## LSIC2SD120E10CC



### Circuit Diagram TO-247-3L



#### Description

This series of silicon carbide (SiC) Schottky diodes has negligible reverse recovery current, high surge capability, and a maximum operating junction temperature of 175 °C. This diode series is ideal for applications where improvements in efficiency, reliability, and thermal management are desired.

#### Features

- Positive temperature coefficient for safe operation and ease of paralleling
- 175 °C maximum operating junction temperature
- Excellent surge capability

#### Applications

- Boost diodes in PFC or DC/DC stages
- Switch-mode power supplies
- Solar inverters

diodes

• Extremely fast,

temperature-independent

switching behavior

• Dramatically reduced

compared to Si bipolar

switching losses

Industrial motor drives

HF RoHS 🕅

- EV charging stations
- Uninterruptible power supplies

#### Environmental

- Littelfuse "RoHS" logo = RoHS RoHS conform
- Littelfuse "HF" logo = **HF** Halogen Free
- Littelfuse "Pb-free" logo = Pb-free lead plating

Maximum Ratings					
Characteristics	Symbol	Conditions	Value	Unit	
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	-	1200	V	
DC Blocking Voltage	V <sub>R</sub>	T <sub>J</sub> = 25 °C	1200	V	
	I <sub>F</sub>	T <sub>c</sub> = 25 °C	17.5/35	A	
Continuous Forward Current (Per Leg/Component)		T <sub>c</sub> = 135 °C	8.5/17		
		T <sub>c</sub> = 158 °C	5/10		
Non-Repetitive Forward Surge Current (Per Leg)	I <sub>FSM</sub>	$T_c = 25 \text{ °C}, T_p = 10 \text{ ms}, \text{ Half sine pulse}$	40	А	
Power Dissipation	D	$T_c = 25 \text{ °C}$	100/200	10/	
(Per Leg/Component)	P <sub>Tot</sub>	$T_c = 110 \text{ °C}$	43/86	W	
Operating Junction Temperature	T	-	-55 to 175	°C	
Storage Temperature	T <sub>stg</sub>	-	-55 to 150	°C	
Soldering Temperature	T <sub>sold</sub>	-	260	°C	

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#### **Electrical Characteristics (Per Leg)**

Characteristics Symbol		Value				
	Conditions	Min.	Тур.	Max.	Unit	
Forward Voltage V <sub>F</sub>	I <sub>F</sub> = 5 A, T <sub>J</sub> = 25 °C	-	1.5	1.8		
	V <sub>F</sub>	I <sub>F</sub> = 5 A, Τ <sub>J</sub> = 175 °C	-	2.1		V
Reverse Current I <sub>R</sub>		V <sub>R</sub> = 1200 V , T <sub>J</sub> = 25 °C	-	<1	100	μΑ
	I <sub>R</sub>	V <sub>R</sub> = 1200 V , T <sub>J</sub> = 175 °C	-	5		
Total Capacitance C	V <sub>R</sub> = 1 V, f =1 MHz	-	310			
	V <sub>R</sub> = 400 V, f = 1 MHz	-	29		pF	
		V <sub>R</sub> = 800 V, f = 1 MHz	-	21		
otal Capacitive Charge	Q <sub>c</sub>	$V_{R} = 800 \text{ V}, Q_{c} = \int_{0}^{V_{R}} C(V) dV$	-	30	-	nC

Footnote:  $T_J = +25$  °C unless otherwise specified

Thermal Characteristics						
Characteristics Sym	Symbol	Symbol Conditions	Value			Unit
	Symbol		Min.	Тур.	Max.	Onit
Thermal Resistance	R <sub>euc</sub>	-	-	1.5/0.75	-	°C/W



Figure 2: Typical Reverse Characteristics (Per Leg)







Figure 5: Capacitance vs. Reverse Voltage (Per Leg)



Figure 7: Stored Energy vs. Reverse Voltage (Per Leg)



Figure 4: Current Derating (Per Leg)



# Figure 6: Capacitive Charge vs. Reverse Voltage (Per Leg)



Figure 8: Transient Thermal Impedance (Per Component)



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## **GEN2 SiC Schottky Diode** LSIC2SD120E10CC, 1200 V, 10 A, TO-247-3L

#### Package Dimensions TO-247-3L







0

5.44

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5.44 UNIT: mm

Notes: 1. Dimensions are in millimeters 2. Dimension D, E do not include mold flash. Mold flash shall not exceed 0.127 mm per side. These measured at the outermost extreme of plastic body. 3.# To have a maximum draft angle of 1.5° to the top of the part with a maximum hole diameter of 0.154°

Cumhal	Millimeters				
Symbol	Min	Nom	Мах		
А	4.80	5.03	5.20		
A1	2.25	2.38	2.54		
A2	1.85	1.98	2.11		
b	0.99	-	1.40		
b2	1.65	-	2.39		
b4	2.59	-	3.43		
С	0.38	0.64	0.89		
D	20.80	20.96	21.34		
D1	13.50	-	-		
D2	0.51	1.19	1.35		
е		5.44 BSC			
E	15.75	15.90	16.13		
E1	13.06	14.02	14.15		
E2	4.19	4.32	4.83		
L	19.81	20.19	20.57		
L1	3.81	4.19	4.45		
øP	3.55	3.61	3.66		
øP1	7.06	7.19	7.32		
٥	5.49	5.61	6.20		
S	6.05	6.17	6.30		

#### Part Numbering and Marking System

SIC

SD

120

Ε

10

СС

YΥ

WW

Х

2



C

Notes:

- = SiC
- = Gen2
- = Schottky Diode
- = Voltage Rating (1200 V)
- = T0-247-3L
- = Current Rating (10 A)
- = Common Cathode
- = Year
- = Week
- = Trace Code (Any Letter)
- ZZZZZZ-ZZ = Lot Number

### **Packing Options**

Part Number	Marking	Packing Mode	M.O.Q
LSIC2SD120E10CC	SIC2SD120E10CC	Tube (30pcs)	450



## GEN2 SiC Schottky Diode LSIC2SD120E10CC, 1200 V, 10 A, TO-247-3L

Packing Specification TO-247-3L



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