

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number: LFUSCD20120B
Manufacturer: Littelfuse Inc.
Package: Tube
Availability: Please confirm with sales

Product Page:

<https://antrexco.com/product/details/littelfuse-inc/lfuscd20120b.html>

Request a Quote:

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Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

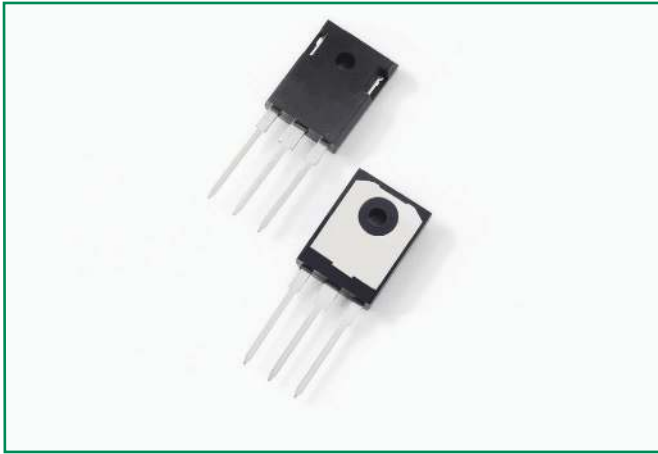
Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

LFUSCD20120B



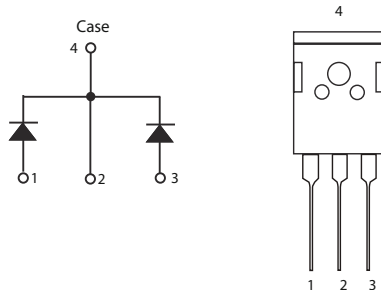
Description

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, $T_J = 25\text{ °C}$	V_{RRM}		1200	V
Maximum DC Forward Current	I_F	$T_C = 142\text{ °C}$	10 / 20	A
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C = 25\text{ °C}$, 8.3 ms, half sine pulse	80 / 160	A
Power Dissipation	P_{Tot}	$T_C = 25\text{ °C}$	136 / 272	W
		$T_C = 142\text{ °C}$	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

Electrical Characteristics

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

Footnote: $T_J = +25^\circ \text{C}$ unless otherwise specified

Thermal Characteristics

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

Figure 1: Typical Reverse Characteristics

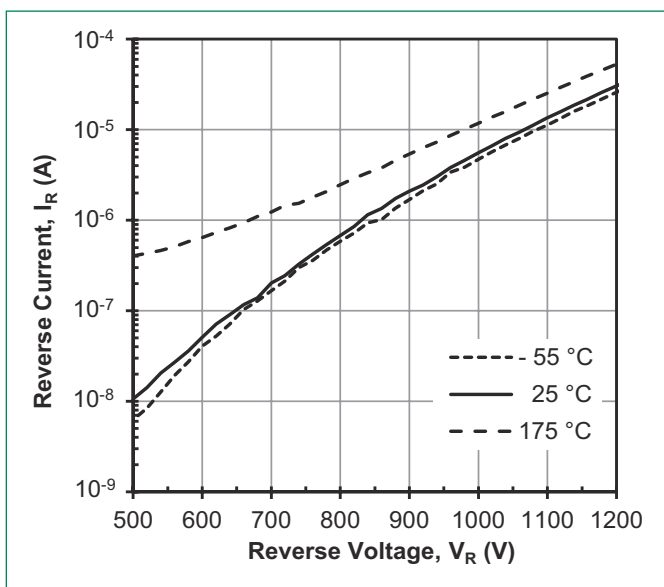


Figure 2: Typical Forward Characteristics

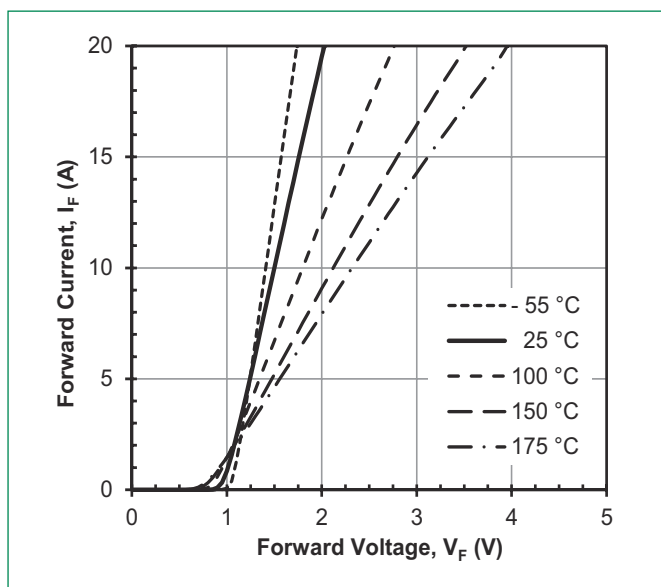


Figure 3: Power Disipation

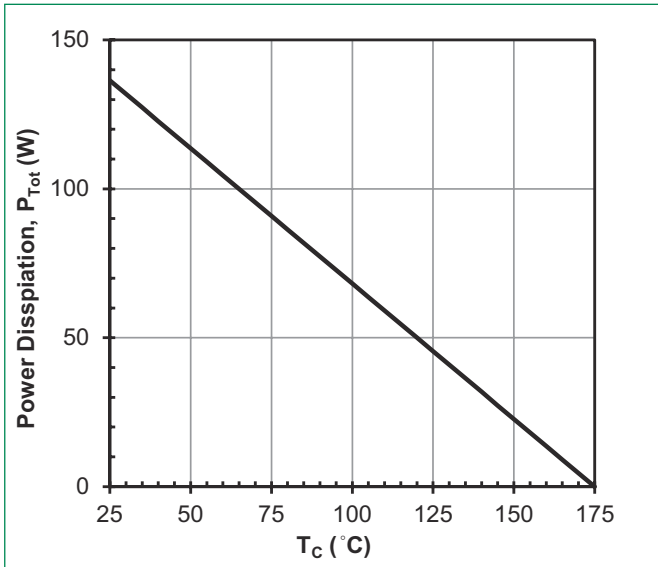


Figure 4: Diode Foward Current

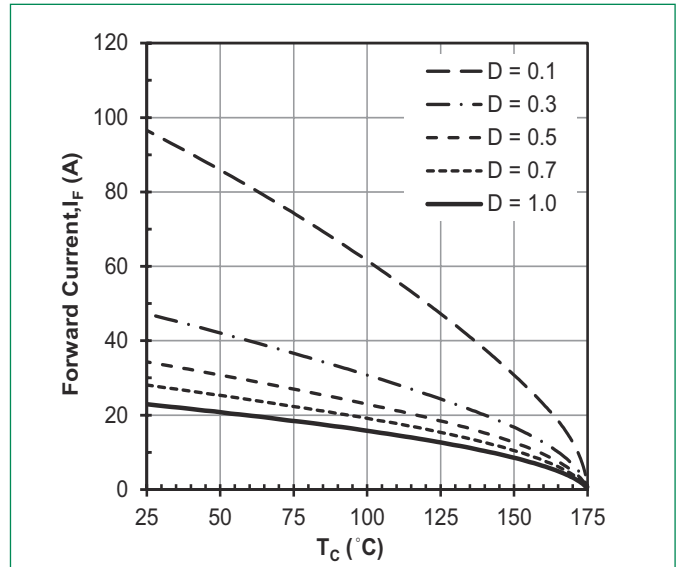


Figure 5: Capacitance vs. Reverse Voltage

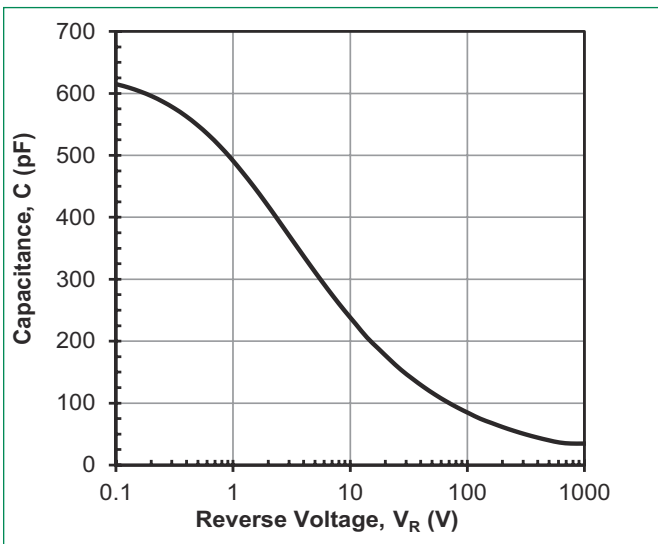
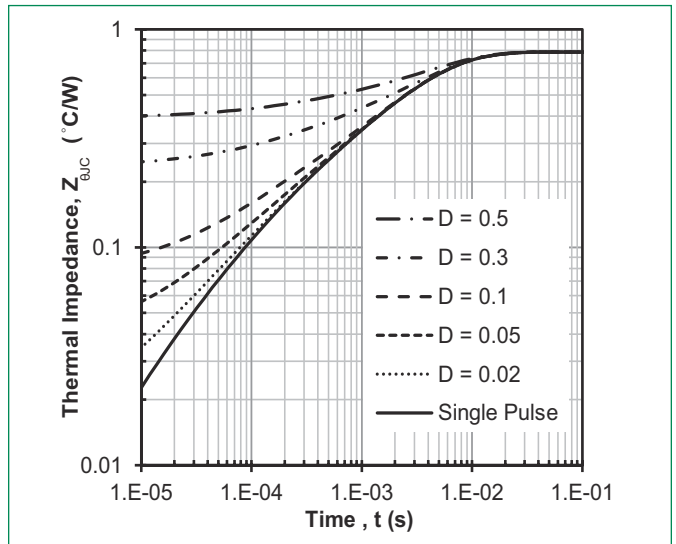
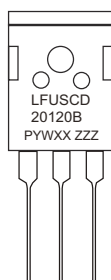


Figure 6: Transient Thermal Impedance



Part Marking System



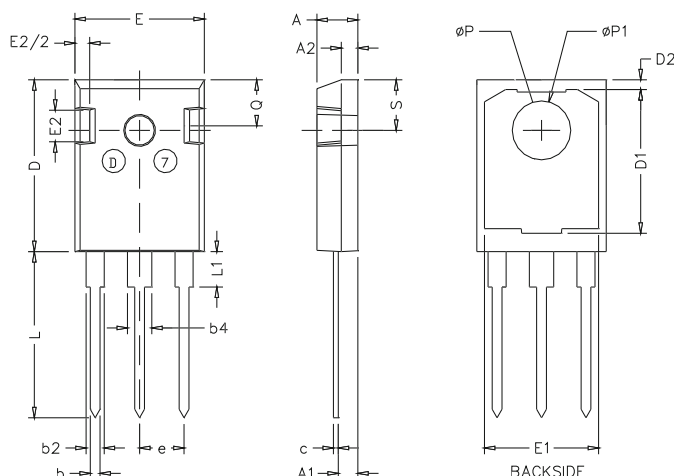
LFU = Littelfuse
SCD = SiC diode
20 = Current Rating (20A)
120 = Voltage Rating (1200V)
B = TO-247-3 package
PYWXX ZZZ = Date Code
ZZZ = Lot Number

Date code notes:
P = assembly code
Y = year
W = week
XX = sequential 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)

