MCR106-6G,MCR106-8G

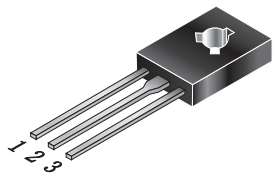
SCRs

Description

Glass passivated, sensitive gate thyristors in a plastic envelope, intended for use in general purpose switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

Simplified outline

TO-126



Symbol

Features

- Blocking voltage to 400 V
- On-state RMS current to 4 A
- Ultra low gate trigger current

Applications

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

Pin	Description
1	cathode
2	anode
3	gate
TAB	anode

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages MCR106-6G MCR106-8G	400 600	V
$I_{T\ (RMS)}$	RMS on-state current （full sine wave）	4	A
I_{TSM}	Non-repetitive peak on-state current (full cycle,Tj initial=25℃)	25	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Thermal resistance, Junction to Case		-	-	3.0	℃/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	MAX	UNIT
V_{DRM}	Repetitive peak off-state Voltages	Tj=-40 to 110℃,sine wave 50 to 60 Hz,gate open	MCR106-6G MCR106-8G	-	400 600	V
$I_{T(RMS)}$	RMS on-state current	180°conduction angles	TC=93℃	-	4	A
$I_{T(AV)}$	Average On-state current	180°conduction angles	TC=93℃	-	2.55	A
I^2t	Circuit Fusing considerations		t=8.3ms	-	2.6	A^2S
IDRM IRRM	Peak repetitive forward or reverse blocking current	V_{AK}=Rated V_{DRM} or V_{RRM}; R_{GK}=1000 Ohms	Tj=25℃	-	10	μA
			Tj=110℃	-	200	μA
I_{GM}	Forward peak gate current	Tc=93℃,Pulse Width<=1.0μs		-	0.2	A
V_{RGM}	Peak Reverse gate voltage	Tc=93℃,Pulse Width<=1.0μs		-	6	V
P_{GM}	Peak gate power	Tc=93℃,Pulse Width<=1.0μs		-	0.5	W
$P_{G(AV)}$	Average gate power	Tc=93℃,t=8.3ms		-	0.1	W
T_{stg}	Storage temperature			-40	150	℃
T_j	Operating junction Temperature range			-40	110	℃

T_J =25 °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	VAK=7.0Vdc,RL=100 Ohms TC=-40℃	-	-	200 500	μA
V_{TM}	Peak Forward on-state voltage	ITM=4A Peak	-	-	2.0	V
I_H	Holding current	V_{AK}=7.0Vdc,Initiating Current=20mA gate open	-	-	5.0	mA
V_{GD}	Non-trigger voltage	VAK=12Vdc,RL=100 Ohms,Tj=110℃	0.2	-	-	V
V_{GT}	Gate trigger voltage	VAK=7.0Vdc,RL=100 Ohms	-	-	1	V

Dynamic Characteristics

D_V/dt	Critical rate of rise of Off-state voltage	Tj=110℃	-	10	-	V/μs
di/dt	Critical Rate-of-Rise of Off State Current	Ipk=20A;PW=10μsec; diG/dt=1A/μsec,Igt=20mA	-	-	50	A/μs

Description

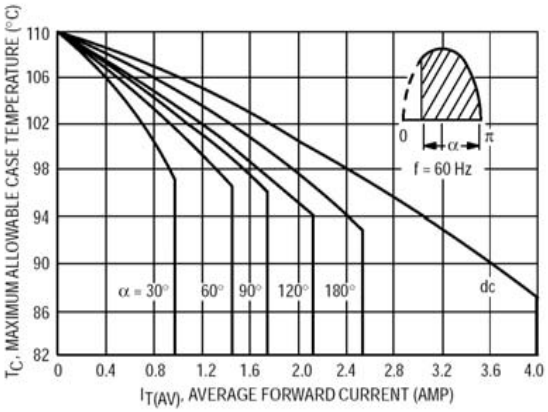


Figure 1. Maximum Case Temperature

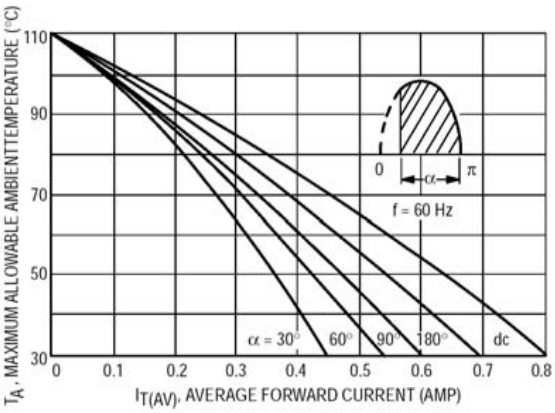
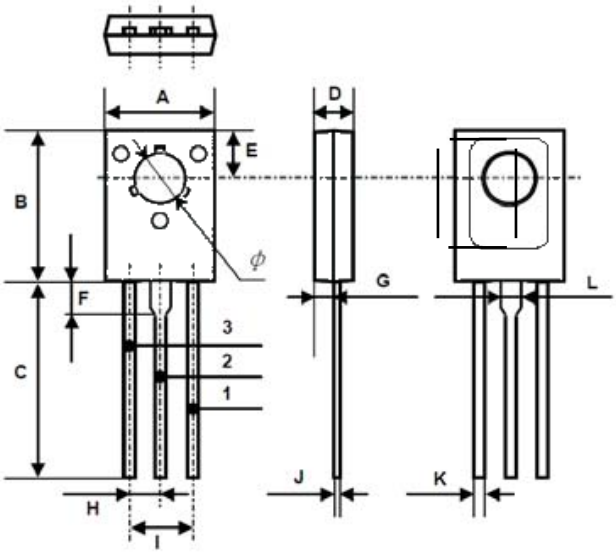


Figure 2. Maximum Ambient Temperature

Mechanical Data

TO-126

Dimensions in mm
Net Mass: 0.8 g



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	