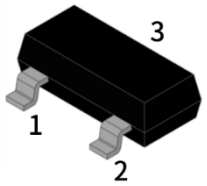
MCR100-SeriesLST1

N－Channel MOSFET

1. FEATURES

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



SOT23 (TO-236)



PIN ASSIGNMENT	
1	Cathode
2	Gate
3	Anode

2. Mechanical Data

- SOT-23 Small Outline Plastic Package.
- Tin plated leads, solderable per J-STD-002 and JESD22-B102.
- Marking:

Decice	Marking
MCR100-3LST1	100-3
MCR100-4LST1	100-4
MCR100-5LST1	100-5
MCR100-6LST1	100-6
MCR100-7LST1	100-7
MCR100-8LST1	100-8

3. ORDERING INFORMATION

Device	Min Pack	Inner Box	Outer Carton	Reel
MCR100-SeriesLST1	3000	45000	180000	7 inch

4. MAXIMUM RATINGS (Ta = 25°C)

Parameter		Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage, Note 1 (TJ=25 to 125° C, RGK=1KΩ)	MCR100-3LST1	VDRM and VRRM	100	Volts
	MCR100-4LST1		200	
	MCR100-5LST1		300	
	MCR100-6LST1		400	
	MCR100-7LST1		500	
	MCR100-8LST1		600	

Forward Current RMS (All Conduction Angles)	IT(RMS)	0.8	Amps
Peak Forward Surge Current, TA=25° C (1/2 Cycle, Sine Wave, 60Hz)	ITSM	10	Amps
Circuit Fusing (t=8.3ms)	I^2t	0.415	A^2s
Peak Gate Power - Forward, TA=25° C	PGM	0.1	Watts
Average Gate Power - Forward, TA=25° C	PGF(AV)	0.01	Watt
Peak Gate Current - Forward, TA=25° C (300μs,120PPS)	IGFM	1	Amp
Peak Gate Voltage - Reverse	VGRM	5	Volts

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Operating Junction Temperature Range @ Rated VRRM and VDRM	TJ	-40 to +125	℃
Storage Temperature Range	TS	-40 to +150	℃
Thermal Resistance,Junction-to-Case	RθJC	75	℃/W
Thermal Resistance,Junction-to-Ambient	RθJA	200	℃/W
Lead Solder Temperature (1/16″ from case, 10 secs max)	TL	260	℃

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.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C unless otherwise specified)

Characteristic		Symbol	Min	TYP	Max	Unit
OFF CHARACTERISTICS						
Peak Repetitive Forward or Reverse Blocking Current (Note 2) (VD = Rated VDRM and VRRM; RGK = 1 k)	TC=25℃	IDRM,IRRM	10			μA
	TC =110° C		100			
ON CHARACTERISTICS						
Peak Forward On-State Voltage* (ITM = 1.0 A Peak @ TA =25° C)		VTM			1.7	V
Gate Trigger Current (Continuous dc) (Note 3) (VAK = 7.0 Vdc, RL = 100)	TC =25℃	IGT		40	200	mA
Holding Current(2) VAK = 7.0 Vdc, Initiating Current = 20 mA)	TC = 25℃	IH		0.5	5	mA
	TC=-40℃				10	
Latch Current (VAK = 7.0 V, Ig = 200 A)	TC = 25℃	IL		0.6	10	mA
	TC=-40℃				15	
Gate Trigger Voltage (Continuous dc) (Note 3)(VAK = 7.0 Vdc, RL = 100)	TC = 25℃	VGT		0.62	0.8	V
	TC=-40℃				1.2	
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of Off-State Voltage (VD = Rated VDRM, Exponential Waveform, RGK = 1000 ,TJ = 110° C)		dV/dt	20	35		V/μs
Critical Rate of Rise of On-State Current (IPK = 20 A; Pw = 10 sec; diG/dt = 1 A/ sec, Igt = 20 mA)		di/dt			50	A/μs

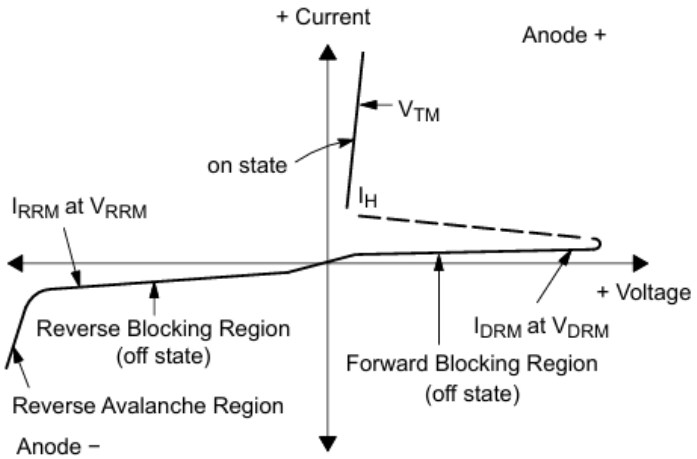
*Indicates Pulse Test: Pulse Width ≤ 1.0 ms, Duty Cycle ≤ 1%.

2. RGK = 1000 included in measurement.

3. Does not include RGK in measurement.

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



7. ELECTRICAL CHARACTERISTICS CURVES

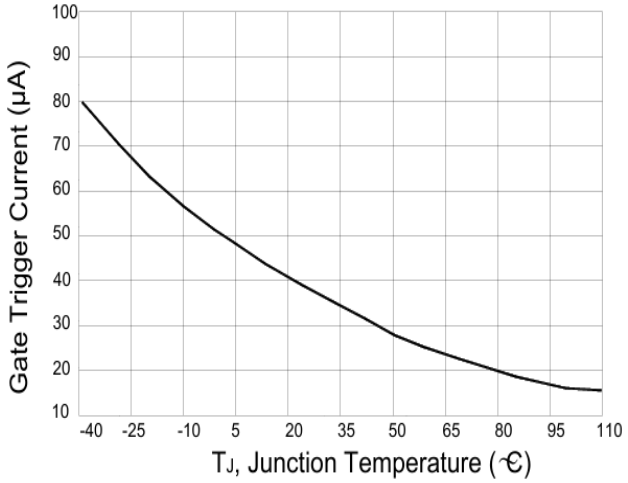


Figure 1. Typical Gate Trigger Curent Versus Junction Temperature

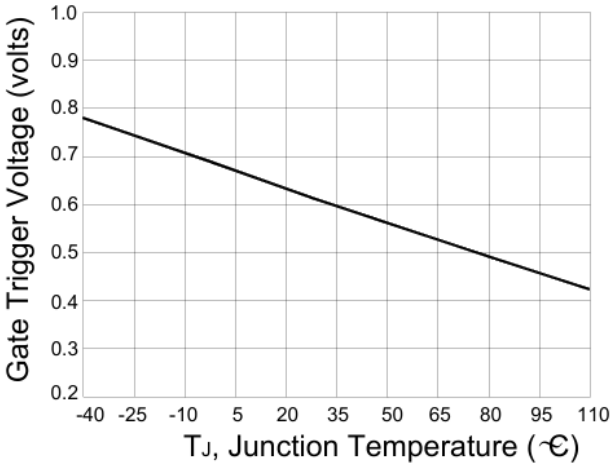


Figure 2. Typical Gate Trigger Voltage Versus Junction Temperature

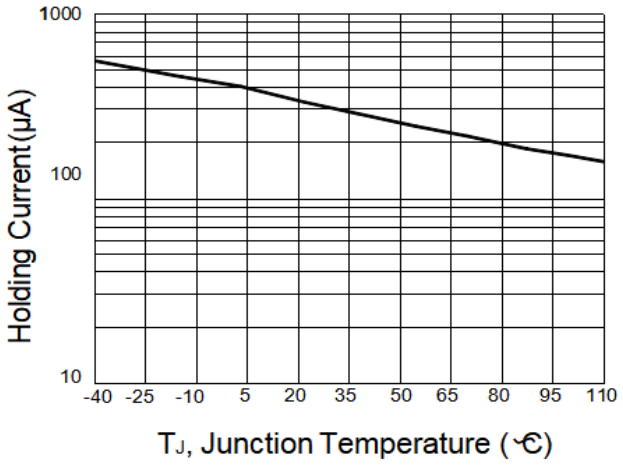


Figure 3. Typical Holding Curent Versus Junction Temperature

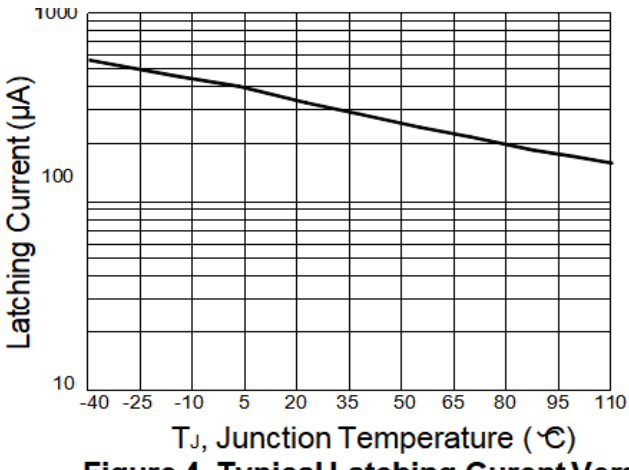


Figure 4. Typical Latching Curent Versus Junction Temperature

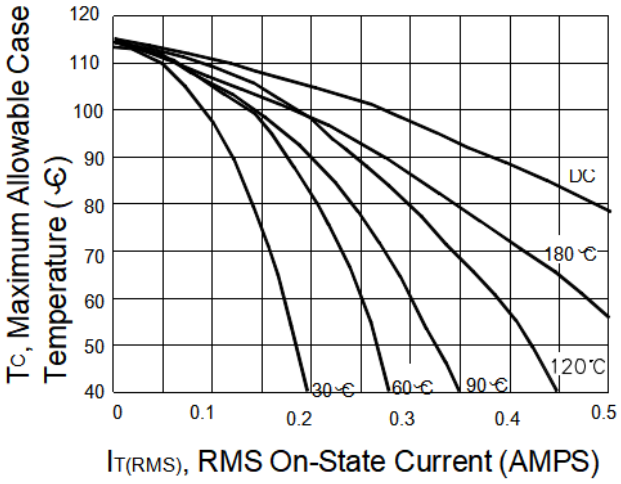


Figure 5. Typical RMS Current Derating

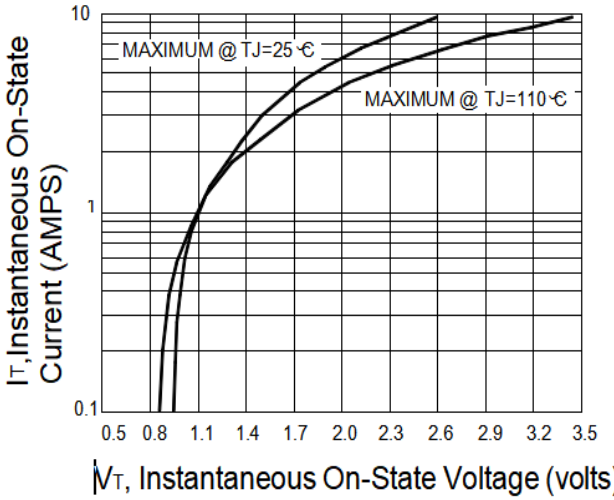
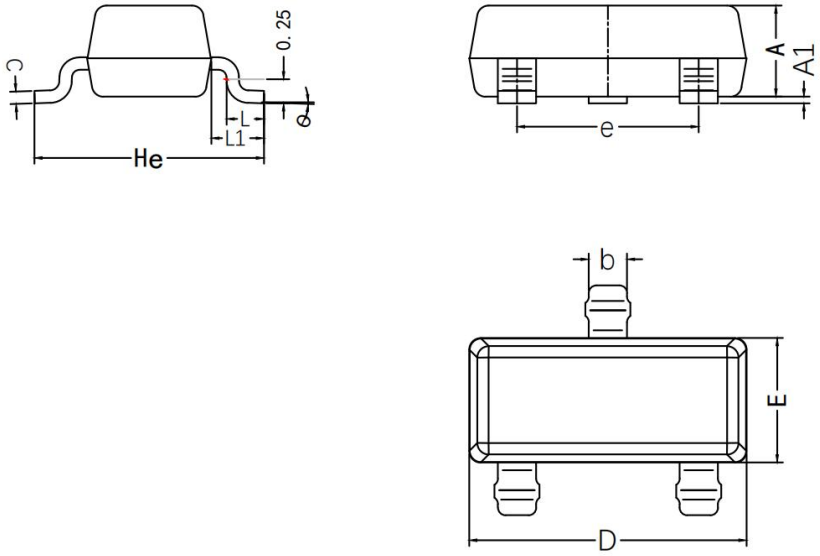


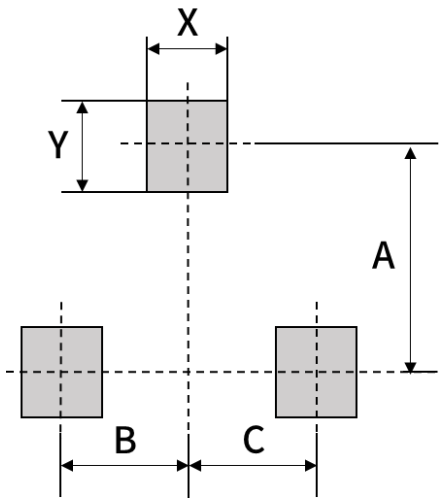
Figure 6. Typical On-State Characteristics

8. OUTLINE AND DIMENSIONS



DIM	MIN	NOR	MAX
A	0.85	0.95	1.05
A1	0.01	0.06	0.10
b	0.36	0.44	0.52
c	0.09	0.13	0.18
D	2.80	2.90	3.10
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.40	0.50
L1	0.35	0.50	0.65
He	2.10	2.35	2.50
θ	0°	-	10°
All Dimensions in mm			

9. SUGGESTED PAD LAYOUT



SOT23		
DIM	mm	inch
A	2.00	0.079
B	0.95	0.037
C	0.95	0.037
X	0.80	0.031
Y	0.90	0.035

10. DISCLAIMER

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