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

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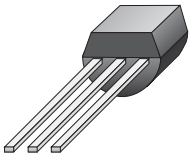

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Features

- Blocking voltage to 600 V
- On-state RMS current to 1.5 A
- Ultra low gate trigger current

Symbol

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 MCR22-6G MCR22-8G	400 600	V
$I_{T\ (RMS)}$	RMS on-state current （full sine wave）	1.5	A
I_{TSM}	Non-repetitive peak on-state current (full cycle, Tj initial=25℃)	15	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Thermal resistance, Junction to Case		-	-	50	℃/W
$R_{\theta JA}$	Thermal resistance, Junction to Ambient		-	-	160	℃/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state Voltages	R_{GK}=1K,T_J=-40 to +110℃ MCR22-6G Sine wave,50to60 Hz,gate open MCR22-8G	-	400 600	V
$I_{T(RMS)}$	RMS on-state current	180° Conduction Angles,Tc=80℃	-	1.5	A
I_{TSM}	Non-repetitive peak Current	1/2Cycle,sine wave,60 Hz	-	15	A
I^2t	Circuit fusing considerations	t=8.3ms	-	0.9	A^2S
I_{DRM} I_{RRM}	Peak repetitive forward or reverse blocking current	V_{AK}=Rated V_{DRM} or V_{RRM} TC=25℃ R_{GK}=1000Ohms	-	10	μA
		TC=110℃	-	200	μA
I_{FGM}	Forward Peak gate current	TA=25℃,Pulse Width<=1.0μs	-	0.2	A
V_{RGM}	Reverse Peak gate voltage	TA=25℃,Pulse Width<=1.0μs	-	5	V
P_{GM}	Peak gate power	TA=25℃,Pulse Width<=1.0μs	-	0.5	W
$P_{G(AV)}$	Average gate power	TA=25℃,Pulse Width<=1.0μs	-	0.1	W
T_{stg}	Storage temperature		-40	150	℃
T_j	Operating junction Temperature Range		-	110	℃

T_J =25 °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	VAK=6.0Vdc,RL=100 Ohms Tc=25℃ Tc=-40℃	-	30 -	200 500	μA
T_L	Lead solder Temperature	Lead Length>=1/16 from case,10s Max	-	-	260	℃
I_H	Holding current	V_{AK}=12Vdc,Initiating Current=200mA TC=25℃ TC=-40℃	-	2.0 -	5.0 10	mA mA
V_{TM}	On-state voltage	ITM=1.0A Peak	-	1.2	1.7	V
V_{GT}	Gate trigger voltage	VAK=7.0Vdc,RL=100 Ohms TC=25℃ TC=-40℃	- -	- -	0.8 1.2	V V

Dynamic Characteristics

D_V/dt	Critical rate of rise of Off-state voltage	Tc=110℃	-	25	-	V/μs
di/dt	Critical Rate-of-Rise of Off State Current		-	-	-	A/μs

Description

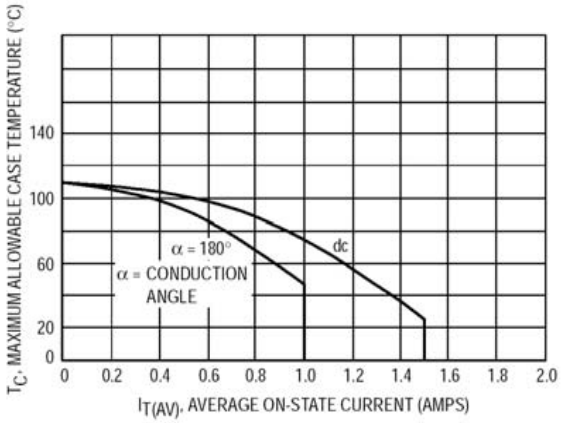

Figure 1. Maximum Case Temperature

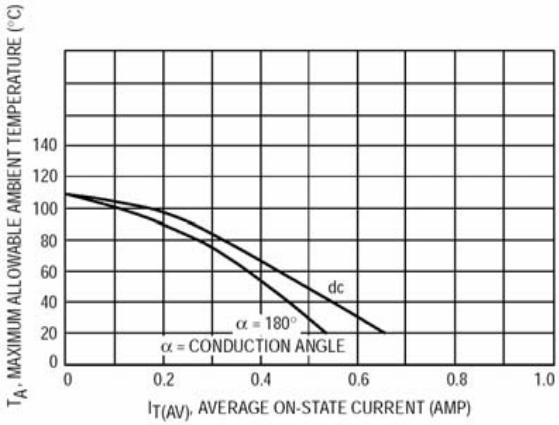

Figure 2. Maximum Ambient Temperature

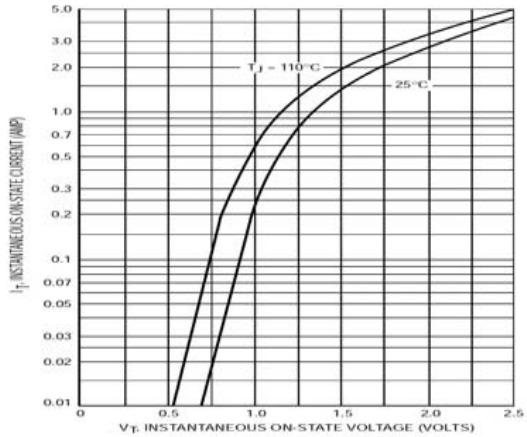

Figure 3. Typical Forward Voltage

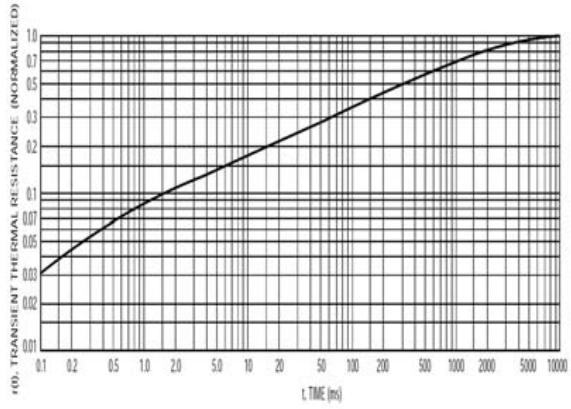

Figure 4. Thermal Response

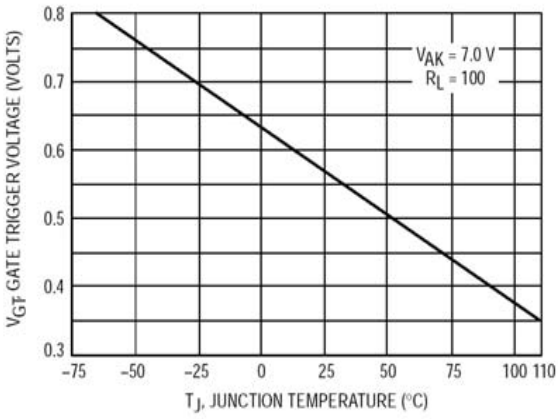

Figure 5. Typical Gate Trigger Voltage

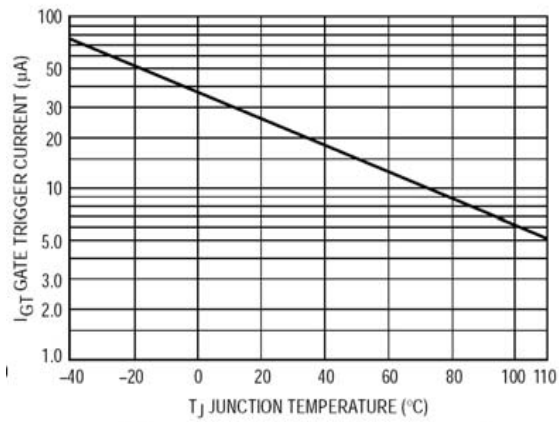

Figure 6. Typical Gate Trigger Current

Description

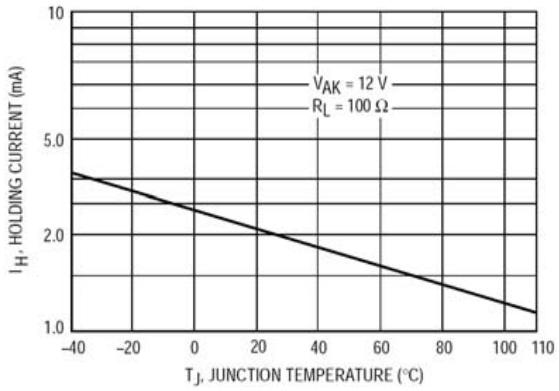

Figure 7. Typical Holding Current

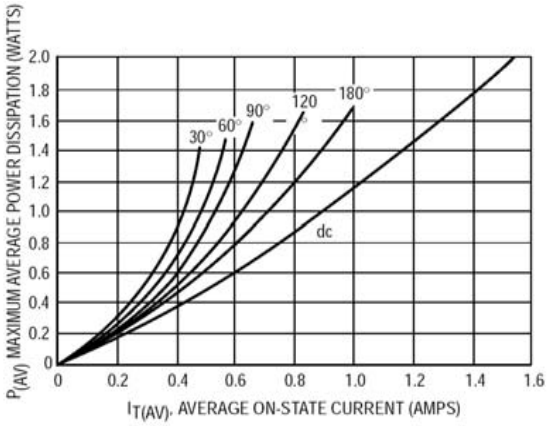

Figure 8. Power Dissipation

Mechanical Data

Dimensions in mm

Net Mass:0.2 g

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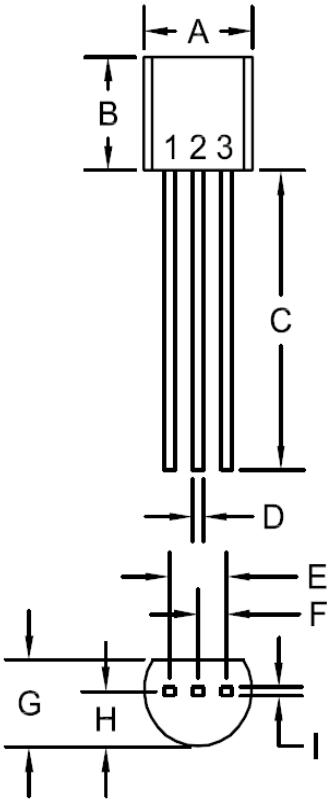

DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A (DIA)	0.175	0.205	4.45	5.21
B	0.170	0.210	4.32	5.33
C	0.500	-	12.70	-
D	0.016	0.022	0.41	0.56
E	0.100		2.54	
F	0.050		1.27	
G	0.125	0.165	3.18	4.19
H	0.080	0.105	2.03	2.67
I	0.015		0.38	