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# PRELIMINARY TECHNICAL DATA SHEET

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## SILICON CARBIDE DUAL SCHOTTKY POWER RECTIFIER

### DEVICES

**MSiCSN05120CC MSiCSN05120CA MSiCSN05120D**

**MSiCSS05120CC MSiCSS05120CA MSiCSS05120D**

**5A / 1200V  
 Silicon Carbide  
 Dual Schottky Rectifier**

### ABSOLUTE MAXIMUM RATINGS ( $T_C = +25^\circ\text{C}$ unless otherwise noted) (Per Diode)

Parameters / Test Conditions	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RWM}$	1200	V
Surge Peak Reverse Voltage	$V_{RSM}$	1200	V
DC Blocking Voltage	$V_{DC}$	1200	V
Average Forward Current, $25^\circ\text{C}$	$I_o$	5	Apk
Peak Surge Forward Current @ $t_p = 8.3\text{ms}$ , half sinewave, $I_o = 0$ ; $V_{RM} = 0$	$I_{FSM}$	30	Apk
Thermal Resistance, Junction to Case	$R_{\theta jc}$		$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta ja}$		$^\circ\text{C/W}$
Operating Junction Temperature	$T_j$	$-65^\circ\text{C}$ to $+225$	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	$-65^\circ\text{C}$ to $+225$	$^\circ\text{C}$

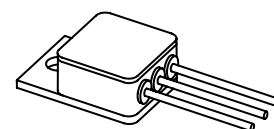
### ELECTRICAL CHARACTERISTICS ( $T_A = +25^\circ\text{C}$ , unless otherwise noted) (Per Diode)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Forward Voltage* $I_F = 1\text{A}$ , $T_j = 25^\circ\text{C}$ $I_F = 2.5\text{A}$ , $T_j = 25^\circ\text{C}$ $I_F = 5.0\text{A}$ , $T_j = 25^\circ\text{C}$	$V_F$		1.2 1.6 1.8	V
Reverse Current $V_R = 1200\text{V}$ , $T_j = 25^\circ\text{C}$ $V_R = 1200\text{V}$ , $T_j = 175^\circ\text{C}$	$I_R$		50 100	$\mu\text{A}$
Junction Capacitance $V_R = 0\text{V}$ $f = 1\text{MHz}$	$C_j$		500	pF

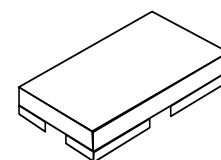
\* Pulse test: Pulse width 300  $\mu\text{sec}$ , Duty cycle 2%

#### Note:

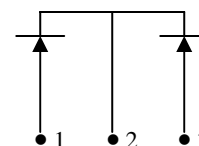
- Derate linearly @ tbd



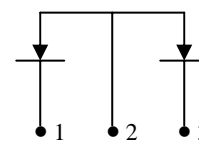
**TO-257  
 MSiCSN05120** \_\_\_\_\_



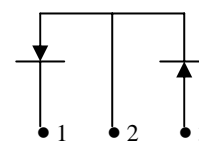
**U-3  
 (SURFACE MOUNT: SMD.5)  
 MSiCSS05120** \_\_\_\_\_



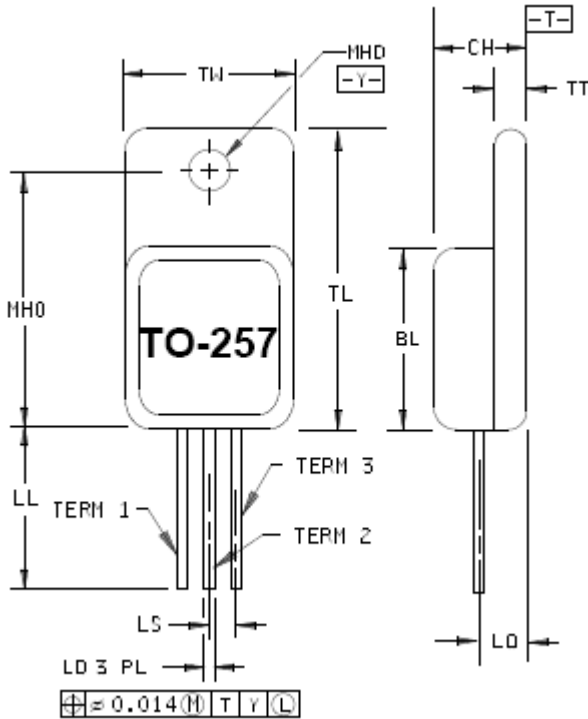
**CC - COMMON CATHODE**



**CA - COMMON ANODE**

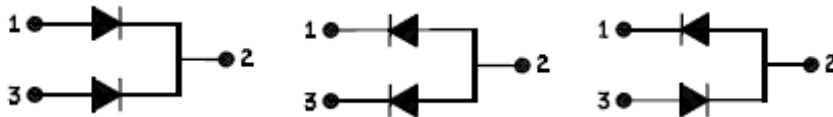


**D - DOUBLER**

**PACKAGE DIMENSIONS**


Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.410	.430	10.41	10.92
CH	.190	.200	4.83	5.08
LD	.025	.040	0.64	1.02
LL	.500	.750	12.70	19.05
LO	.120 BSC		3.05 BSC	
LS	.100 BSC		2.54 BSC	
MHD	.140	.150	3.56	3.81
MHO	.527	.537	13.39	13.64
TL	.645	.665	16.38	16.89
TT	.035	.045	0.89	1.14
TW	.410	.420	10.41	10.67

### SCHEMATIC

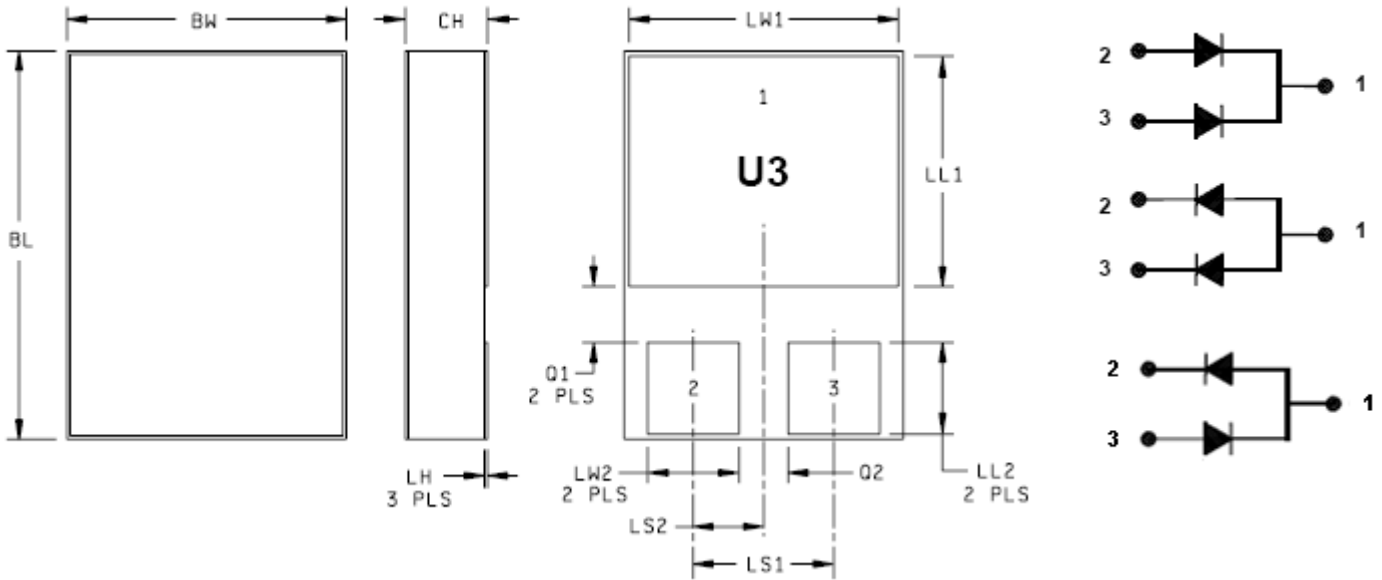


**NOTE:**

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

**FIGURE 1: Physical dimension for TO-257, CC, CA, Doubler.**

### SCHEMATIC



**NOTE:**

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

Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.395	.405	10.03	10.29
BW	.291	.301	7.39	7.65
CH	.112	.124	2.84	3.15
LH	.010	.020	0.25	0.51
LL1	.220	.230	5.59	5.84
LL2	.115	.125	2.92	3.18
LS1	.150 BSC		3.81 BSC	
LS2	.075 BSC		1.91 BSC	
LW1	.281	.291	7.14	7.39
LW2	.090	.100	2.29	2.54
Q1	.030		0.76	
Q2	.030		0.76	

**FIGURE 2: Physical dimension for U3 (SMD.5), CC, CA, Doubler.**