RoHS Available

Silicon Carbide
Dual Schottky Power Rectifier 10A, 1200V

ORDERABLE PART NUMBERS

	MSiCSN10120CC	MSiCSN10120CA	MSiCSN10120D
Configuration	Common Cathode	Common Anode	Doubler

DESCRIPTION

These dual 1200 V rated SiC Schottky rectifiers are in a hermetically sealed package with options for common cathode, common anode, and doubler configurations. They offer very fast switching capabilities with greater efficiency at higher operating temperatures compared to existing ultrafast silicon rectifiers.

Important: For the latest information, visit our website http://www.microsemi.com.

FEATURES

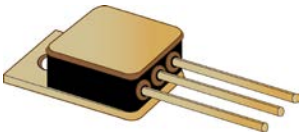
- TO-257 package
- Lightweight
- Hermetically sealed package
- Internal metallurgical bonds
- High temperature (T_J) +175 °C
- Zero reverse recovery current
- Temperature independent switching behavior
- Very fast switching compared to fast or ultrafast rectifiers
- Positive V_F temperature coefficient (parallel devices for higher currents)
- RoHS compliant versions are available

APPLICATIONS / BENEFITS

- Schottky barrier diode for military, space and other high reliability applications
- Switching power supplies or other applications requiring extremely fast switching and essentially no switching losses
- High forward surge capability
- High reverse voltage capability with very fast switching
- Inherently radiation hard >100 krads as described in Microsemi MicroNote 050

MAXIMUM RATINGS @ T_C = +25 °C unless otherwise noted

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T_J and T_{STG}	-65 to +175	°C
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.6	°C/W
Working Peak Reverse Voltage	V_{RWM}	1200	V
Non-Repetitive Peak Inverse Voltage	V_{RSM}	1200	V
DC Blocking Voltage	V_{DC}	1200	V
Average DC Output Current @ 25 °C	I_O	10	A
Non-Repetitive Sinusoidal Surge Current @ tp = 8.3 ms, half sinewave, I_O = 0; V_{RM} = 0	I_{FSM}	50	A



TO-257 Package

Also available in:

Dual U3 package
(surface mount)
MSiCSS10120CC

U3 package
(surface mount)
MSiCSS10120

TO-257 package
(leaded)
MSiCSN10120

MSC – Lawrence
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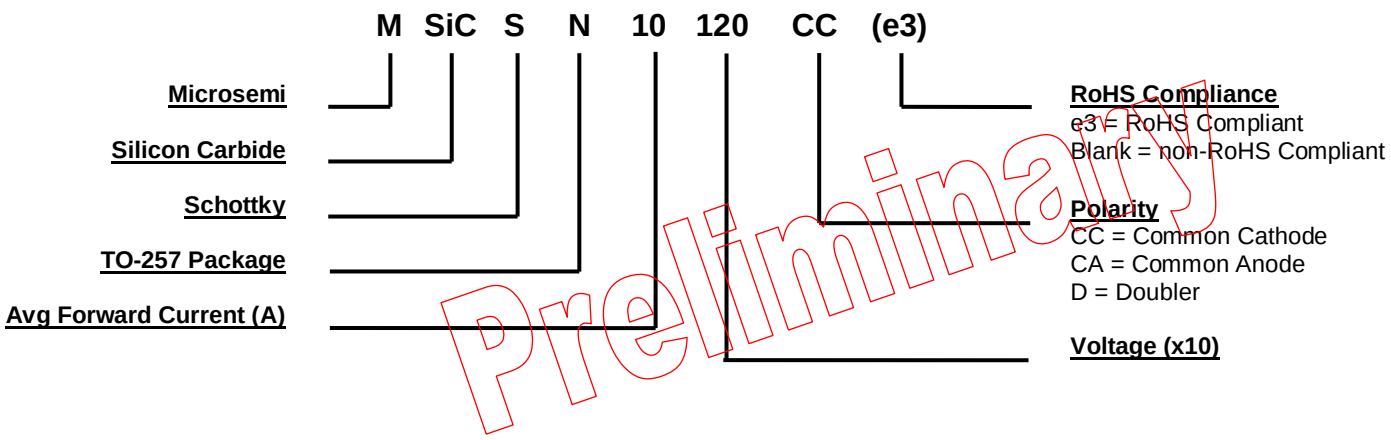
MECHANICAL and PACKAGING

- CASE: Nickel plated copper base & 1020 steel frame
- TERMINALS: Solder dipped copper cored 52 alloy or RoHS compliant matte/tin plating
- MARKING: Alpha numeric
- POLARITY: See schematic on last page
- WEIGHT: Approximately 3.43 grams
- See package dimensions on last page.

PART NOMENCLATURE



SYMBOLS & DEFINITIONS

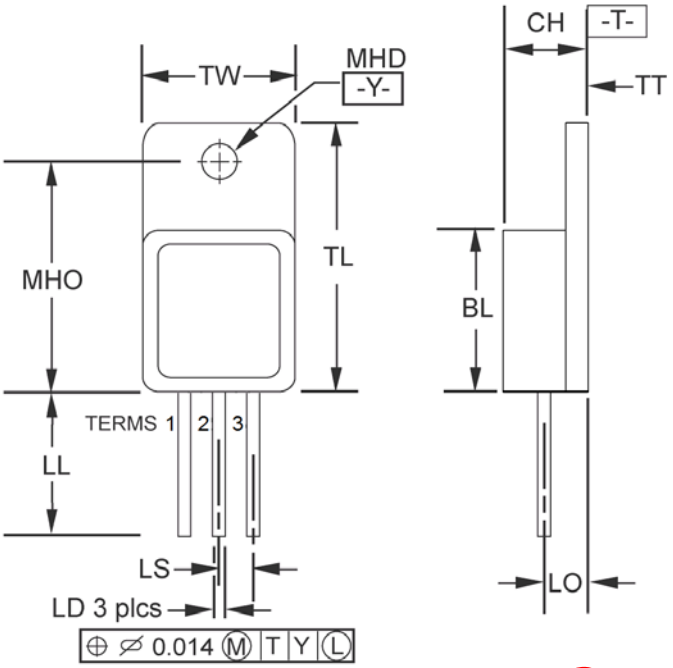
Symbol	Definition
C_J	Junction Capacitance: The junction capacitance in pF at a specified frequency (typically 1 MHz) and specified voltage.
I_F	Forward Current: The forward current dc value, no alternating component.
I_R	Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
T_J	Junction Temperature: The temperature of a semiconductor junction.
V_F	Forward Voltage: The forward voltage the device will exhibit at a specified current (typically shown as maximum value).
V_R	Reverse Voltage: The reverse voltage dc value, no alternating component.

ELECTRICAL CHARACTERISTICS @ T_A = +25 °C unless otherwise noted

Parameters / Test Conditions	Symbol	Min.	Max.	Typ.	Unit
Forward Voltage* I_F = 1 A, T_J = 25 °C I_F = 2.5 A, T_J = 25 °C I_F = 5.0 A, T_J = 25 °C I_F = 10.0 A, T_J = 25 °C	V_F		 1.1 1.2 1.4 1.8		V
Reverse Current V_R = 1200 V, T_J = 25 °C V_R = 1200 V, T_J = 175 °C	I_R		 100 200		µA
Junction Capacitance V_R = 0 V f = 1 MHz	C_J			1200	pF

* Pulse test: Pulse width 300 µsec, duty cycle 2%.

PACKAGE DIMENSIONS

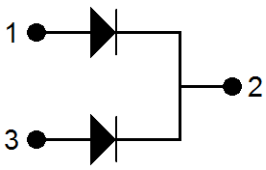


Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
BL	0.410	0.430	10.41	10.92
CH	0.190	0.200	4.83	5.08
LD	0.025	0.035	0.64	0.89
LL	0.505	0.595	12.82	15.11
LO	0.120 BSC		3.05 BSC	
LS	0.100 BSC		2.54 BSC	
MHD	0.140	0.150	3.56	3.81
MHO	0.527	0.537	13.39	13.64
TL	0.645	0.665	16.38	16.89
TT	0.035	0.045	0.89	1.14
TW	0.410	0.420	10.41	10.67
TERM 1	SEE SCHEMATIC			
TERM 2	SEE SCHEMATIC			
TERM 3	SEE SCHEMATIC			

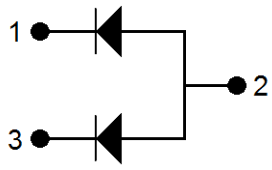
NOTES:

1. Dimensions are in inches.
2. Millimeters equivalents are given for general information only.
3. Glass meniscus included in dimension TL and BL.

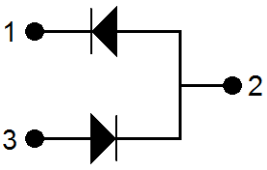
SCHEMATIC



CC - COMMON CATHODE
TERM 1 = ANODE
TERM 2 = CATHODE
TERM 3 = ANODE



CA – COMMON ANODE
TERM 1 = CATHODE
TERM 2 = ANODE
TERM 3 = CATHODE



D - DOUBLER
TERM 1 = CATHODE
TERM 2 = CENTER TAP
TERM 3 = ANODE