HAICHUANG SEMI

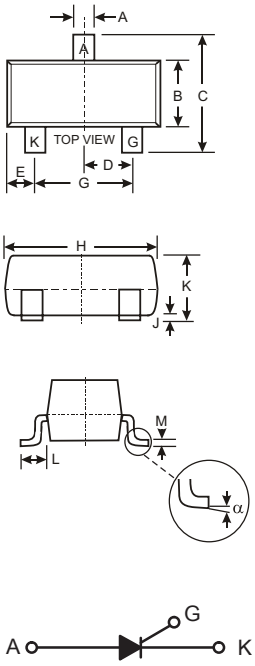
MCR100-Series

SENSITIVE GATE SILICON CONTROLLED RECTIFIERS

Features

- Sensitive Gate Allows Triggering by Microcontrollers and Other Logic Circuits
- Blocking Voltage to 600 V
- On−State Current Rating of 0.8 A RMS at 80°C
- High Surge Current Capability − 10 A
- Minimum and Maximum Values of IGT, VGT and IH Specified for Ease of Design
- Immunity to dV/dt − 20 V/μsec Minimum at 110°C
- Glass-Passivated Surface for Reliability and Uniformity
- Marking:

MCR100−3: 100−3
MCR100−4: 100−4
MCR100−5: 100−5
MCR100−6: 100−6
MCR100−7: 100−7
MCR100−8: 100−8



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Rating		Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage, Note 1 (T_J=25 to 125°C, R_{GK}=1KΩ)	MCR100-3	V_{DRM} and V_{RRM}	100	Volts
	MCR100-4		200	
	MCR100-5		300	
	MCR100-6		400	
	MCR100-7		500	
	MCR100-8		600	
Forward Current RMS (All Conduction Angles)		$I_{T(RMS)}$	0.8	Amps
Peak Forward Surge Current,T_A=25°C (1/2 Cycle,Sine Wave,60Hz)		I_{TSM}	10	Amps
Circuit Fusing (t=8.3ms)		I^2t	0.415	A^2s
Peak Gate Power - Forward, T_A=25°C		P_{GM}	0.1	Watts
Average Gate Power - Forward, T_A=25°C		$P_{GF(AV)}$	0.01	Watt
Peak Gate Current - Forward, T_A=25°C (300μs,120PPS)		I_{GFM}	1	Amp
Peak Gate Voltage - Reverse		V_{GRM}	5	Volts
Operating Junction Temperature Range @ Rated V_{RRM} and V_{DRM}		T_J	-40 to +125	°C
Storage Temperature Range		T_s	-40 to +150	°C

Note 1. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

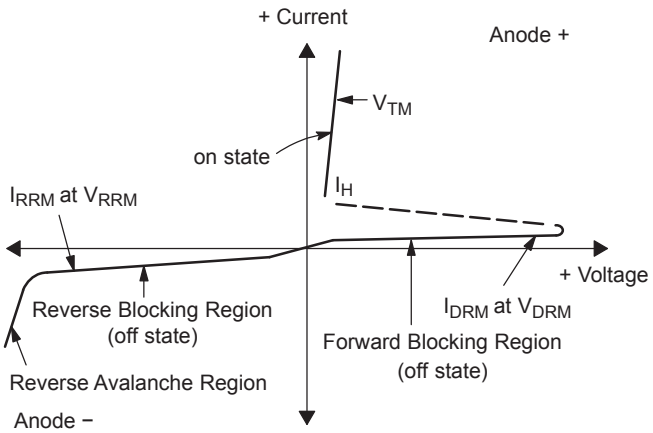
Characteristic	Symbol	Min	Max	Unit
Peak Forward or Reverse Blocking Current (V_{AK}=Rated V_{DRM} or V_{RRM})	I_{DRM},I_{RRM}	-	10	μA
Forward "On" Voltage (I_{TM}=1A Peak @T_A=25°C)	V_{TM}	-	1.7	Volts
Gate Trigger Current(Continuous dc),Note 1 (Anode Voltage=7Vdc,R_L=100 Ohms)	I_{GT}	-	200	μA
Gate Trigger Voltage(Continuous dc) (Anode Voltage=7Vdc,R_L=100 Ohms) (Anode Voltage=Rated V_{DRM},R_L=100 Ohms)	V_{GT}	-	0.8	Volts
Holding Current (Anode Voltage=7Vdc,initiating current=20mA)	I_H	-	5	mA

Note 1. R_{GK} current is not included in measurement.

MCR100 Series

Voltage Current Characteristic of SCR

Symbol	Parameter
V_{DRM}	Peak Repetitive Off State Forward Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Off State Reverse Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Peak on State Voltage
I_H	Holding Current



3.

TYPICAL TRANSIENT CHARACTERISTICS

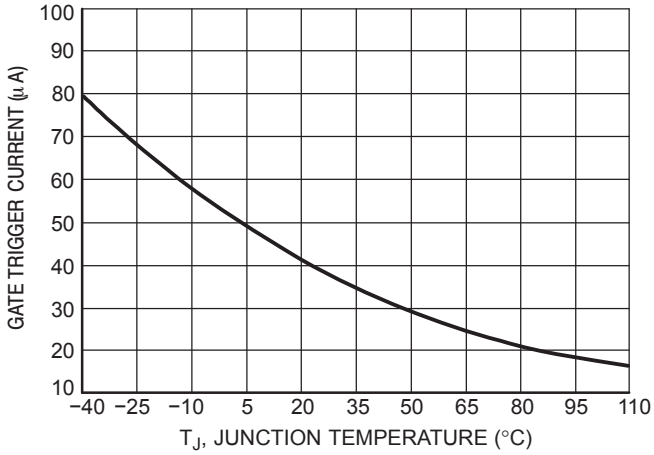


Figure 1. Typical Gate Trigger Current versus Junction Temperature

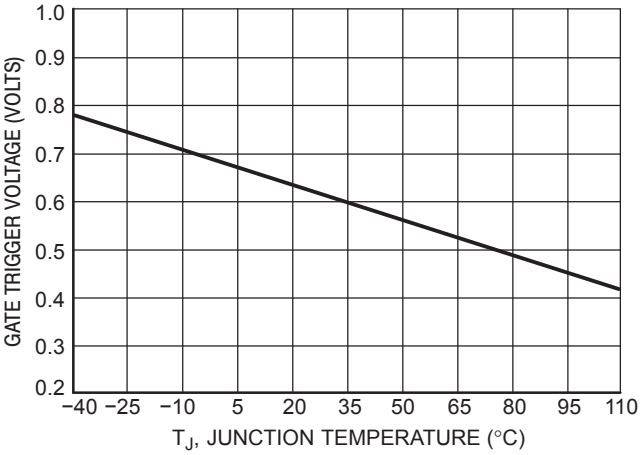


Figure 2. Typical Gate Trigger Voltage versus Junction Temperature

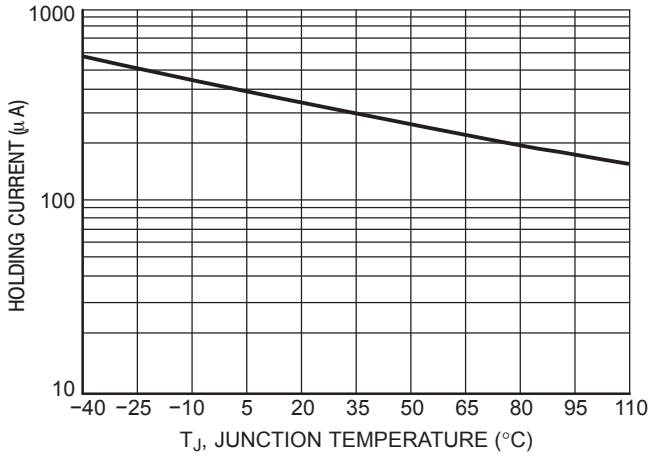


Figure 3. Typical Holding Current versus Junction Temperature

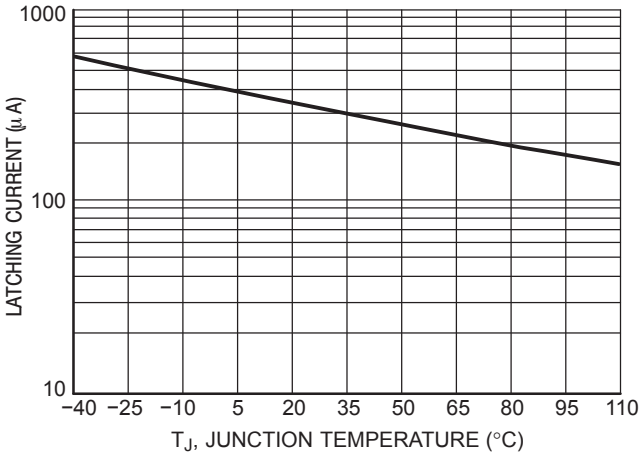


Figure 4. Typical Latching Current versus Junction Temperature

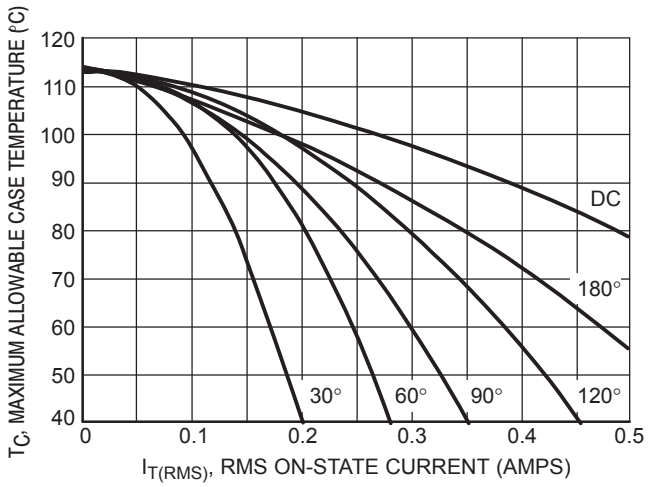


Figure 5. Typical RMS Current Derating

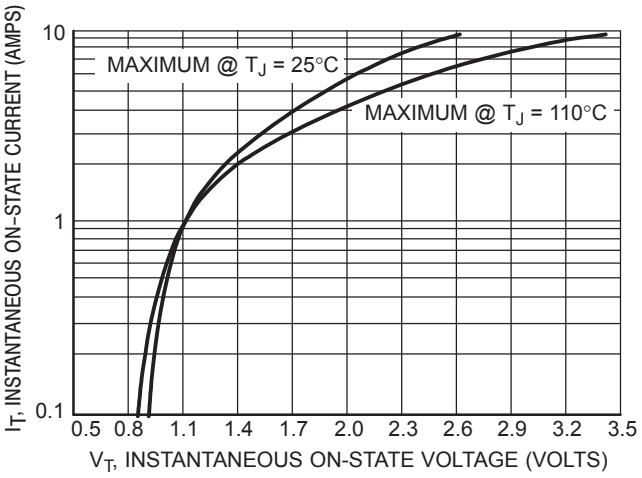


Figure 6. Typical On−State Characteristics

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