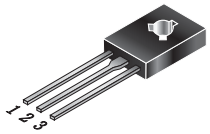
C106D，C106M

SCRs

HAOPIN MICROELECTRONICS CO.,LTD.

Description

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

Symbol	Simplified outline
	 TO-126

Pin	Description
1	cathode
2	anode
3	gate
TAB	anode

Applications:

- Motor control
- Industrial and domestic lighting
- Heating
- Static switching

Features

- Blocking voltage to 600 V
- On-state RMS current to 4 A

SYMBOL	PARAMETER		Value	Unit
V_{DRM}	Repetitive peak off-state voltages	C106D C106M	400 600	V
$I_{T\ (RMS)}$	RMS on-state current （full sine wave）		4	A
I_{TSM}	Non-repetitive peak on-state current		20	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Thermal resistance Junction to case		-	-	3	℃/W
$R_{\theta JA}$	Thermal resistance Junction to ambient		-	-	75	℃/W

Limiting values in accordance with the Maximum system(IEC 134)

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state Voltages	RGK=1KΩ C106D TC=-40° to 110℃ C106M	-	400 600	V
$I_{T(RMS)}$	RMS on-state current	all conduction angles	-	4	A
I_{TSM}	Non-repetitive peak On-state current	1/2Cycle,60Hz,Tj=-40 to+110℃	-	20	A
I^2t	Circuit Fusing	T=8.3ms	-	1.65	A^2S
$I_{T(AV)}$	Average Forward Current	(180° Conduction Angles, TC = 80℃)	-	2.55	A
I_{GM}	Forward Peak gate current	(Pulse Width 1.0 sec, TC = 80℃)	-	0.2	A
V_{GRM}	Peak gate voltage	(IGR = 10 A)	-	6	V
P_{GM}	Forward Peak Gate Power	(Pulse Width 1.0 sec, TC = 80℃)	-	0.5	W
$P_{G(AV)}$	Forward Average Gate Power	(Pulse Width 1.0 sec, TC = 80℃)	-	0.1	W
T_{stg}	Storage temperature		-40	150	℃
T_j	Operating junction Temperature		-40	110	℃

T_J=25°C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNIT
Static characteristics							
I_{GT}	Gate trigger current	V_{AK}=6Vdc,R_L=100 Ohms,Tj=25℃ V_{AK}=6Vdc,R_L=100 Ohms,Tj=-40℃		-	30 75	200 500	μA
I_H	Holding current	V_D=12Vdc; R_{GK}=1000 Ohms	Tj=25℃ Tj=-40℃ Tj=+110°C	- - -	0.3 0.4 0.14	3 6 2	mA
I_L	Latching Current	V_{AK}=12V; I_G=20 mA	Tj=25℃ Tj=-40℃	- -	0.2 0.35	5 7	mA
V_{TM}	Peak Forward On-State Voltage	(ITM = 4 A)		-	-	2.2	V
V_{GT}	Gate trigger voltage	(VAK = 6 Vdc, RL = 100Ohms)	T_J=25℃	0.4	0.6	0.8	V
			Tj=-40℃	0.5	0.75	1.0	V
V_{GD}	Gate Non-Trigger Voltage	V_{AK}=12V,R_L=100 Ohms;T_J=110℃		0.2	-	-	V

Dynamic Characteristics

D_V/dt	Critical Rate-of-Rise of Off-State Voltage	Tj=110℃,R_{GK}=1000 Ohms, V_{AK}=Rated V_{DRM}	-	8	-	V/μs

Description

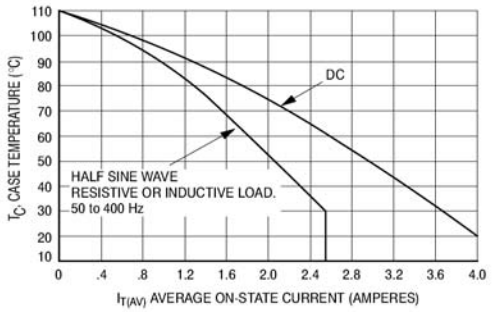


Figure 1. Average Current Derating

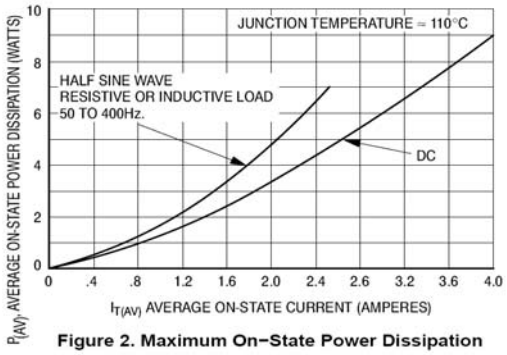


Figure 2. Maximum On−State Power Dissipation

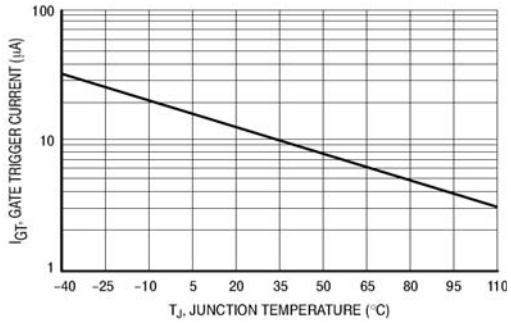


Figure 3. Typical Gate Trigger Current versus Junction Temperature

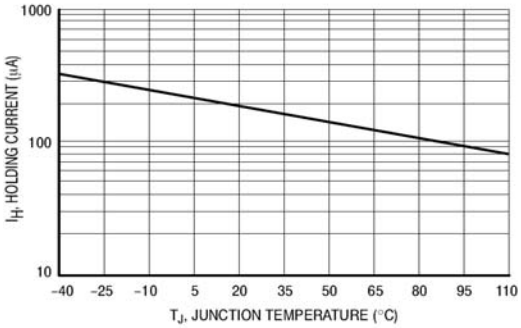


Figure 4. Typical Holding Current versus Junction Temperature

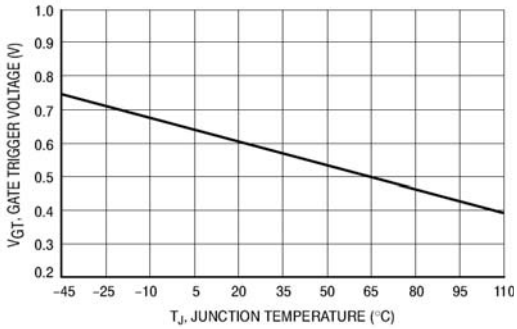


Figure 5. Typical Gate Trigger Voltage versus Junction Temperature

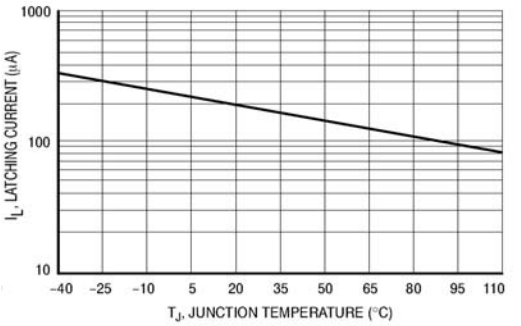
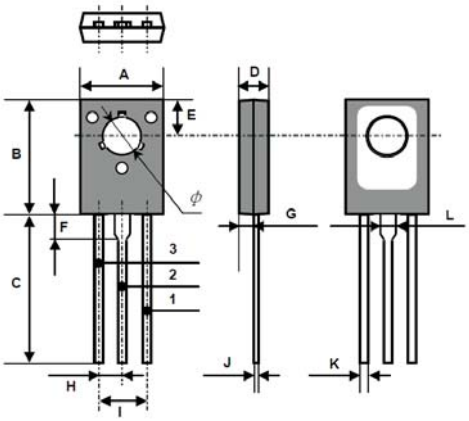


Figure 6. Typical Latching Current versus Junction Temperature

MECHANICAL DATA

Dimensions in mm
Net Mass: 0.8 g
TO-126



TO-126 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.5		7.9	0.295		0.311
B	10.8		11.2	0.425		0.441
C	14.2		14.7	0.559		0.579
D	2.7		2.9	0.106		0.114
E		3.8			0.150	
F		2.5			0.098	
G	1.2		1.5	0.047		0.059
H		2.3			0.091	
I		4.6			0.181	
J	0.48		0.62	0.019		0.024
K	0.7		0.86	0.028		0.034
L		1.4			0.055	
ϕ		3.2			0.126	