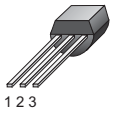
X00605MA

SCRs

HAOPIN MICROELECTRONICS CO.,LTD.

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-92

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 0.8 A
- Ultra low gate trigger current

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	600	V
$I_{T\ (RMS)}$	RMS on-state current （full sine wave）	0.8	A
$I_{T(AV)}$	Averagev On-state current	0.5	A

SYMBOL	PARAMETER	Value	UNIT
Rth(j-a)	Junction to ambient (DC)	150	℃/W
Rth(j-l)	Junction to lead (DC)	70	℃/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{DRM}	Repetitive peak off-state Voltages	R_{GK}=1KΩ Tj=125℃	-	600	V
$I_{T(RMS)}$	RMS on-state current (180° comduction angle)	TI=85℃	-	0.8	A
$I_{T(AV)}$	Averagev On-state current (180° conduction angle)	TI=85℃	-	0.5	A
dI/dt	Critical rate of rise of on-state current	I_G=10mA diG/dt=0.1A/μs	-	50	A/μs
I_{TSM}	Non repetitive surge peak on-state current	tp=8.3ms	-	10	A
		tp=10ms	-	9	A
I^2t	I^2t Value for fusing	tp=10ms	-	0.5	A^2s
T_j	Operating junction	Temperature range	-40	125	℃
T_{stg}	Storage temperature		-40	150	℃
TI	Maximum lead temperature for soldering during 10s at 2mm from case		-	260	℃

T_J=25°C unless otherwise stated

SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	V_D=12V RL=140Ω	Tj=25℃	30	-	60	μA
V_{GT}	V_D=12V DC RL=140Ω	Tj=25℃	-	-	0.8	V
V_{GD}	V_D=V_{DRM} R_L=33KΩ R_{GK}=1KΩ	Tj=125℃	0.2	-	-	V
V_{RG}	I_{RG}=10μA	Tj=25℃	5	-	-	V
I_L	I_G=500μA R_{GK}=1KΩ	Tj=25℃	-	-	6	mA
I_{DRM}	V_D=V_{DRM} R_{GK}=1KΩ	Tj=25℃	-	-	1	μA
I_{RRM}	V_R=V_{RRM}	Tj=125℃	-	-	100	
IH	I_T=500mA R_{GK}=1KΩ	Tj=25℃	-	-	5	mA

Dynamic Characteristics

Dv/dt	V_D=67%V_{DRM} R_{GK}=1KΩ	Tj=125℃	25	-	-	V/μs
t_{gd}	Gate controlled delay tine		-	-	-	ns
t_g	Crcuit commutated tum-off time		-	-	-	μs

Description

Fig. 1: Maximum average power dissipation versus average on-state current.

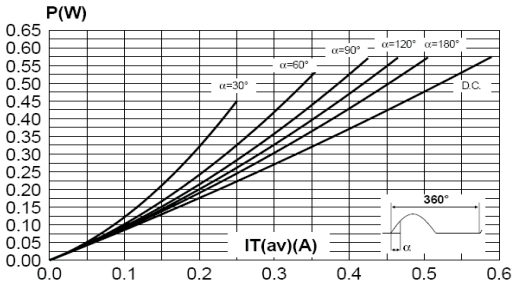


Fig. 2: Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tlead).

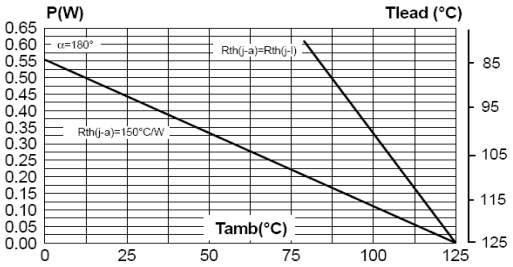


Fig. 3-1: Average and D.C on-state current versus lead temperature.

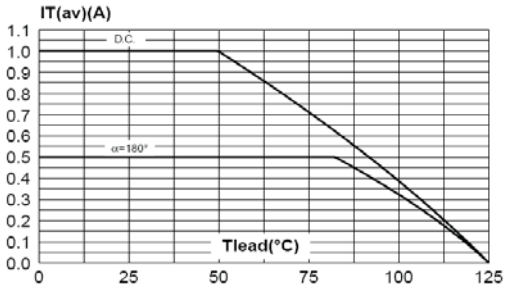


Fig. 3-2: Average and D.C on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

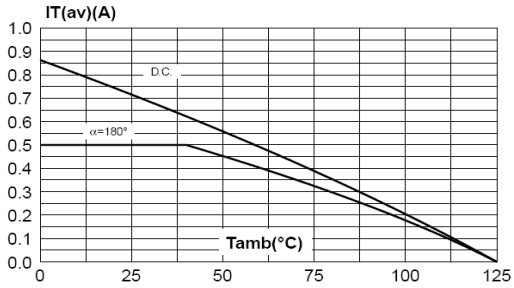


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

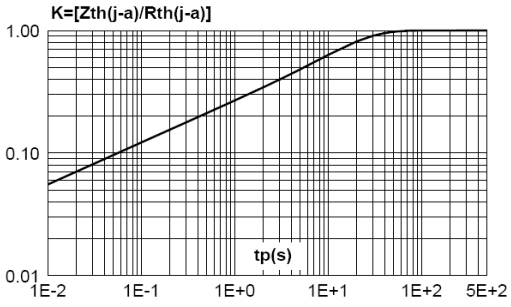
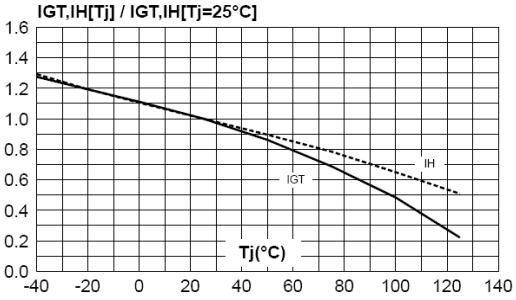


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.



Description

Fig. 6: Relative variation of holding current versus gate-cathode resistance (typical values).

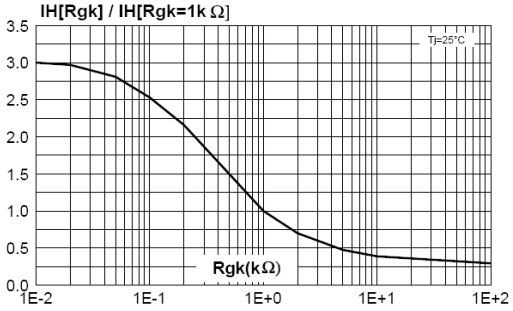


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

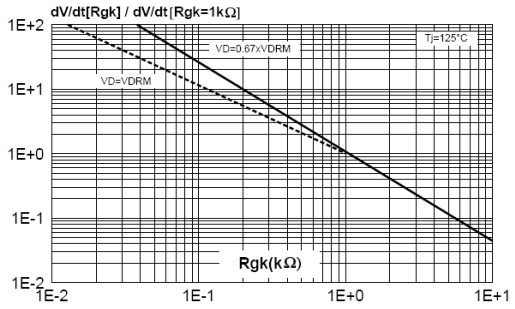


Fig. 8: Relative variation of dV/dt immunity versus additionnal gate-cathode capacitance (typical values).

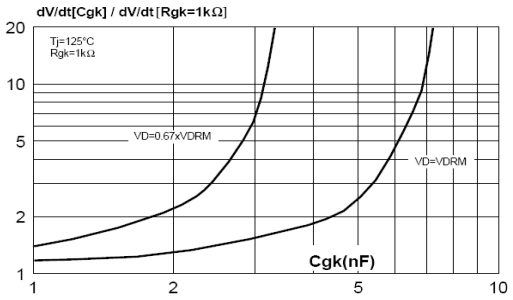


Fig. 9: Non repetitive surge peak on-state current versus number of cycles.

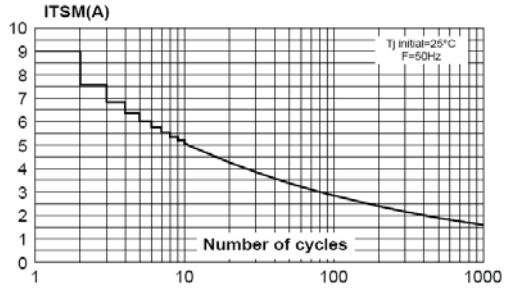


Fig. 10: Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ® 10ms, and corresponding value of I^2t.

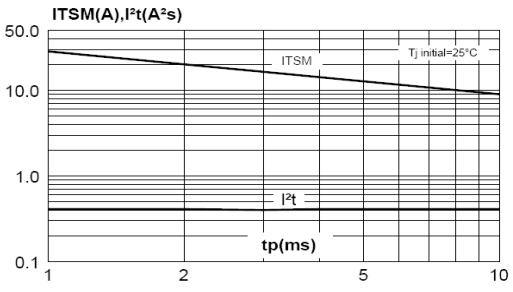
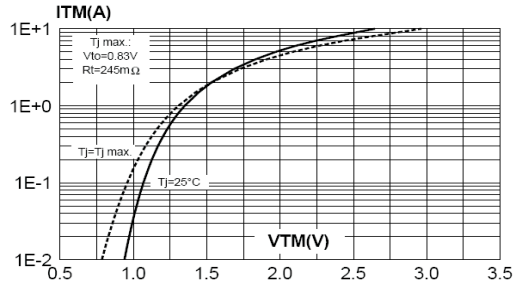


Fig. 11: On-state characteristics (maximum values).



MECHANICAL DATA

Dimensions in mm

Net Mass:0.2 g

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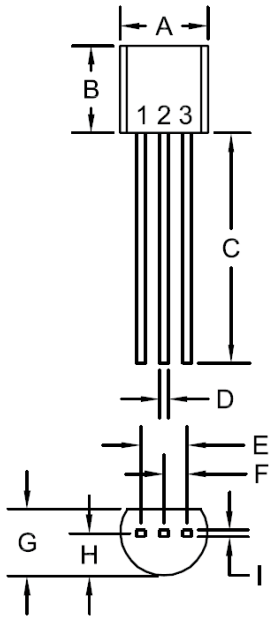

R1

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	

TO-92 (REV: R1)