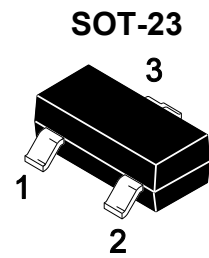


## Features

- Sensitive gate silicon controlled rectifiers
- Reverse blocking thyristors



1.Cathode(K) 2.Gate(G) 3.Anode(A)

## Equivalent Circuit



### Marking Code :

MCR100-4SA : 100-4

MCR100-6SA : 100-6

MCR100-8SA : 100-8

## Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Peak Repetitive Off-State Voltage <sup>Note1</sup> ( $T_J = -40^{\circ}\text{C} \sim 110^{\circ}\text{C}$ , Sine Wave, 50 to 60 Hz, Gate Open)	$V_{\text{DRM}}, V_{\text{RRM}}$	200 400 600	V
On-State RMS Current	$I_{\text{T(RMS)}}$	0.5	A
Peak Non-Repetitive Surge Current (1/2 Cycle, Sine Wave, 60 Hz, $T_J = 25^{\circ}\text{C}$ )	$I_{\text{TSM}}$	8	A
Circuit Fusing Considerations ( $t = 8.3\text{ms}$ )	$I^2t$	0.104	$\text{A}^2\text{s}$
Forward Peak Gate Power (Pulse Width $\leq 1 \mu\text{s}$ )	$P_{\text{GM}}$	0.1	W
Forward Average Gate Power ( $t = 8.3\text{ms}$ )	$P_{\text{G(AV)}}$	0.1	W
Peak Gate Current – Forward (Pulse Width $\leq 1 \mu\text{s}$ )	$I_{\text{GM}}$	1	A
Peak Gate Voltage – Reverse (Pulse Width $\leq 1 \mu\text{s}$ )	$V_{\text{GRM}}$	5	V
Operating Junction Temperature Range	$T_J$	-40 to +110	$^{\circ}\text{C}$
Storage Temperature Range	$T_{\text{STG}}$	-40 to +150	$^{\circ}\text{C}$

### Note:

1.  $V_{\text{DRM}}$  and  $V_{\text{RRM}}$  for all types can be applied on continuous basis. Ratings apply for zero negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.



### Electrical Characteristics (T<sub>A</sub>=25°C)

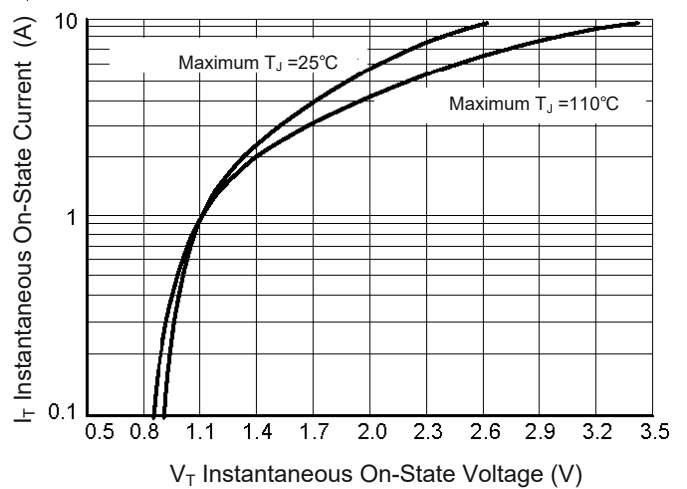
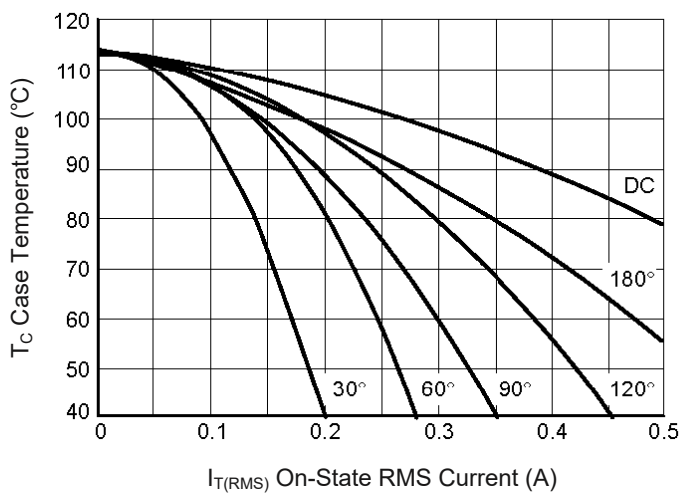
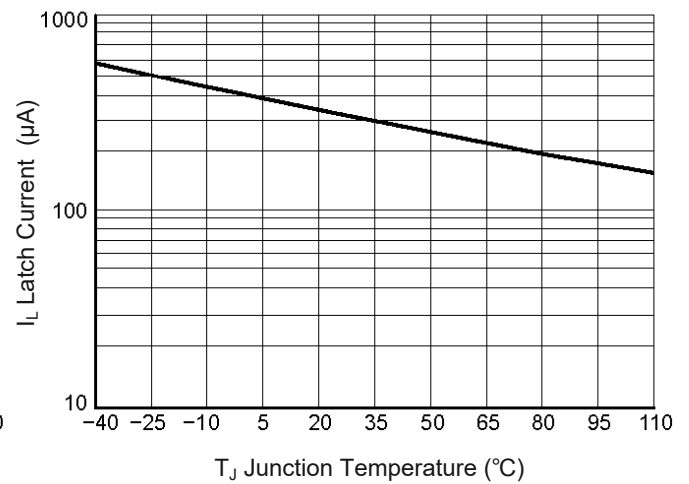
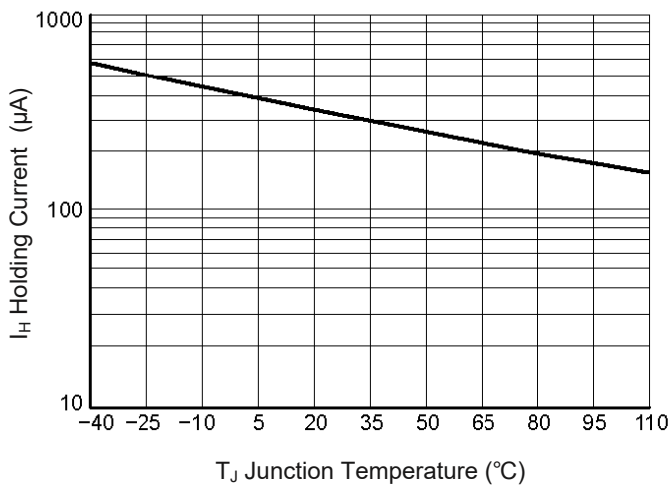
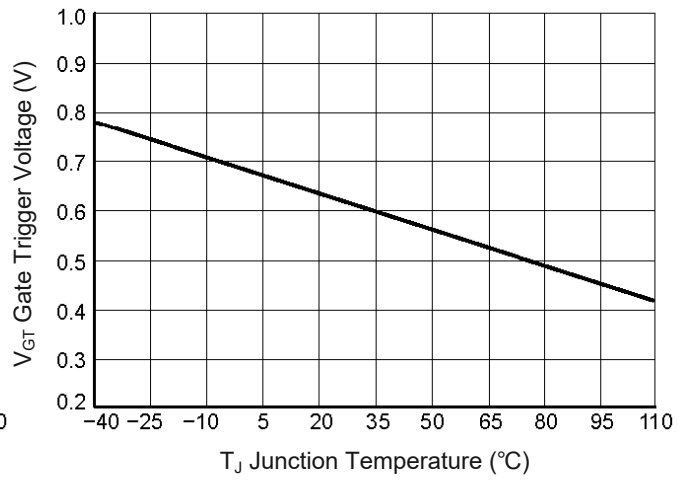
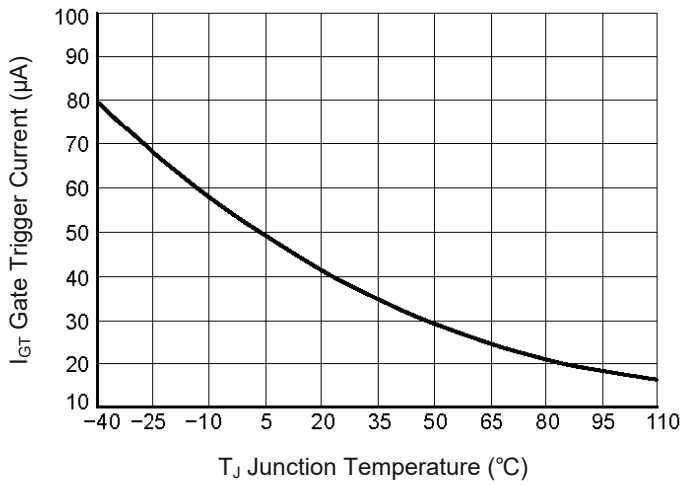
Parameter	Symbol	Value	Unit
Peak Forward or Reverse Blocking Current <sup>Note2</sup> at V <sub>D</sub> = Rated V <sub>DRM</sub> and V <sub>RPM</sub> , R <sub>GK</sub> = 1KΩ	I <sub>DRM</sub> , I <sub>RPM</sub>	10	μA
Peak Forward On-State Voltage <sup>Note1</sup> at I <sub>TM</sub> = 0.8 A	V <sub>TM</sub>	1.7	V
Gate Trigger Current <sup>Note3</sup> at V <sub>AK</sub> = 7 V, R <sub>L</sub> = 100 Ω	I <sub>GT</sub>	200	μA
Holding Current <sup>Note2</sup> at V <sub>AK</sub> = 7 V, Initiating Current = 20 mA	I <sub>H</sub>	T <sub>C</sub> = 25°C 5	mA
		T <sub>C</sub> = -40°C 10	
Latch Current at V <sub>AK</sub> = 7 V, I <sub>g</sub> = 1 mA	I <sub>L</sub>	T <sub>C</sub> = 25°C 10	mA
		T <sub>C</sub> = -40°C 15	
Gate Trigger Voltage <sup>Note3</sup> at V <sub>AK</sub> = 7 V, R <sub>L</sub> = 100 Ω	V <sub>GT</sub>	T <sub>C</sub> = 25°C 0.8	V
		T <sub>C</sub> = -40°C 1.2	

**Note:**

1. Indicates pulse test width ≤ 1 ms, duty cycle ≤ 1%
2. R<sub>GK</sub> = 1 KΩ included in measurement
3. Does not include R<sub>GK</sub> in measurement



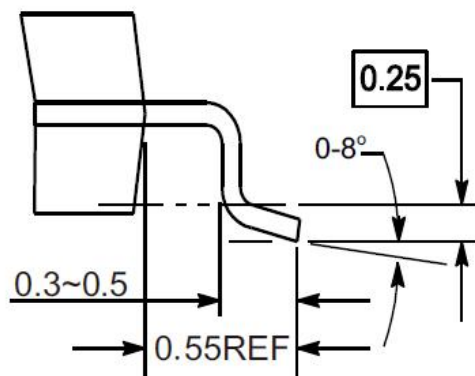
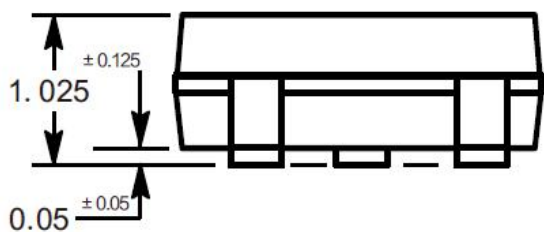
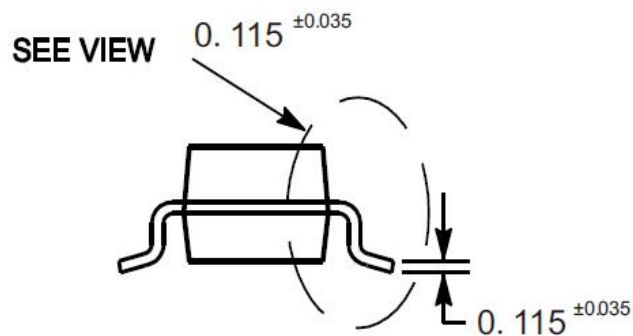
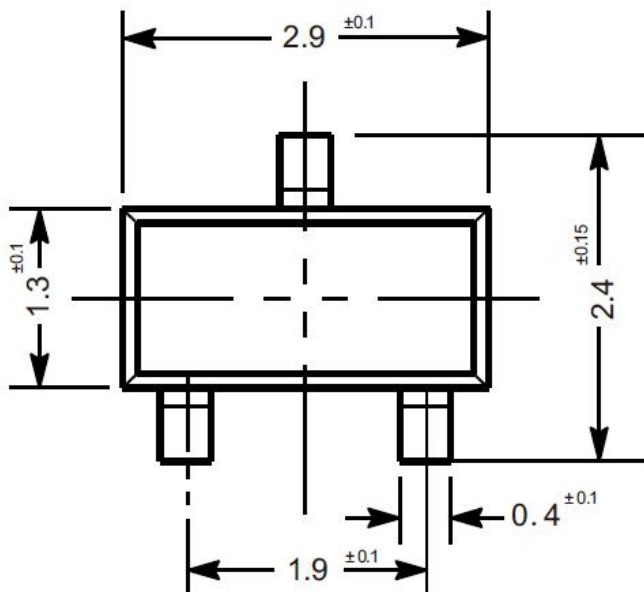
## Typical Characteristic Curves



### Package Outline

SOT-23

Dimensions in mm



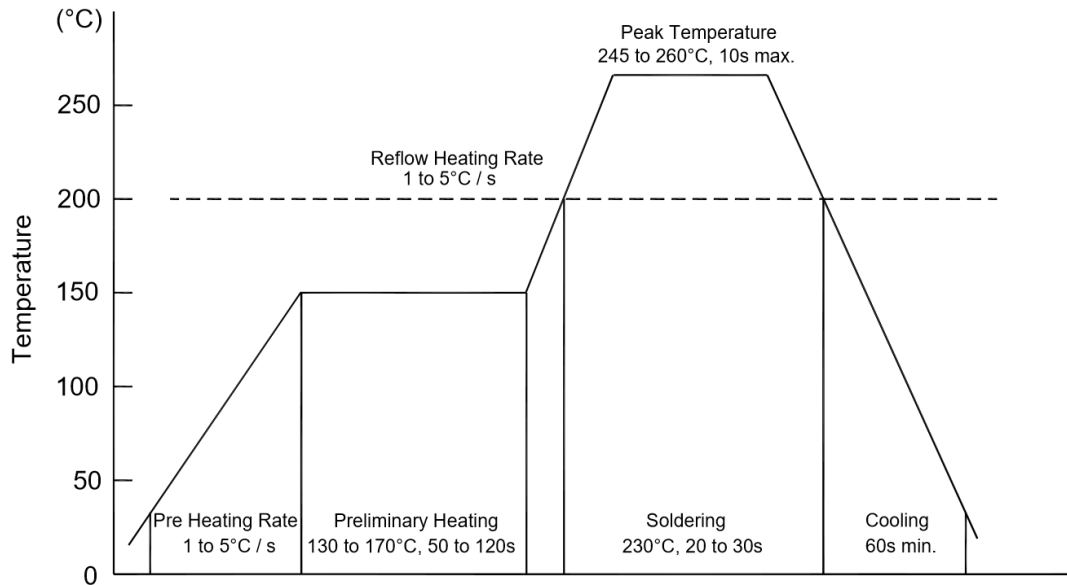
VIEW C

### Ordering Information

Device	Package	Shipping
MCR100 Series	SOT-23	3,000PCS/Reel&7inches

### Conditions of Soldering and Storage

#### ◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

#### ◆ Conditions of hand soldering

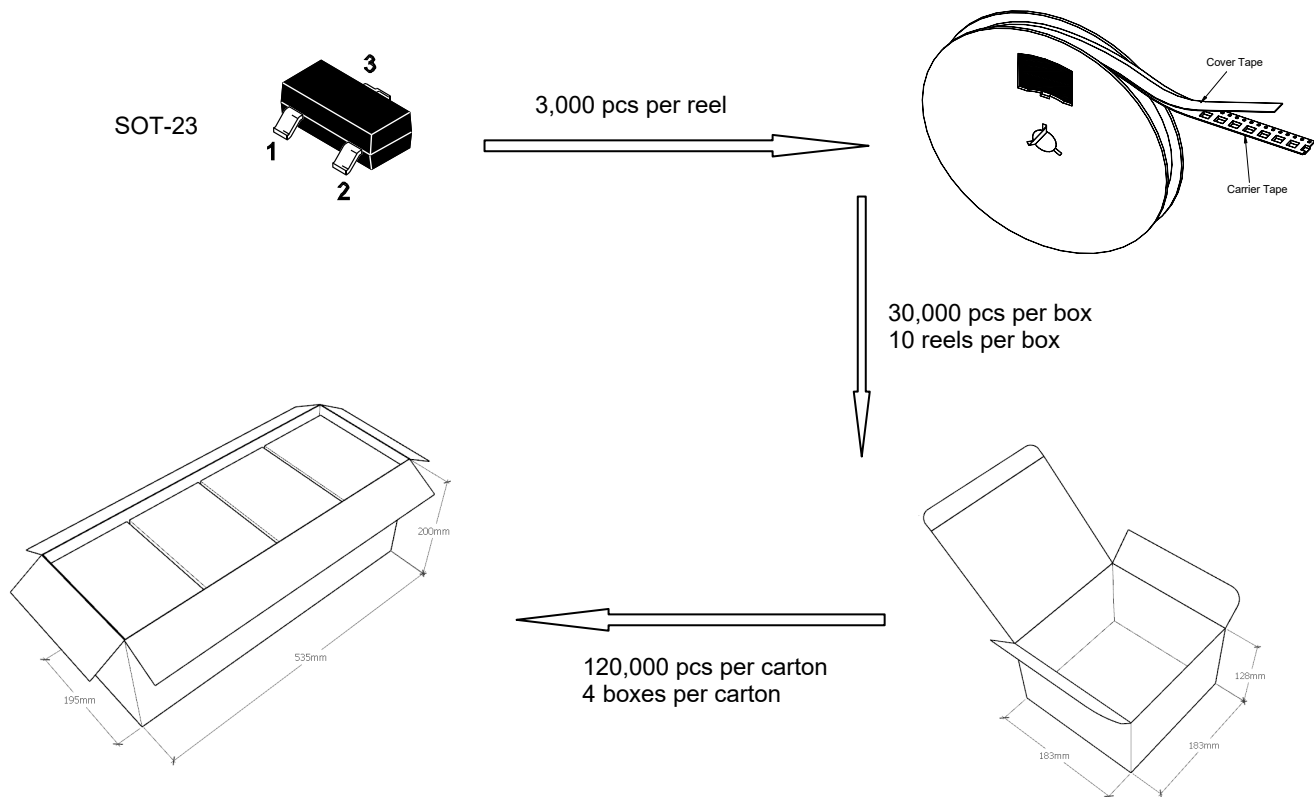
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

#### ◆ Storage conditions

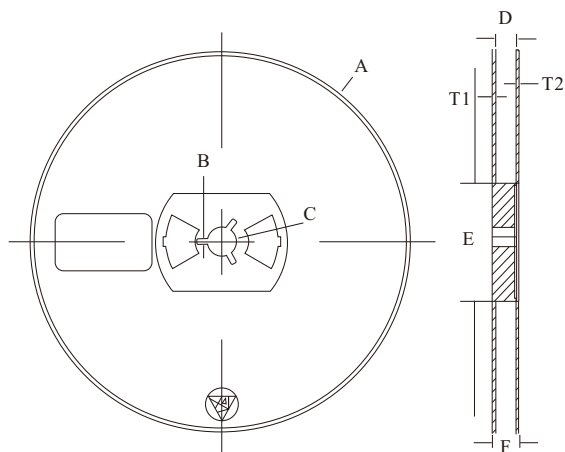
- **Temperature**  
5 to 40 °C
- **Humidity**  
30 to 80% RH
- **Recommended period**  
One year after manufacturing

## Package Specifications

- The method of packaging



## ◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	$\varnothing 177.8 \pm 1$
B	$2.7 \pm 0.2$
C	$\varnothing 13.5 \pm 0.2$
E	$\varnothing 54.5 \pm 0.2$
F	$12.3 \pm 0.3$
D	$9.6 + 2 / - 0.3$
T1	$1.0 \pm 0.2$
T2	$1.2 \pm 0.2$

Reel (7")

