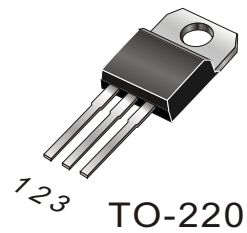
HP25S60RC

SCRs

HAOPIN MICROELECTRONICS CO.,LTD.

Description

Standard gate triggering SCR is fully isolated package suitable for the application where requiring high bidirectional blocking voltage capability and also suitable for over voltage protection ,motor control circuit in power tool, inrush current limit circuit and heating control system.

Symbol	Simplified outline
	 TO-220B

Pin	Description
1	Cathode
2	Anode
3	Gate

Applications:

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

Features

- Blocking voltage to 600 V
- On-state RMS current to 25 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	600	V
$I_{T(RMS)}$	RMS on-state current （full sine wave）	25	A
I_{TSM}	Non-repetitive peak on-state current (full cycle,Tj initial=25℃)	300	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta jc}$	Thermal resistance Junction to Case		-	-	1.5	℃/W
$R_{\theta jA}$	Thermal resistance Junction to ambient		-	-	62.5	℃/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{DRM}	Repetitive peak off-state Voltages	TJ=-40 to 125℃,sine wave, 50 to 60Hz,Gate Open	-	600	V
$I_{T(RMS)}$	RMS on-state current	180°Cconduction angles;TC=80℃	-	25	A
I_{TSM}	Non-repetitive peak On-state current	1/2Cycle.sine wave 60 Hz, Tj=125℃	-	300	A
I^2t	I^2t for fusing	T=8.3ms	-	373	A^2S
di/dt	Critical rate of rise of on-state current	Ipk=50 A,pw=30 μsec, diG/dt=1 a/μsec,Igt=50 mA	-	50	A/μs
I_{GM}	Forward peak gate current	pulse wodtj<=1.0μs,TC=80℃	-	2.0	A
T_L	Maximum lead temperature for soldering purposes 1/8" from case for 10 seconds		-	260	°C
P_{GM}	Peak gate power	pulse wodtj<=1.0μs,TC=80℃	-	20	W
$P_{G(AV)}$	Average gate power	T=8.3ms,TC=80℃	-	0.5	W
T_{stg}	Storage temperature		-40	+150	℃
T_j	Operating junction Temperature Range		-40	+125	℃

T_J=25°C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	V_D=12V; RL=100Ω	4.0	12	30	mA
I_{DRM} I_{RRM}	Peak Re[etotove fprward pr reverse b;pclomg cirrent (V_{AK}=Rated V_{DRM} or V_{RRM}, Gate Poen)	Tj=25℃ Tj=125℃	-	-	0.01 2.0	mA
I_H	Holding current	V_D=12Vdc;Initiating Current=200mA,gate opent	5.0	13	40	mA
V_{TM}	Peak forward on-state voltage	I_{TM}=50A	-	-	1.8	V
V_{GT}	Gate trigger voltage	V_D=12V;RL=100Ω	0.5	0.67	1.0	V
I_L	Latching current	V_D=12V;IG=30 mA	-	35	80	mA

Dynamic Characteristics

D_V/dt	Critical rate of rise of Off-state voltage	V_D=67% of Rated V_{DRM}, Tj=125℃ Exponential waveform;	100	250	-	V/μs
t_{gt}	Gate controlled turn-on time	I_{TM}=16A;V_D=Rated V_{DRM},IG=2mA	-	-	-	μs
t_g	Crcuit commutated tum-off time		-	-	-	μs

Description

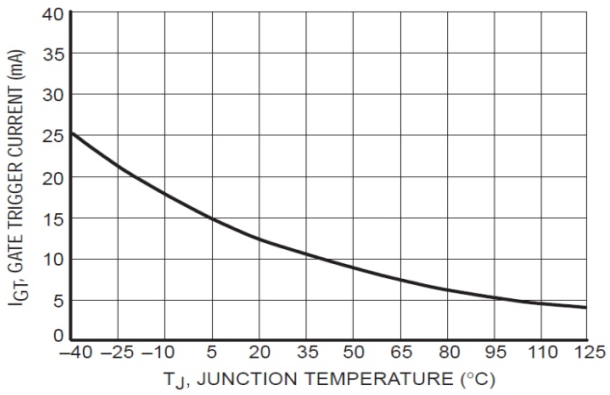


Figure 1. Typical Gate Trigger Current versus Junction Temperature

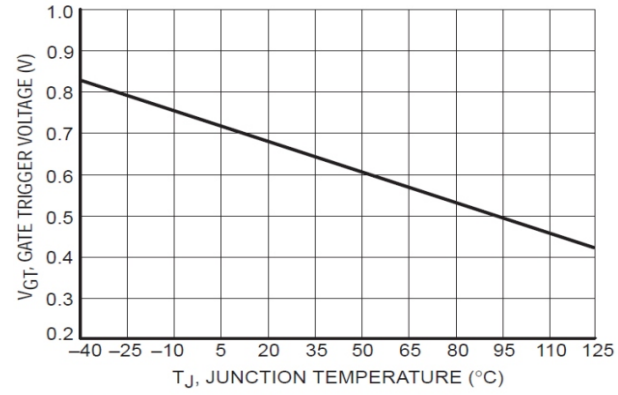


Figure 2. Typical Gate Trigger Voltage versus Junction Temperature

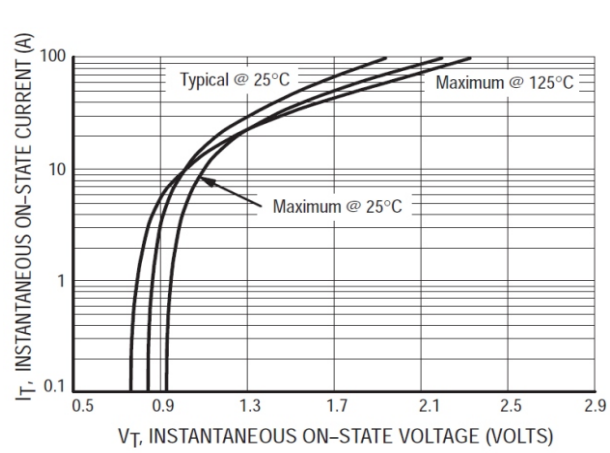


Figure 3. Typical On–State Characteristics

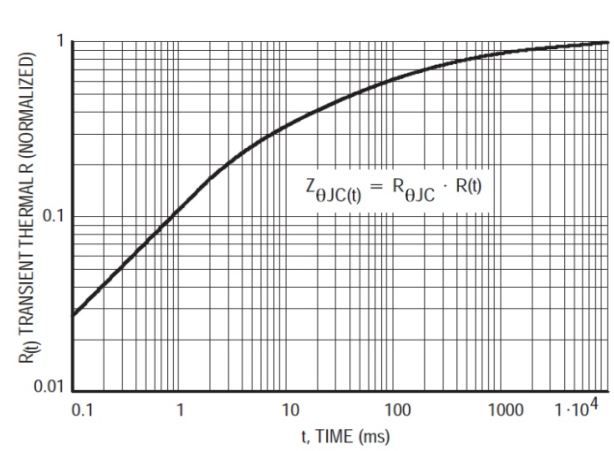


Figure 4. Transient Thermal Response

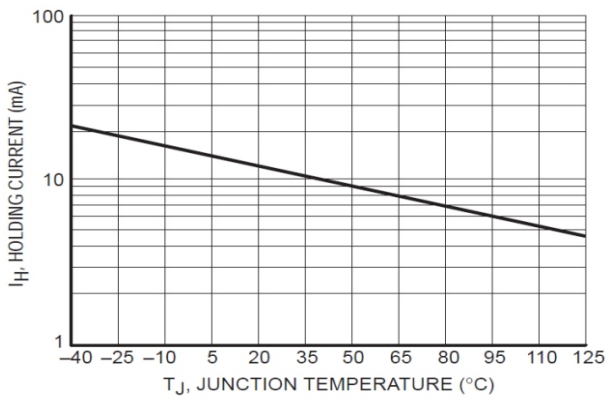


Figure 5. Typical Holding Current versus Junction Temperature

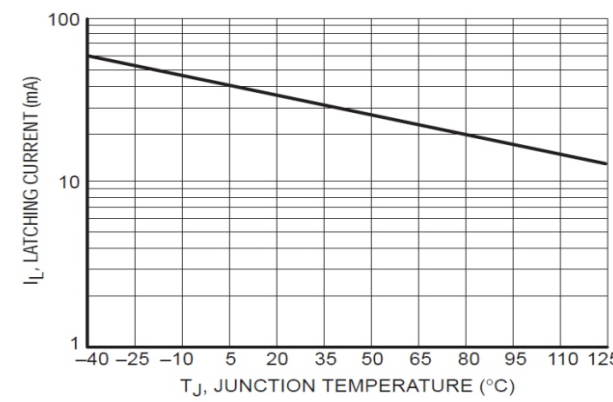


Figure 6. Typical Latching Current versus Junction Temperature

Description

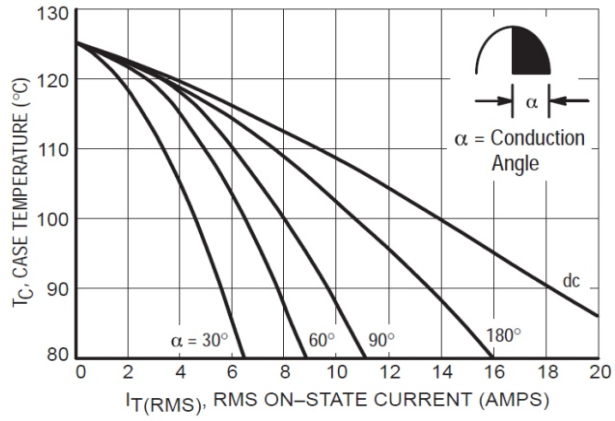


Figure 7. Typical RMS Current Derating

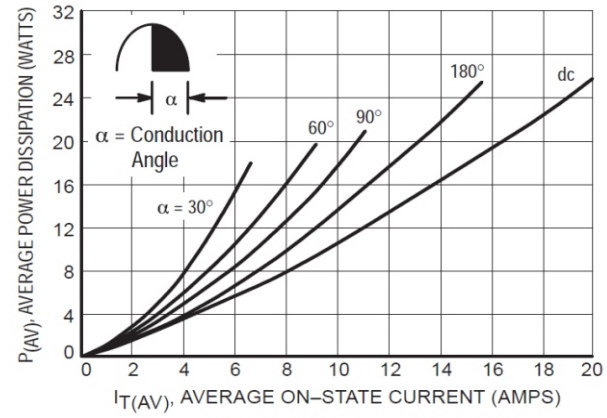


Figure 8. On State Power Dissipation

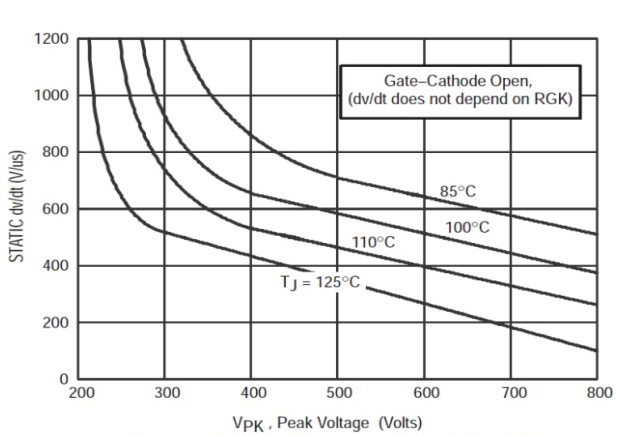


Figure 9. Typical Exponential Static dv/dt Versus Peak Voltage.

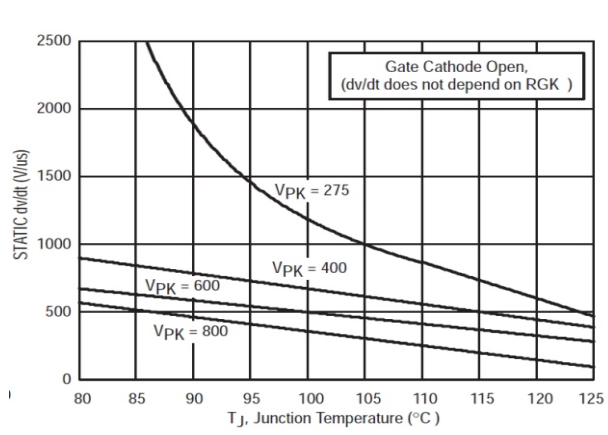


Figure 10. Typical Exponential Static dv/dt Versus Junction Temperature.

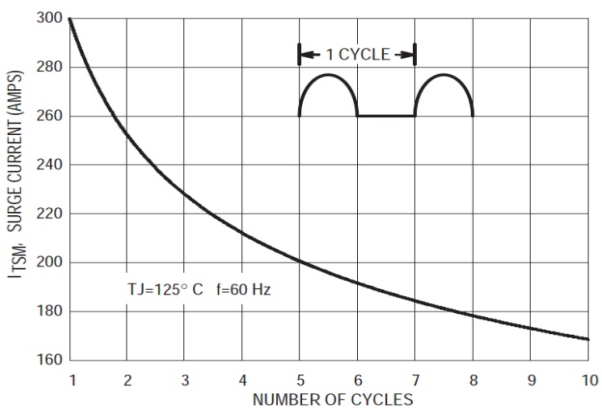


Figure 11. Maximum Non–Repetitive Surge Current

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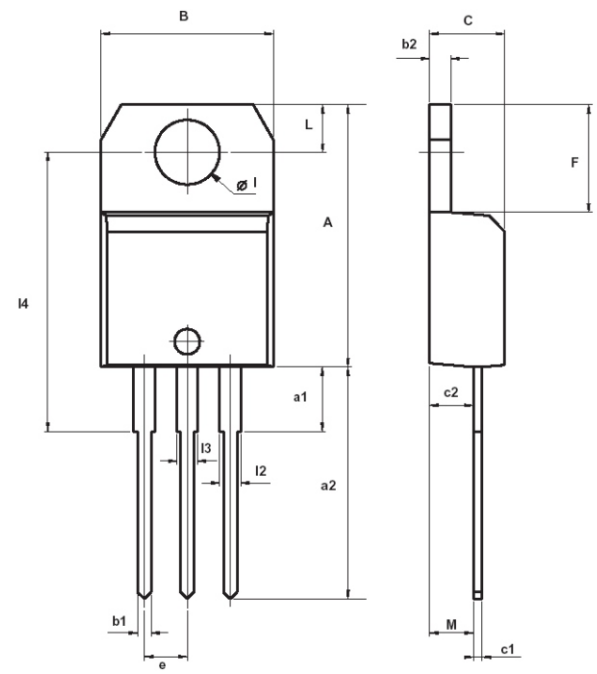
MECHANICAL DATA

Dimensions in mm
Net Mass: 2 g
TO-220B



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
I	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	