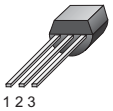
X0205MA

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 1.25 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）	1.25	A
I_{TSM}	Non-repetitive peak on-state current (full cycle,Tj initial=25℃)	25	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Rth j-l	Junction to leads		-	-	60	℃/W
Rth j-a	Junction to Ambient		-	-	150	℃/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{DRM}	Repetitive peak off-state Voltages		-	600	V
$I_{T(RMS)}$	RMS on-state current (180° comduction angle)	TI=55℃	-	1.25	A
$I_{T(AV)}$	Averagev On-state current (180° conduction angle)	TI=55℃	-	0.8	A
dI/dt	Critical rate of rise of on-state current	I_G=2* I_{GT}, tr<=100 ns F=60 Hz Tj=125℃	-	50	A/μs
I_{TSM}	Non repetitive surge peak on-state current	tp=8.3ms Tj=25℃	-	25	A
		tp=10ms Tj=25℃	-	22.5	A
I^2t	I^2t Value for fusing	tp=10ms Tj=25℃	-	2.5	A^2s
I_{GM}	Peak gate current	Tp=20μs Tj=125℃	-	1.2	A
$P_{G(AV)}$	Average gate power dissipation	Tj=125℃	-	0.2	W
T_j	Operating junction temperature range		-40	125	℃
T_{stg}	Storage junction temperature range		-40	150	℃

T_J=25°C unless otherwise stated

SYMBOL	TEST	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	V_D=12V RL=140Ω		20	-	50	μA
V_{GT}	V_D=12V RL=140Ω		-	-	0.8	V
V_{GD}	V_D=V_{DRM} R_L=3.3 KΩ R_{GK}=1KΩ	Tj=125℃	0.1	-	-	V
V_{RG}	I_{RG}=10μA		8	-	-	V
I_L	I_G=1 mA R_{GK}=1KΩ		-	-	6	mA
I_{DRM} I_{RRM}	V_D=V_{DRM} R_{GK}=1KΩ V_R=V_{RRM}	Tj=25℃ Tj=125℃	- -	- -	5 500	μA
I_H	I_T=50 mA R_{GK}=1KΩ		-	-	5	mA
V_{TM}	V_{TM}=2.5 A tp= 380 μs	Tj=25℃	-	-	1.45	V

Dynamic Characteristics

Dv/dt	V_D=67%V_{DRM} R_{GK}=1KΩ	Tj=110℃	15	-	-	V/μs
Vto	Threshold voltage	Tj=125℃	-	-	0.9	V
Rd	Dynamic resistance	Tj=125℃	-	-	200	mΩ

Description

Fig. 1 I_{TM}-V_{TM} CHARACTERISTICS

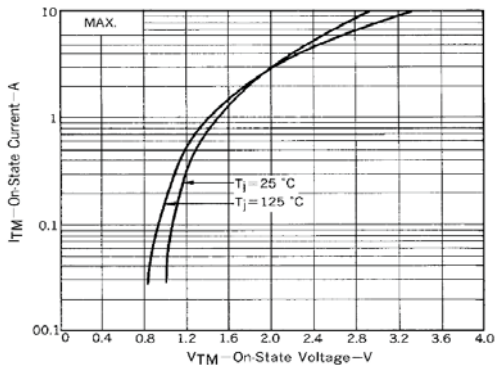


Fig. 2 $P_{T(AV)}$-$I_{T(AV)}$ CHARACTERISTICS

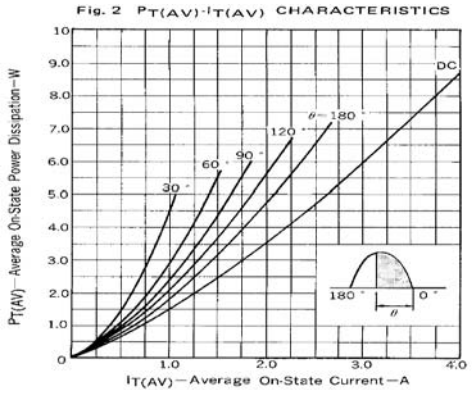


Fig. 3 $I_{T(AV)}$-T_C RATINGS

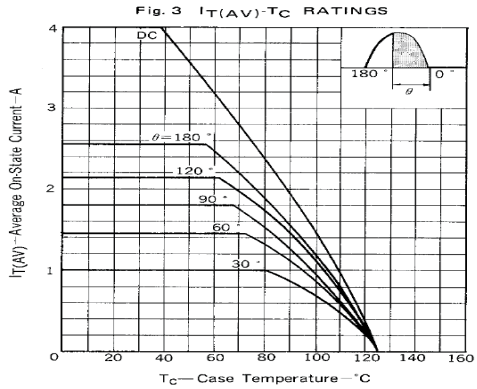


Fig. 4 T_a-$I_{T(AV)}$ RATINGS

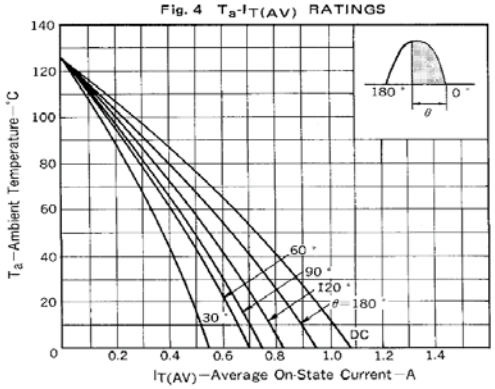


Fig. 5 I_{GT}-T_a TYPICAL DISTRIBUTION

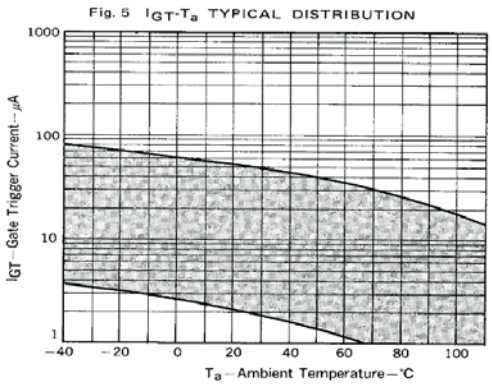
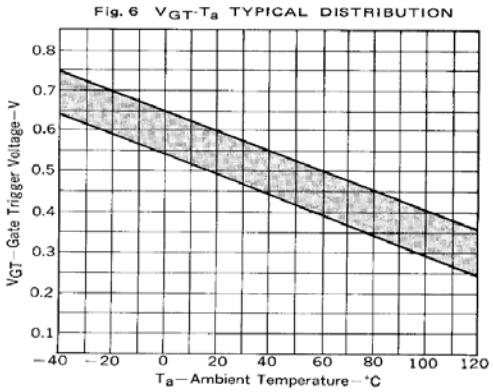


Fig. 6 V_{GT}-T_a TYPICAL DISTRIBUTION



Description

Fig. 7 I_{GT}-τ_G TYPICAL DISTRIBUTION

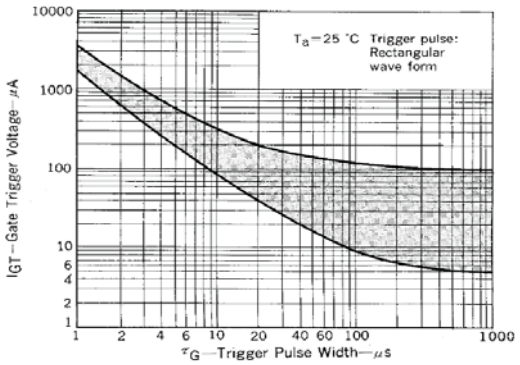


Fig. 8 V_{GT}-τ_G TYPICAL DISTRIBUTION

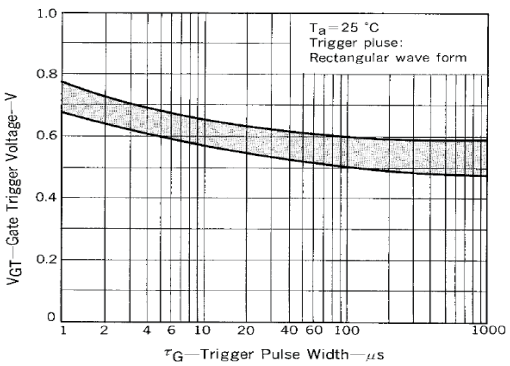


Fig. 9 I_H-T_a TYPICAL DISTRIBUTION

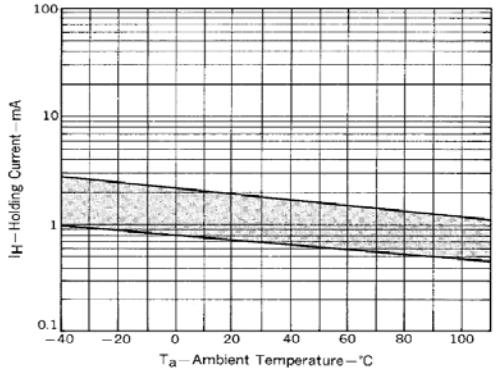


Fig. 10 I_{TSM} RATINGS

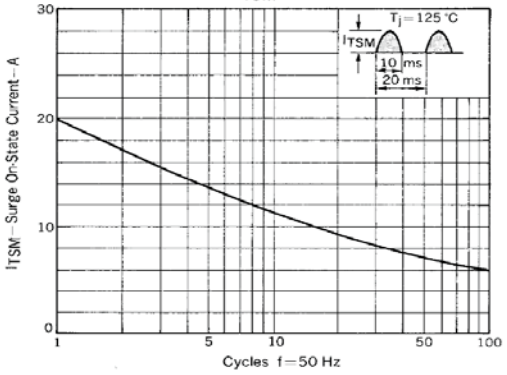
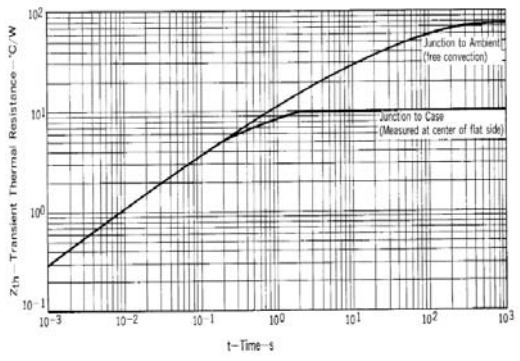


Fig. 11 Z_{th} CHARACTERISTICS



MECHANICAL DATA

Dimensions in mm

Net Mass:0.2 g

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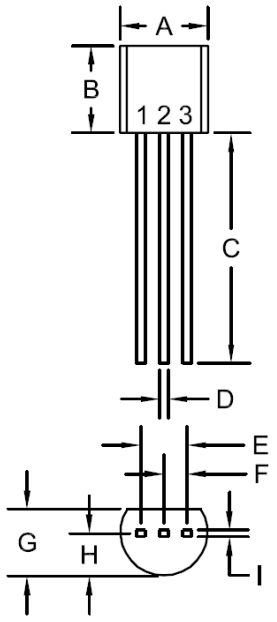

R1

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)