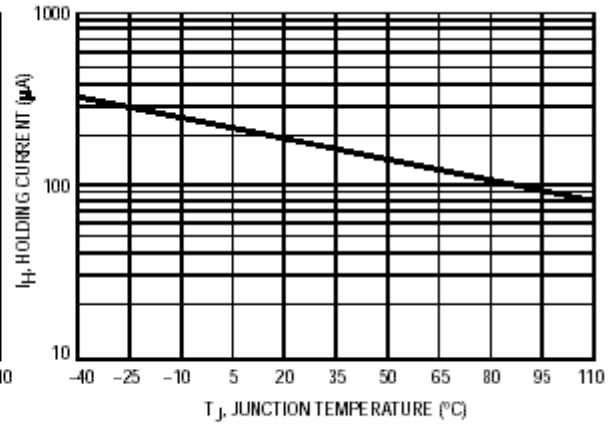


Figure 4. Typical Holding Current versus Junction Temperature

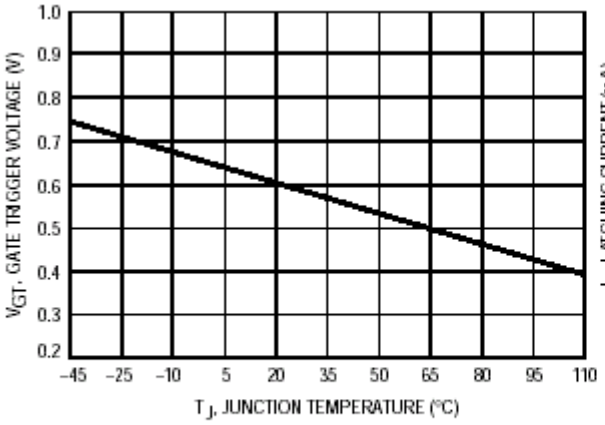


Figure 5. Typical Gate Trigger Voltage versus Junction Temperature

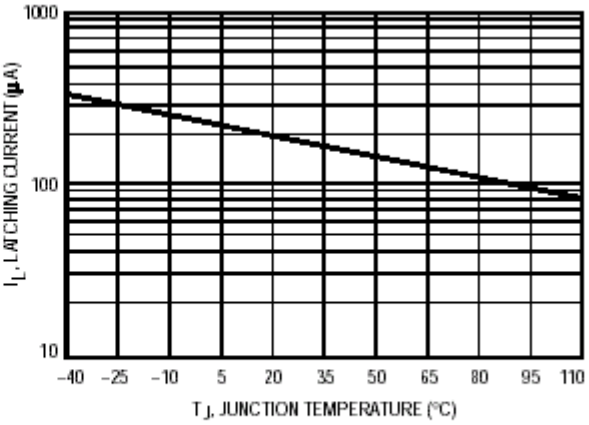


Figure 6. Typical Latching Current versus Junction Temperature