Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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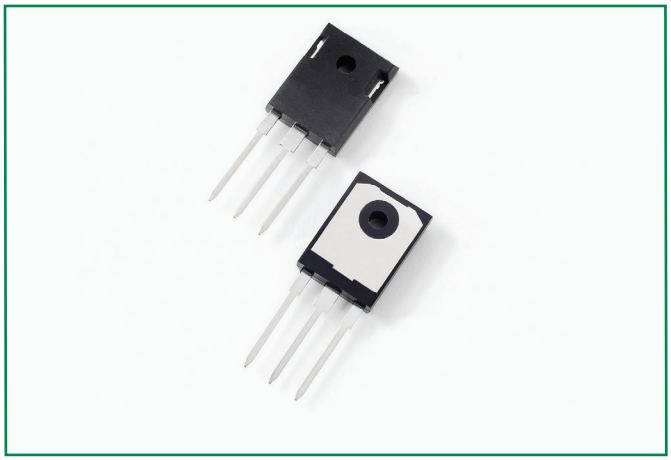
SiC Schottky Diode

LFUSCD20120B, 1200 V, 20 A, TO-247 3-lead

Littelfuse
Expertise Applied | Answers Delivered

LFUSCD20120B

HF RoHS



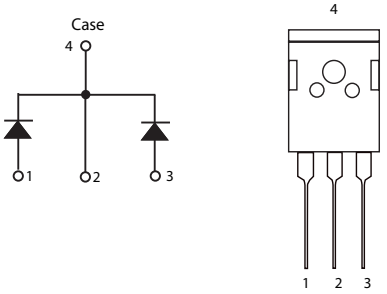
Description

The LFUSCD series of silicon carbide (SiC) Schottky diodes has near-zero recovery current, high surge capability, and a maximum operating junction temperature of 175 °C. The 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
- Enhanced surge capability
- Extremely fast, temperature-independent switching behavior
- Dramatically reduced switching losses compared to Si bipolar diodes

Circuit Diagram



Applications

- Boost diodes in power factor correction
- Switch-mode power supplies
- Uninterruptible power supplies
- Solar inverters
- Industrial motor drives

Maximum Ratings

Characteristics	Symbol	Conditions	Max. (Leg / Device)	Unit
DC Blocking Voltage	V_R	-	1200	V
Repetitive Peak Reverse Voltage, Tj = 25 °C	V_{RRM}		1200	V
Maximum DC Forward Current	I_F	T_C = 142°C	10 / 20	A
Non-Repetitive Forward Surge Current	I_{FSM}	T_C = 25 °C, 8.3 ms, half sine pulse	80 / 160	A
Power Dissipation	P_{Tot}	T_C = 25 °C	136 / 272	W
		T_C = 142 °C	30 / 60	
Maximum Operating Junction Temperature	$T_{J,MAX}$		175	°C
Storage Temperature	T_{STG}		-55 to 175	°C
Soldering Temperatures, Wavesoldering Only Allowed at Leads	T_{sold}	1.6 mm from case for 10s	260	°C

Revised: 10/05/16

SiC Schottky Diode

LFUSCD20120B, 120 V, 20 A, TO-247 3-lead

Electrical Characteristics

Characteristics	Symbol	Conditions	Value (Leg / Device)			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	I_F = 20 A, T_J = 25 °C	-	1.5	1.7	V
		I_F = 20 A, T_J = 175 °C	-	2.5	3	
Reverse Current	I_R	V_R = 1200 V, T_J = 25 °C	-	30 / 60	250 / 500	µA
		V_R = 1200 V, T_J = 175 °C	-	60 / 120	800 / 1600	
Total Capacitive Charge	Q_C	V_R = 600 V, I_F = 20 A, di/dt = 250 A/µs	-	35 / 70	-	nC
Total Capacitance	C	V_R = 1 V, f =1 MHz	-	500 / 1000	-	pF
		V_R = 300 V, f = 1 MHz	-	50 / 100	-	
		V_R = 600 V, f = 1 MHz	-	36 / 72	-	

Footnote: T_J = +25 °C unless otherwise specified

Thermal Characteristics

Characteristics	Symbol	Conditions	Value (Leg / Device)			Unit
			Min.	Typ.	Max.	
Thermal Resistance	$R_{\theta JC}$	-	-	-	1.1 / 0.55	°C/W

Figure 1: Typical Reverse Characteristics

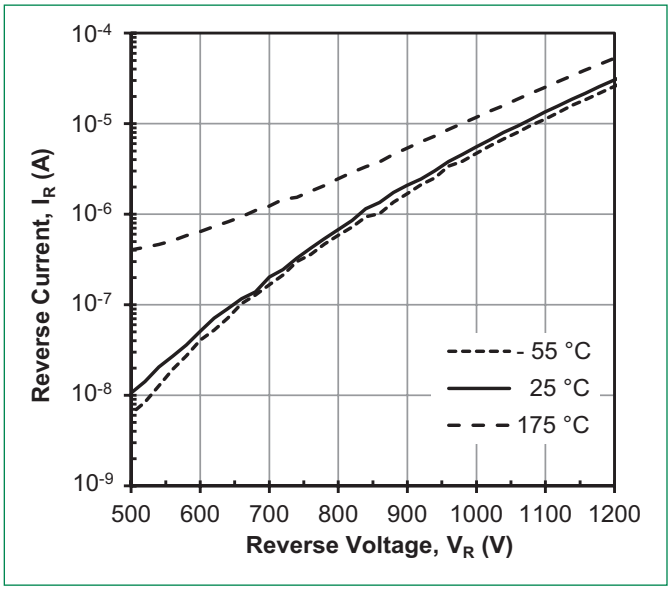


Figure 2: Typical Foward Characteristics

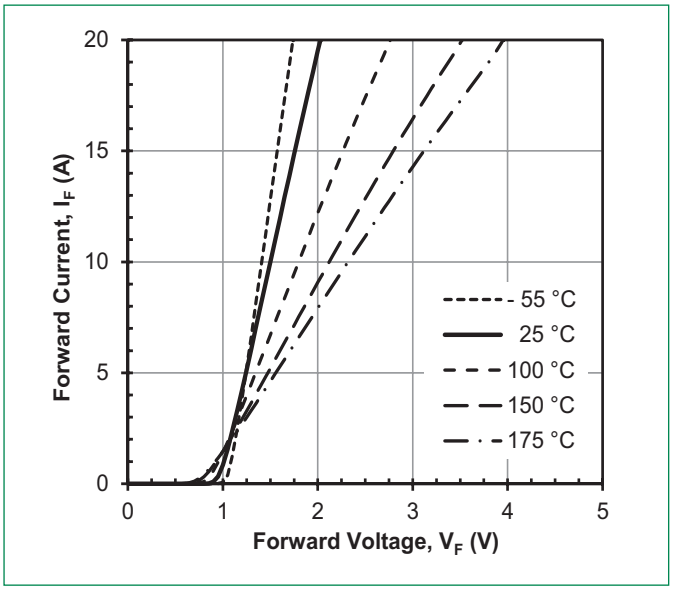


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Figure 3: Power Disipation

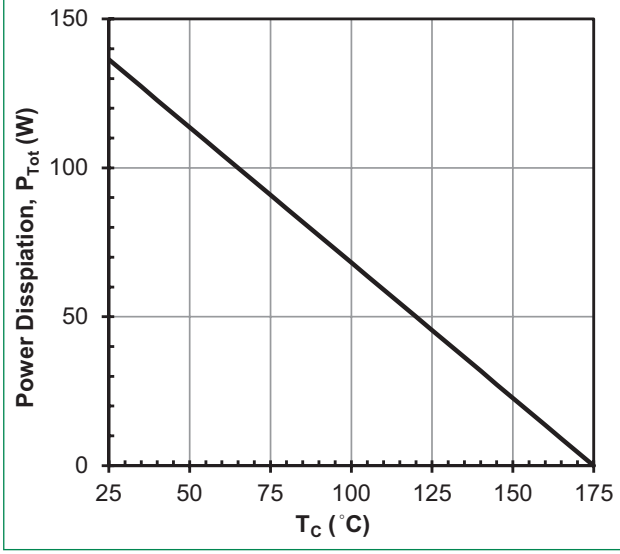


Figure 4: Diode Foward Current

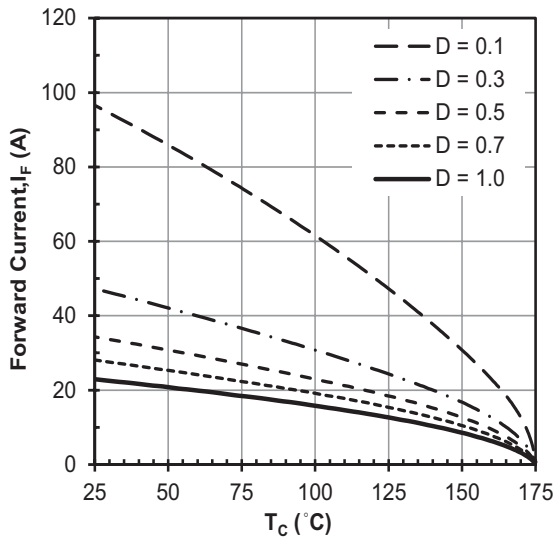


Figure 5: Capacitance vs. Reverse Voltage

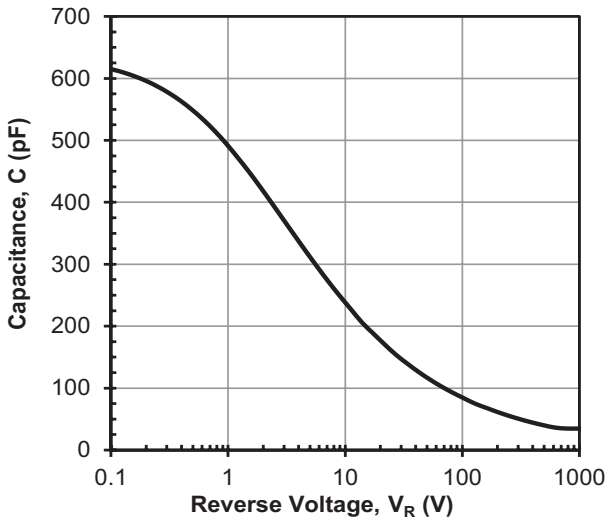
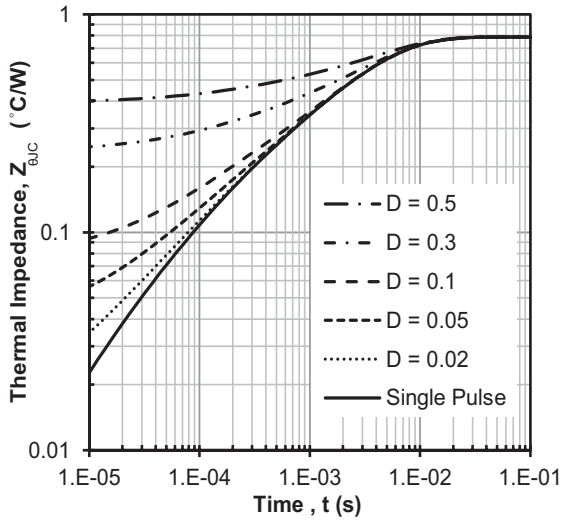


Figure 6: Transient Thermal Impedance



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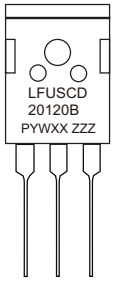
Littelfuse
Expertise Applied | Answers Delivered

SiC Schottky Diode

LFUSCD20120B, 120 V, 20 A, TO-247 3-lead

Part Marking System



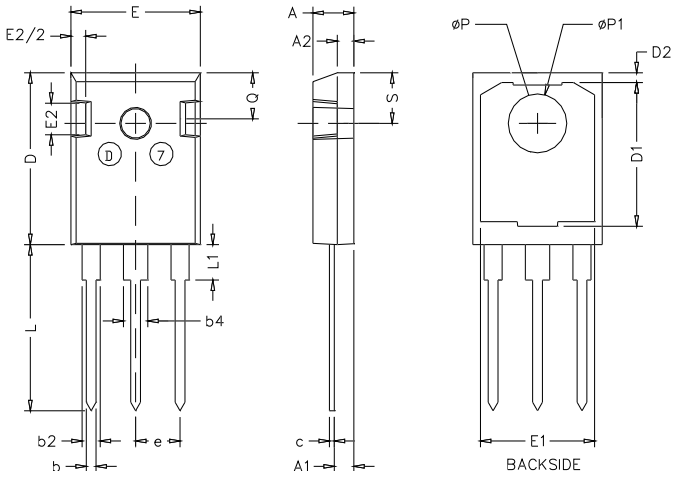
LFU = Littelfuse
SCD = SiC diode
20 = Current Rating (20A)
120 = Voltage Rating (1200V)
B = TO-247-3 package
PYWXX = Date Code
ZZZ = Lot Number

Date code notes:
P = assembly code
Y = year
W = week
XX = sequencial build number

Packing Options

Part Number	Marking	Packing Mode	M.O.Q
LFUSCD20120B	LFUSCD20120B	30 pcs / Tube	240

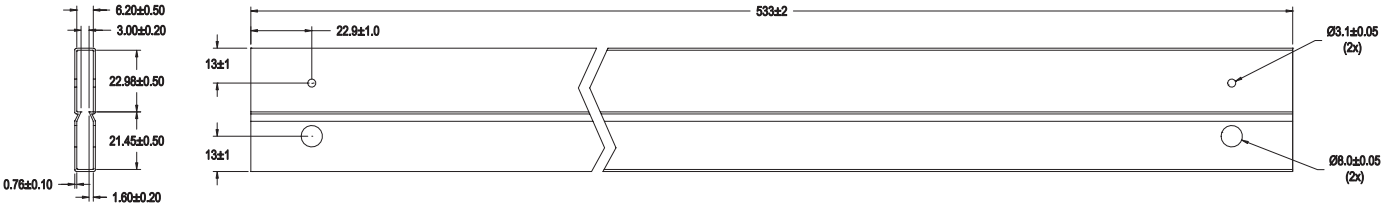
Dimensions-Package TO-247 3-lead



Symbol	Inches		
	Min	Nom	Max
A	0.193	0.198	0.203
A1	0.900	0.950	0.100
A2	0.073	0.078	0.083
b	0.042	0.047	0.052
b2	0.075	0.080	0.094
b4	0.113	0.118	0.133
C	0.022	0.024	0.027
D	0.820	0.825	0.830
D1	0.684	0.690	0.696
D2	0.042	0.047	0.052
E	0.621	0.626	0.631
E1	0.547	0.552	0.557
E2	0.135	0.146	0.157
E2/2	0.081	0.088	0.095
e	0.215 BSC		
L	0.789	0.794	0.799
L1	0.164	0.170	0.176
øP	0.140	0.142	0.144
øP1	0.278	0.283	0.288
Q	0.216	0.221	0.226
S	0.238	0.243	0.248

Mounting	M3/M3.5	1Nm
Torque	Screw	8.8 lbf-in

Packing Specification (Tube for TO-247 3-lead)



Revised: 10/05/16