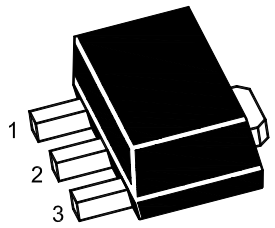
MCR100 Series
Silicon Controlled Rectifiers

Features

- Sensitive gate silicon controlled rectifiers
- Reverse blocking thyristors

SOT-89



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

Equivalent Circuit

Marking Code :
MCR100-4SQ : MCR100-4
MCR100-6SQ : MCR100-6
MCR100-8SQ : MCR100-8

Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter		Symbol	Value	Unit
Peak Repetitive Off-State Voltage Note1	MCR100-4SQ	V_{DRM},V_{RRM}	200	V
(T_J = -40°C~110°C, Sine Wave,50 to 60 Hz,	MCR100-6SQ		400	
Gate Open)	MCR100-8SQ		600	
On-State RMS Current		$I_{T(RMS)}$	0.8	A
Peak Non-Repetitive Surge Current (1/2 Cycle, Sine Wave, 60 Hz, T_J = 25°C)		I_{TSM}	8	A
Circuit Fusing Considerations (t = 8.3ms)		I^2t	0.415	A^2s
Forward Peak Gate Power (Pulse Width ≤ 1 μs)		P_{GM}	0.1	W
Forward Average Gate Power (t = 8.3ms)		$P_{G(AV)}$	0.1	W
Peak Gate Current – Forward (Pulse Width ≤ 1 μs)		I_{GM}	1	A
Peak Gate Voltage – Reverse (Pulse Width ≤ 1 μs)		V_{GRM}	5	V
Operating Junction Temperature Range		T_J	-40 to +110	°C
Storage Temperature Range		T_{STG}	-40 to +150	°C

Note:

1.V_{DRM} and V_{RRM} for all types can be applied on continous 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 sourse such that the voltage ratings of the devices are exceeded.

Electrical Characteristics (T_A=25℃)

Parameter		Symbol	Value	Unit
Peak Forward or Reverse Blocking Current Note2 at V_D = Rated V_{DRM} and V_{RRM}, R_{GK} =1KΩ		I_{DRM},I_{RRM}	10	μA
Peak Forward On-State Voltage Note1 at I_{TM} = 0.8 A		V_{TM}	1.7	V
Gate Trigger Current Note3 at V_{AK} = 7 V, R_L = 100 Ω		I_{GT}	200	μA
Holding Current Note2	T_C = 25°C	I_H	5	mA
at V_{AK} = 7 V, Initiating Current = 20 mA	T_C = -40°C		10	
Latch Current	T_C = 25°C	I_L	10	mA
at V_{AK} = 7 V, Ig = 1 mA	T_C = -40°C		15	
Gate Trigger Voltage Note3	T_C = 25°C	V_{GT}	0.8	V
at V_{AK} = 7 V, R_L = 100 Ω	T_C = -40°C		1.2	

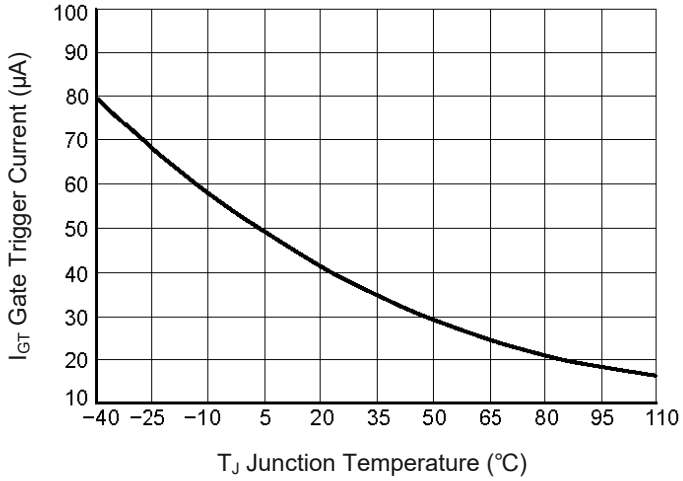
Note:

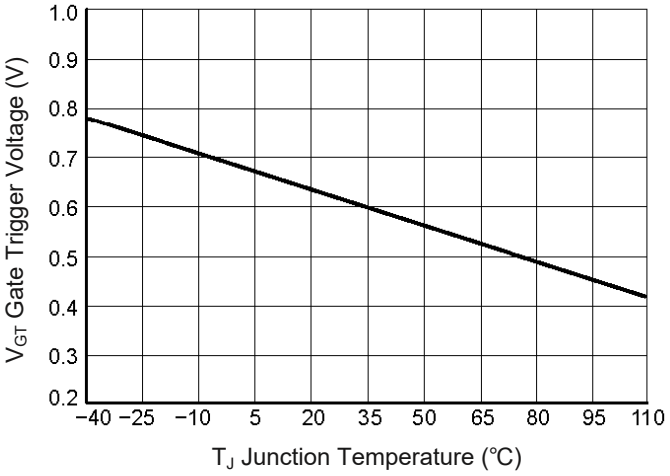
1.Indicates pulse test width ≤ 1 ms, duty cycle ≤1%

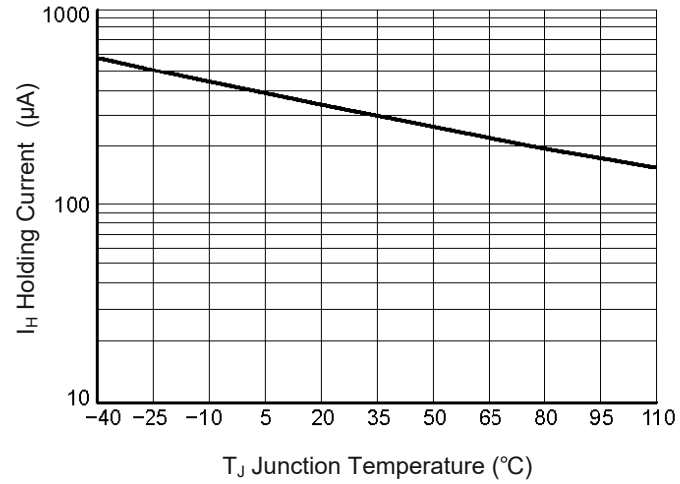
2.R_{GK} = 1 KΩ included in measurement

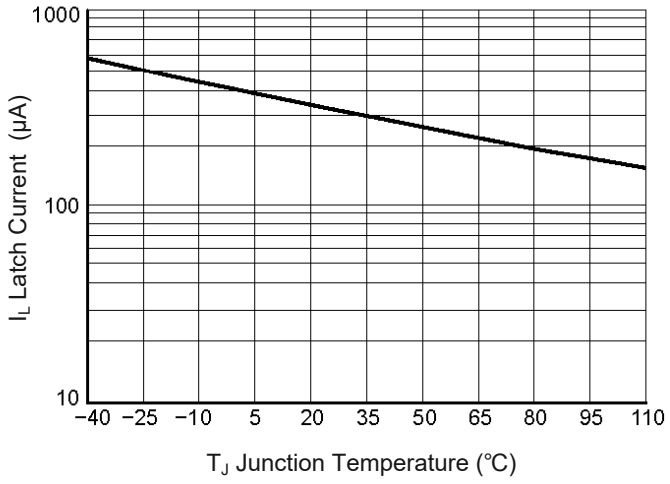
3.Does not include R_{GK} in measurement

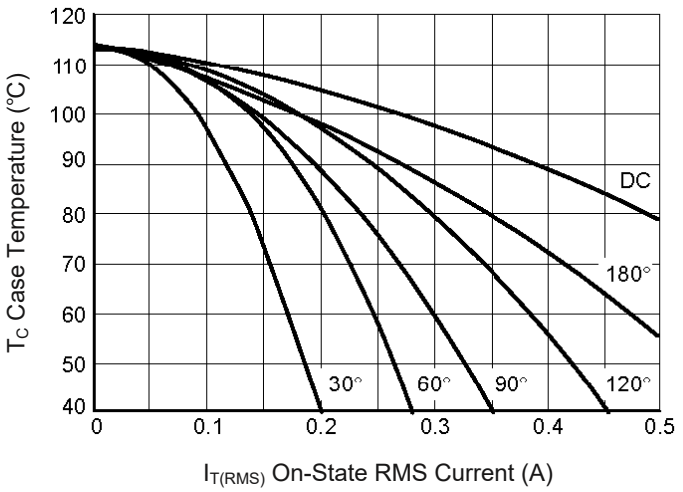
Typical Characteristic Curves

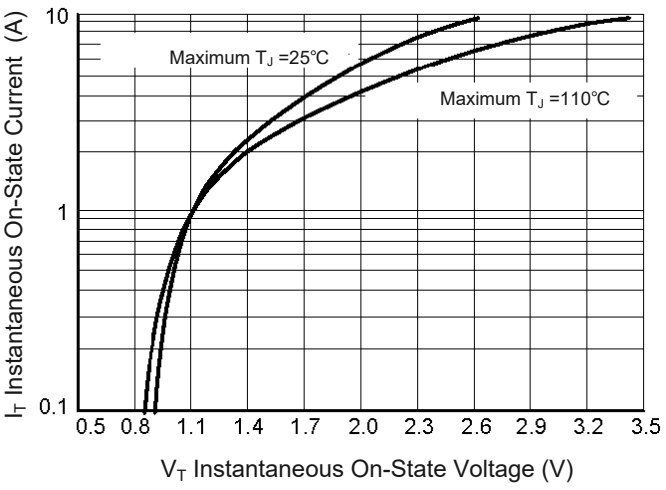






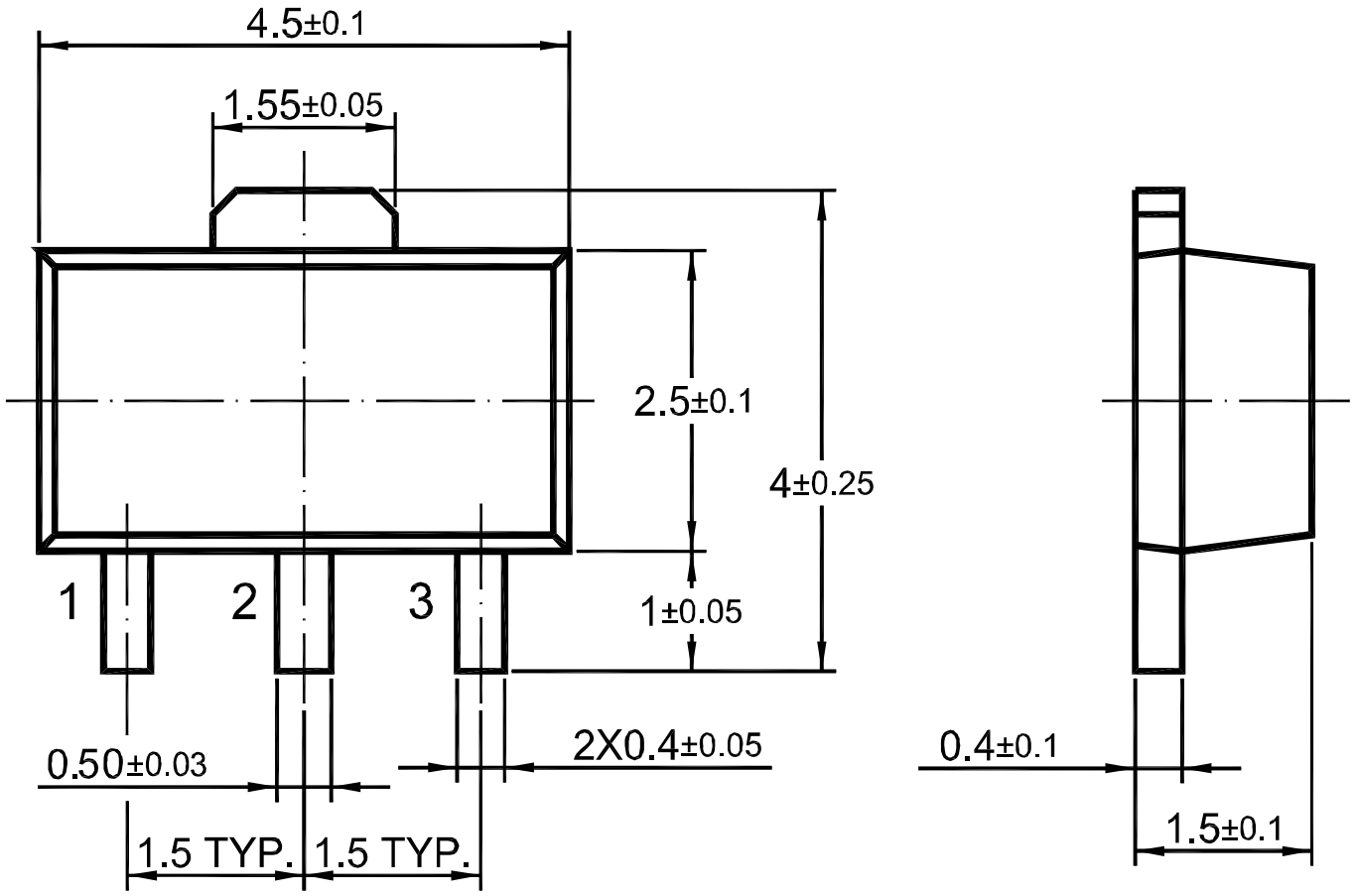






Package Outline

SOT-89
Dimensions in mm

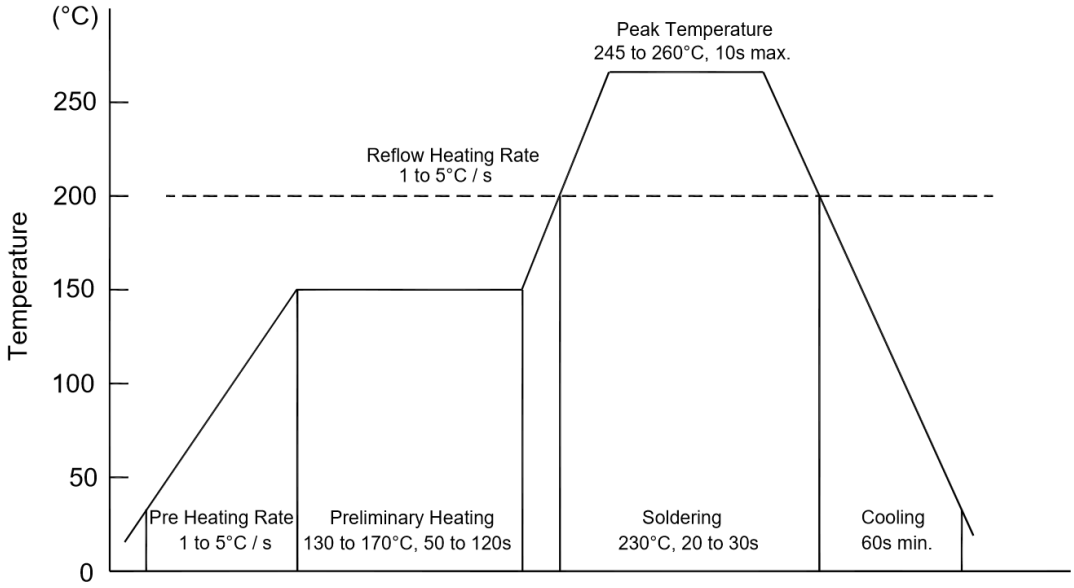


Ordering Information

Device	Package	Shipping
MCR100 Series	SOT-89	3,000PCS/Reel&13inches

Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 ^{O}C. If peak temperature is below 245 ^{O}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

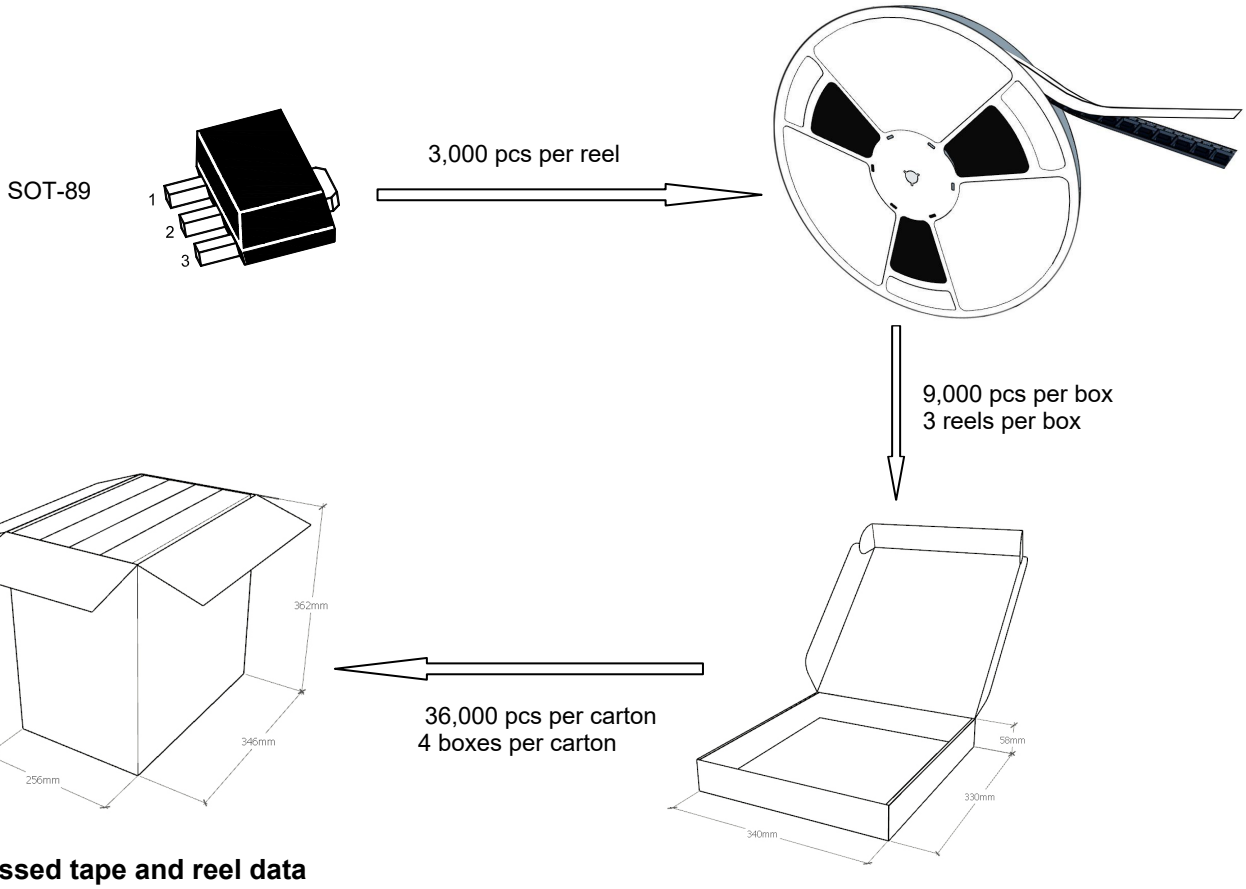
- Temperature: 370 ^{O}C
- Time: 3s max.
- Times: one time

◆ Storage conditions

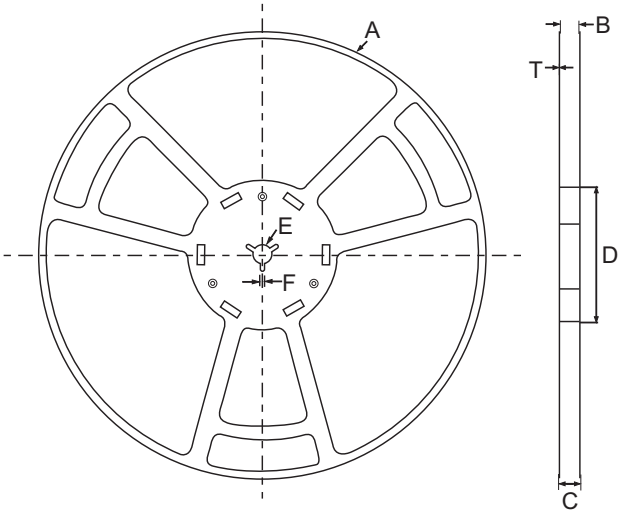
- **Temperature**
  5 to 40 ^{O}C
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

Package Specifications

- The method of packaging



◆ **Embossed tape and reel data**



Reel (13")

symbol	Value(unit:mm)
A	ϕ330±1
B	12.7±0.5
C	16.5±0.3
D	ϕ99.5±0.5
E	ϕ13.6±0.3
F	2.8±0.3
T	1.9±0.2