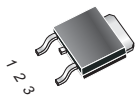
S6006DS2

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-252

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 6 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）	6	A
I_{TAV}	Average on-state current	3.8	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Rth j-mb	Thermal resistance Junction to mounting base		-	-	2.0	K/W
Rth j-a	Thermal resistance Junction to am bient	In free air	-	70	-	K/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{RRM}	Repetitive peak reverse voltage		-	600	V
$I_{T(RMS)}$	RMS on-state current		-	6	A
I_{GM}	Peak gate current		-	2	A
I^2t	I^2t for fusing	RMS surge (non-repetitive)on-state current for period of 8.3ms for fusing	-	41	A^2s
I_{TSM}	Peak one-cycle forward surge current	60Hz	-	100	A
		50Hz	-	83	A
$P_{G(AV)}$	Average gate power dissipation		-	0.5	W
P_{GM}	Peak gate power dissipation		-	20	W
Tq	Circuit commutated tum-off time		-	35	μs
T_{tg}	Gate controlled tum-on time;gate pulse=100mA; minmum width=15μs with rise time=<0.1μs		-	20	μs

T_J=25°C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Dc gate trigger current	VD=12V,RL=60Ω	-	-	200	μA
V_{GT}	DC gate trigger voltage	VD=12V dc,RL=60Ω	-	-	1.5	V
DI/Dt	Maximum rate-of-rise of on-state current;	IGT=150mA with<=0.1μs rise time,	-	-	100	A/μs
V_{TM}	On-state voltage	Ta=25℃,itm=0.6A,instantaneous value	-	-	1.6	V
I_H		V_D=12V; I_{GT}=0.1A	-	-	6	mA
I_{DRM}	Peak off-state forward and	Tc=125℃,V_{DRM}	-	-	0.5	mA
I_{RRM}	reverse current at V_{DRM} and V_{RRM}	Tc=125℃,V_{RRM}	-	-	0.5	

Dynamic Characteristics

D_{VD}/dt	Critical rate of rise of Off-state voltage	V_{DM}=67% $V_{DRM(max)}$;Tj=125℃; Exponential wave form;R_{GK}=100Ω	50	100	-	V/μs
t_{gt}	Gate controlled turn-on time	I_{TM}=10A;V_D=$V_{DRM(max)}$; I_G=5mA; DI_G/dt=0.2A/μs	-	2	-	μs
t_g	Crcuit commutated tum-off time	V_{DM}=67% $V_{DRM(max)}$;Tj=125℃;I_{TM}=12A V_R=24V;dI_{TM}/dt=10A/μS dv_D/dt=2V/μs;R_{GK}=1kΩ	-	100	-	μs

Description

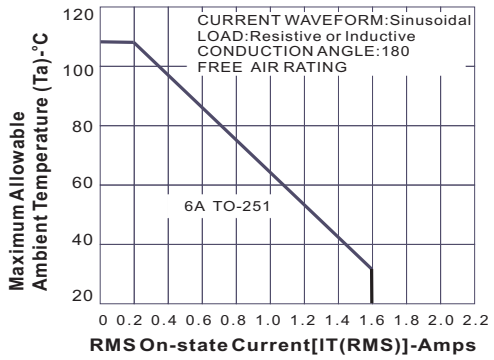


Figure E6.1 Maximum allowable ambient temperature versus RMS On-state current

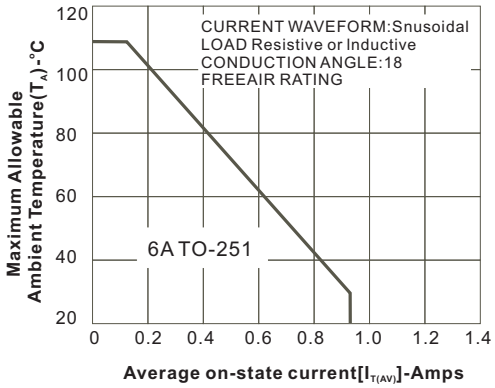


Figure E6.2 Maximum Allowable Ambient Temperature Versus Average on-state Current

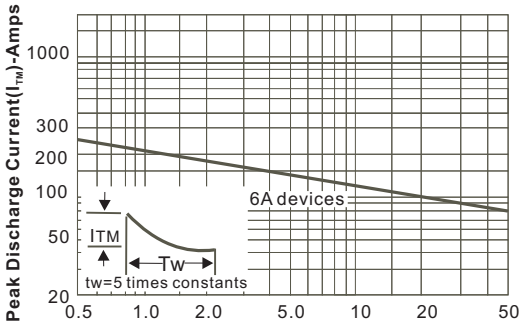


Figure E6.3 Peak Capacitor Discharge Current(6A)

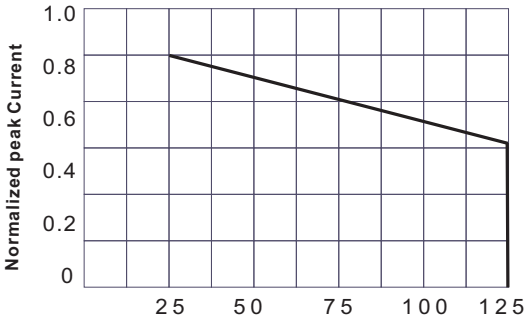


Figure E6.4 peak capacitor discharge current derating(6A)

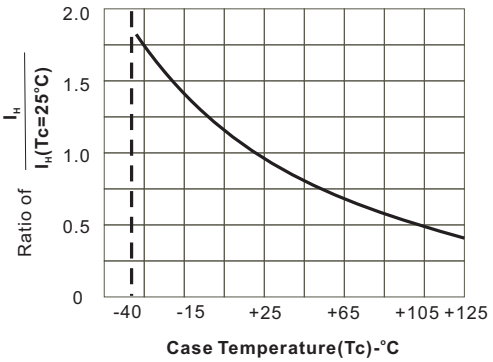


Figure E6.5 Normalized dc Holding Current versus Case Temperature

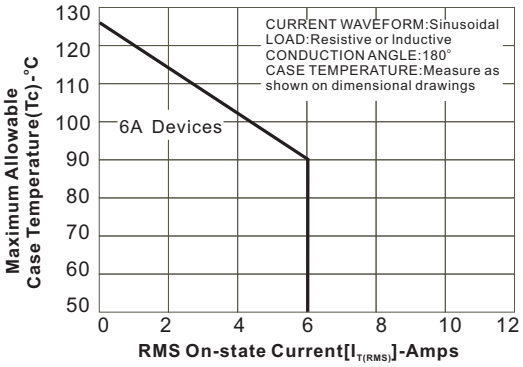


Figure E6.6 Maximum Allowable case temperature versus RMS On-state current 6A

Description

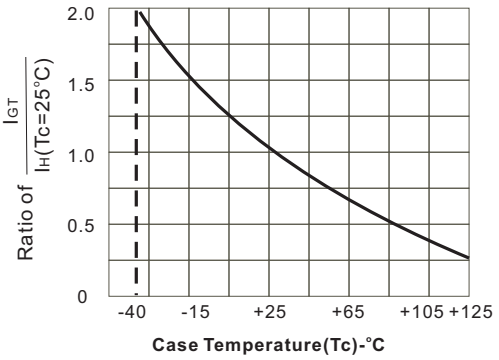


Figure E6.7 Normalized dc Gate-Trigger Current versus Case Temperature

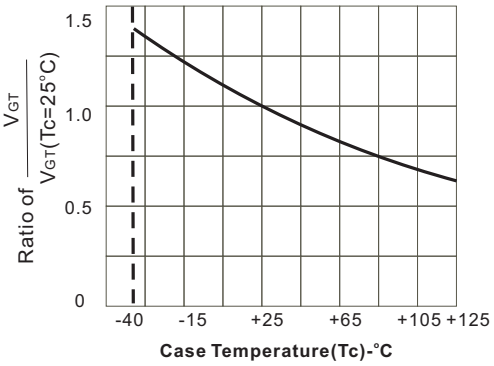


Figure E6.8 Normalized dc Gate-trigger Voltage versus Case Temperature

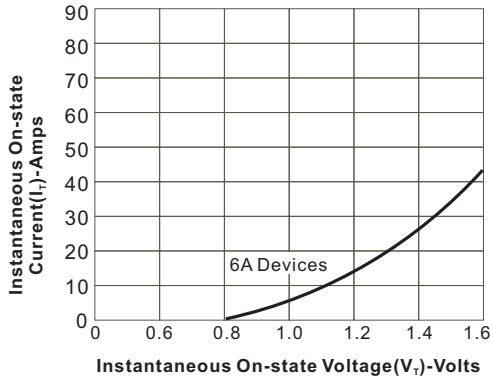


Figure E6.9 Instantaneous On-state Current versus On-state Voltage (Typical) 6A

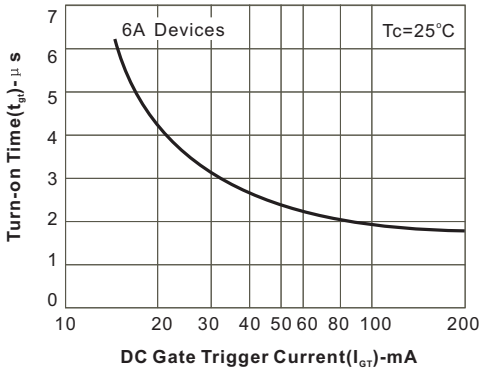


Figure E6.10 Typical Turn-on Time versus Gate-trigger Current

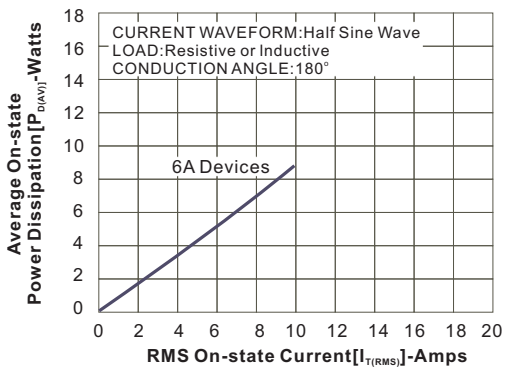


Figure E6.11 Power Dissipation(Typical) versus RMS On-state Current (6A)

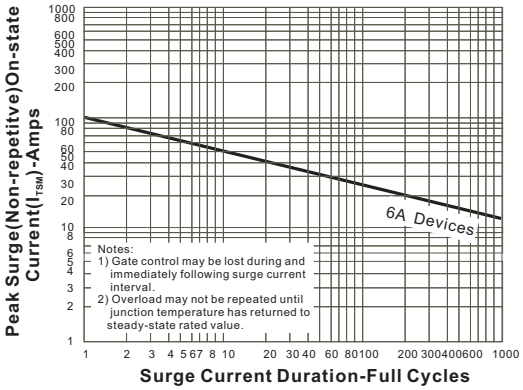


Figure E6.12 Peak Surge Current versus Surge Current Duration

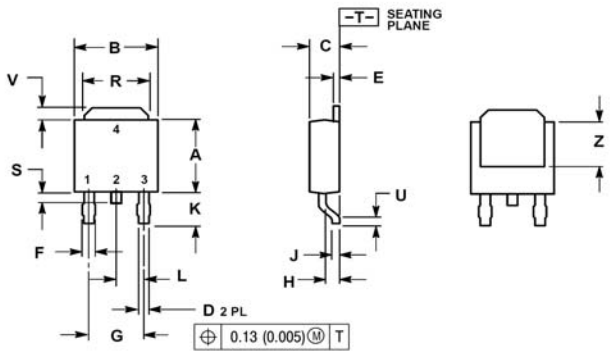
MECHANICAL DATA

Dimensions in mm

Net Mass: 0.45g

TO-252(DPAK)

DPAK
CASE 369C
ISSUE O



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.235	0.245	5.97	6.22
B	0.250	0.265	6.35	6.73
C	0.086	0.094	2.19	2.38
D	0.027	0.035	0.69	0.88
E	0.018	0.023	0.46	0.58
F	0.037	0.045	0.94	1.14
G	0.180 BSC		4.58 BSC	
H	0.034	0.040	0.87	1.01
J	0.018	0.023	0.46	0.58
K	0.102	0.114	2.60	2.89
L	0.090 BSC		2.29 BSC	
R	0.180	0.215	4.57	5.45
S	0.025	0.040	0.63	1.01
U	0.020	---	0.51	---
V	0.035	0.050	0.89	1.27
Z	0.155	---	3.93	---

STYLE 6:
PIN 1. MT1
2. MT2
3. GATE
4. MT2

SOLDERING FOOTPRINT*