



Silicon Carbide Dual Schottky Power Rectifier 10A, 1200V

DESCRIPTION

This high current Silicon Carbide Schottky is rated up to 1200 V and offers 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

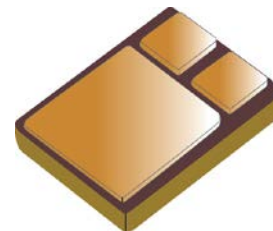
- Low profile ceramic SMD
- Very lightweight
- Hermetically sealed
- High temperature (T_J) +175 °C
- Zero reverse recovery current
- Temperature independent switching behavior
- Very fast switching compared to fast or ultrafast rectifiers
- Positive V_F temperature coefficient (parallel devices for higher currents)
- RoHS compliant by design

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 krad as described in Microsemi [MicroNote 050](#)

MAXIMUM RATINGS @ $T_C = +25\text{ °C}$ 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	$R_{\theta JC}$	1.7	°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 @ $t_p = 8.3\text{ ms}$, half sinewave, $I_O = 0$; $V_{RM} = 0$	I_{FSM}	50	A



U3 (SMD-5) Package

Also available in:

Dual TO-257 package
(lead)

 [MSiCSN10120CC, CA, D](#)

U3 package
(surface mount)

 [MSiCSS10120](#)

TO-257 package
(lead)

 [MSiCSN10120](#)

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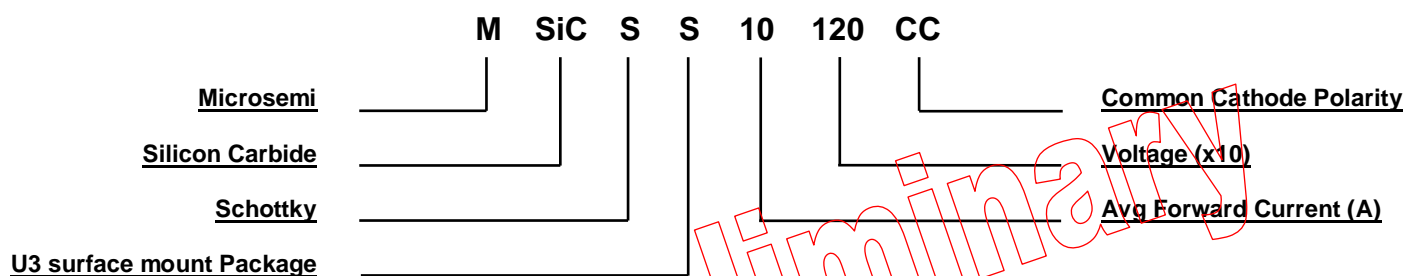
Website:

www.microsemi.com

MECHANICAL and PACKAGING

- CASE: Ceramic and gold-over-nickel plated steel
- TERMINALS: Gold-over-nickel plated tungsten/copper
- MARKING: Alpha numeric
- POLARITY: See [schematic](#) on last page
- WEIGHT: Approximately 0.9 grams
- See [package dimensions](#) on last page.

PART NOMENCLATURE



SYMBOLS & DEFINITIONS

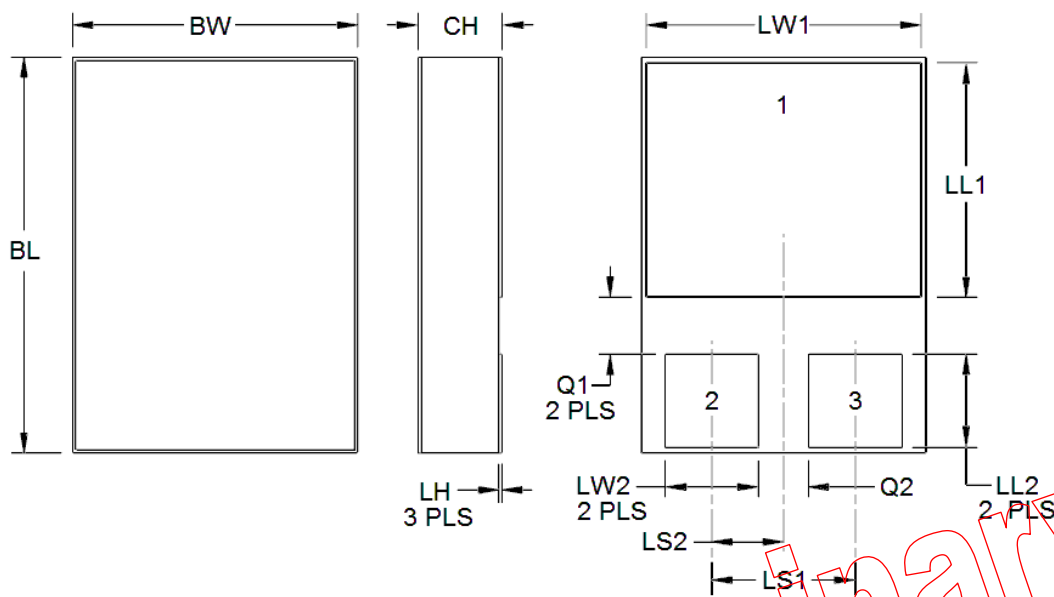
Symbol	Definition
C_J	Junction Capacitance: The junction capacitance in pF at a specified frequency (typically 1 MHz) and specified voltage.
I_F	Forward Current: The forward current dc value, no alternating component.
I_R	Reverse Current: The maximum reverse (leakage) current that will flow at the specified 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 @ $T_A = +25\text{ }^{\circ}\text{C}$ unless otherwise noted

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

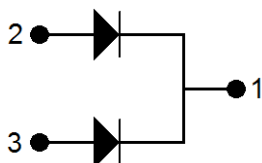
* Pulse test: Pulse width 300 μsec , duty cycle 2%.

Preliminary

PACKAGE DIMENSIONS

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to ϕ symbology.

Symbol	DIMENSIONS			
	INCH		MILLIMETERS	
	Min	Max	Min	Max
BL	0.395	0.405	10.03	10.29
BW	0.291	0.301	7.39	7.65
CH	0.112	0.124	2.84	3.15
LH	0.010	0.020	0.25	0.51
LL1	0.220	0.230	5.59	5.84
LL2	0.115	0.125	2.92	3.18
LS1	0.150 BSC		3.81 BSC	
LS2	0.075 BSC		1.91 BSC	
LW1	0.281	0.291	7.14	7.39
LW2	0.090	0.100	2.29	2.54
Q1	0.030	-	0.76	-
Q2	0.030	-	0.76	-
Term 1	Cathode			
Term 2	Anode (See Schematic)			
Term 3	Anode (See Schematic)			

SCHEMATIC

CC - COMMON CATHODE