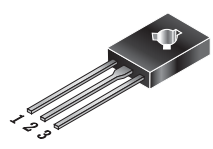


Description

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.

Symbol 		Simplified outline  TO-18	
Pin	Description		
1	Cathode		
2	anode		
3	gate		
TAB	anode		

Applications:

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

Features

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

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages MCR106-6 MCR106-8	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, T_j initial=25°C)	25	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Thermal resistance, Junction to Case		-	-	3.0	°C/W
$R_{\theta JA}$	Thermal resistance, Junction to Ambient		-	-	75	°C/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	MCR106-6 MCR106-8	-	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 ² t	Circuit Fusing considerations		t=8.3ms	-	2.6	A ² S
I _{DRM} I _{RRM}	Peak repetitive forward or reverse blocking current	V _{AK} =Rated V _{DRM} or V _{RRM} ; R _{GK} =1000 Ohms	Tj=25℃ Tj=110℃	- -	10 200	μ A μ A
I _{GM}	Forward peak gate current	Tc=93℃,Pulse Width<=1.0 μ s		-	0.2	A
V _{RGM}	Peak Reverse gate voltage	Tc=93℃,Pulse Width<=1.0 μ s		-	6	V
P _{GM}	Peak gate power	Tc=93℃,Pulse Width<=1.0 μ s		-	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	℃

$T_j = 25^{\circ}\text{C}$ unless otherwise stated

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

Dynamic Characteristics

D_v/dt	Critical rate of rise of Off-state voltage	$T_j = 110^{\circ}\text{C}$	-	10	-	V/ μs
di/dt	Critical Rate-of-Rise of Off State Current	$I_{pk} = 20\text{A}$; $PW = 10 \mu\text{sec}$; $di/dt = 1\text{A}/\mu\text{sec}$, $I_{gt} = 20\text{mA}$	-	-	50	A/ μs

Description

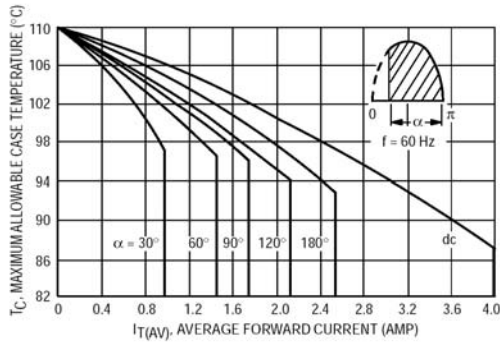


Figure 1. Maximum Case Temperature

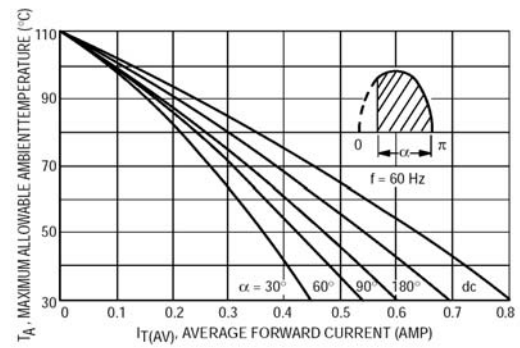


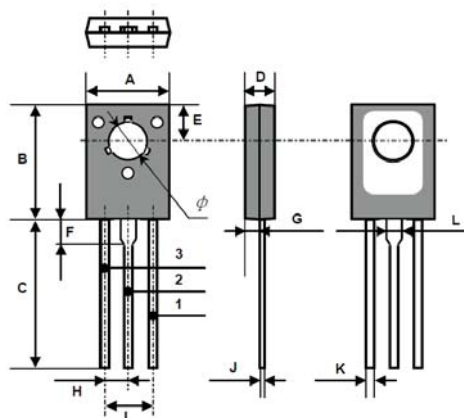
Figure 2. Maximum Ambient Temperature

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	
phi		3.2			0.126	