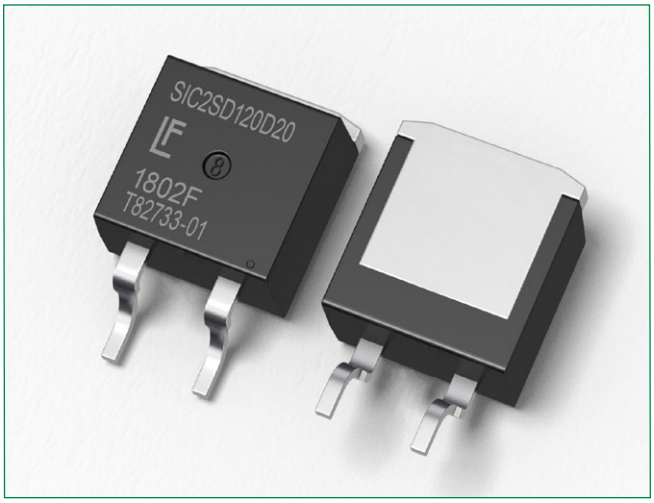
GEN2 SiC Schottky Diode

LSIC2SD120D20, 1200 V, 20 A, TO-263-2L

LSIC2SD120D20

HF RoHS Pb



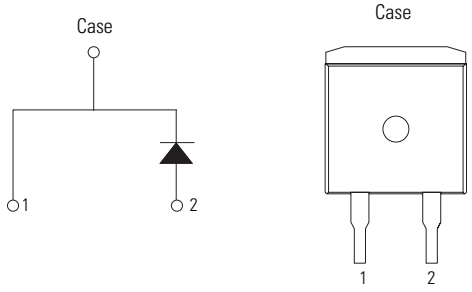
Description

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
- Extremely fast, temperature-independent switching behavior
- Dramatically reduced switching losses compared to Si bipolar diodes

Circuit Diagram TO-263-2L



Applications

- Boost diodes in PFC or DC/DC stages
- Switch-mode power supplies
- Uninterruptible power supplies
- Solar inverters
- Industrial motor drives
- EV charging stations

Environmental

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

Maximum Ratings

Characteristics	Symbol	Conditions	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	-	1200	V
DC Blocking Voltage	V_R	T_J = 25 °C	1200	V
Continuous Forward Current	I_F	T_C = 25 °C	54.5	A
		T_C = 135 °C	26.0	
		T_C = 150 °C	20.0	
Non-Repetitive Forward Surge Current	I_{FSM}	T_C = 25 °C, T_P = 10 ms, Half sine pulse	140	A
Power Dissipation	P_{Tot}	T_C = 25 °C	250	W
		T_C = 110 °C	108	
Operating Junction Temperature	T_J	-	-55 to 175	°C
Storage Temperature	T_{STG}	-	-55 to 150	°C
Soldering Temperature (reflow MSL1)	T_{sold}	-	260	°C

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Electrical Characteristics

Characteristics	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	I_F = 20 A, T_J = 25 °C	-	1.5	1.8	V
		I_F = 20 A, T_J = 175 °C	-	2.2	-	
Reverse Current	I_R	V_R = 1200 V, T_J = 25 °C	-	<1	100	µA
		V_R = 1200 V, T_J = 175 °C	-	15		
Total Capacitance	C	V_R = 1 V, f =1 MHz	-	1142	-	pF
		V_R = 400 V, f = 1 MHz	-	108	-	
		V_R = 800 V, f = 1 MHz	-	82	-	
Total Capacitive Charge	Q_C	V_R = 800 V, $Q_c = \int_0^{V_R} C(V)dV$	-	115	-	nC

Footnote: T_J = +25 °C unless otherwise specified

Thermal Characteristics

Characteristics	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Thermal Resistance	$R_{\theta JC}$	-	-	0.6	-	°C/W

Figure 1: Typical Foward Characteristics

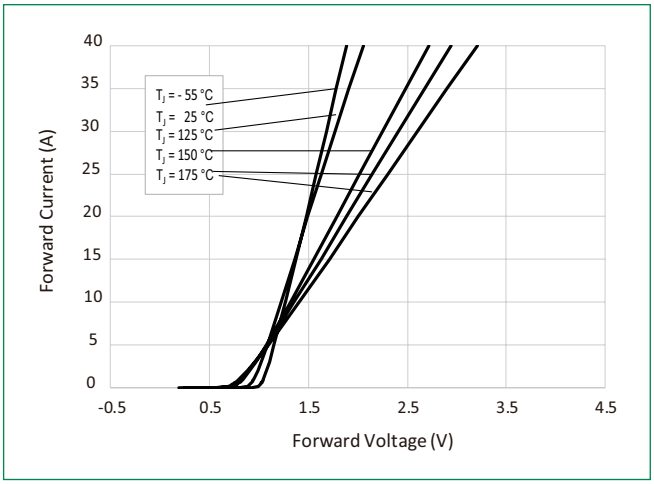

Figure 2: Typical Reverse Characteristics

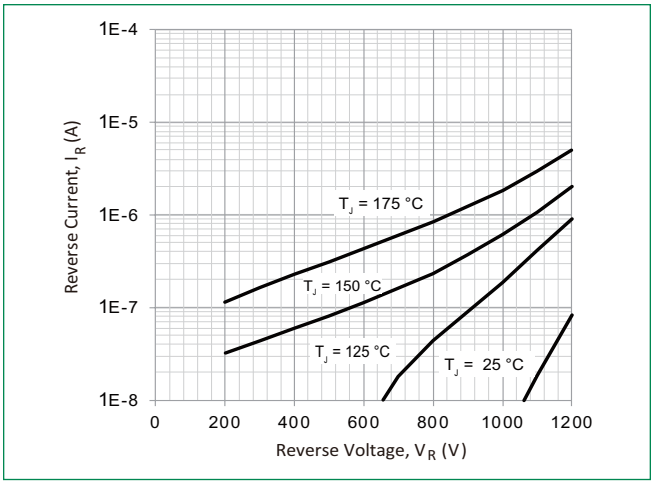

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Figure 3: Power Derating

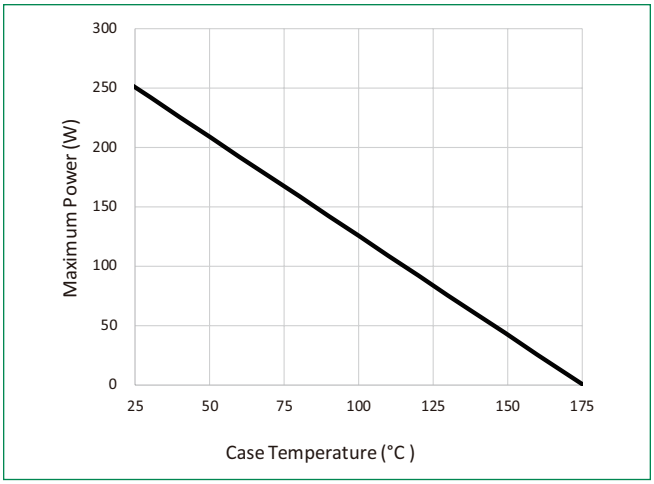


Figure 4: Current Derating

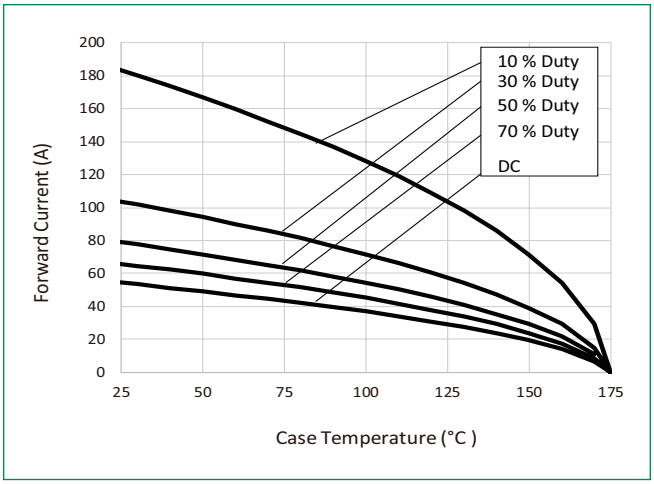


Figure 5: Capacitance vs. Reverse Voltage

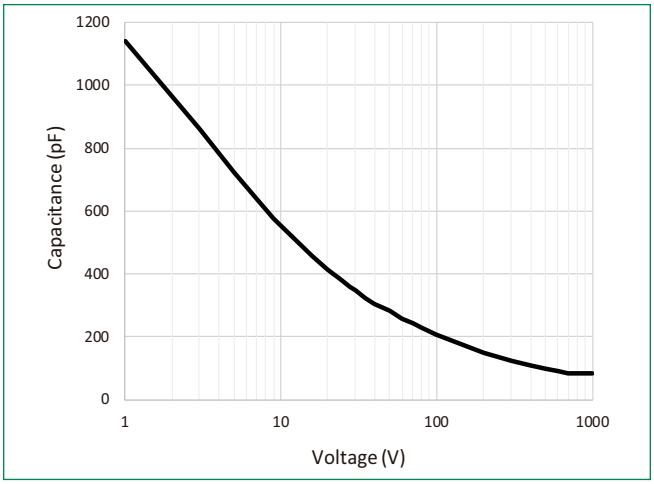


Figure 6: Capacitive Charge vs. Reverse Voltage

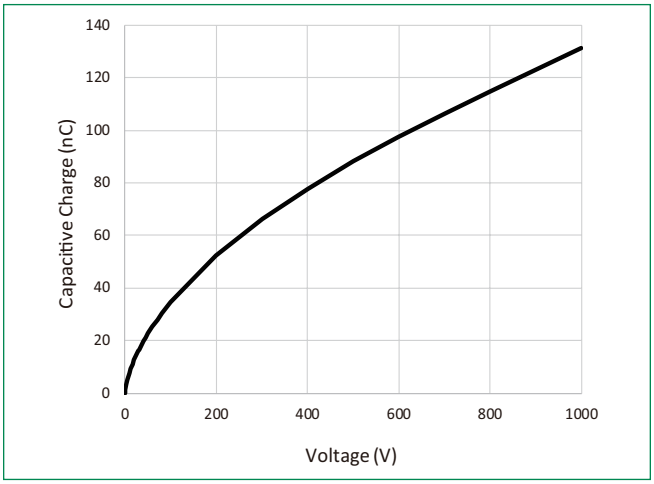


Figure 7: Stored Energy vs. Reverse Voltage

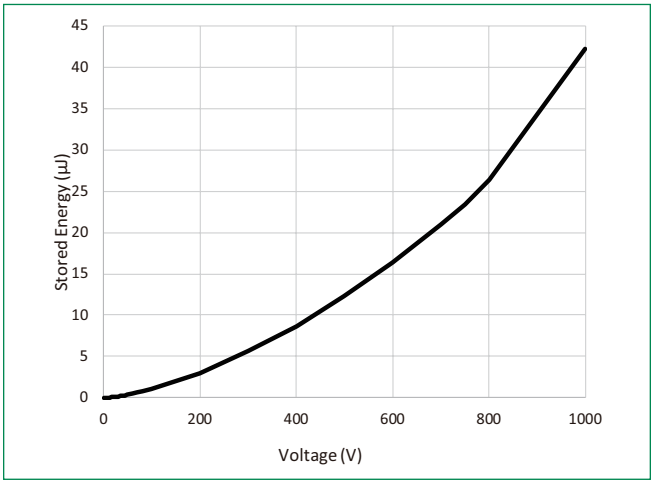
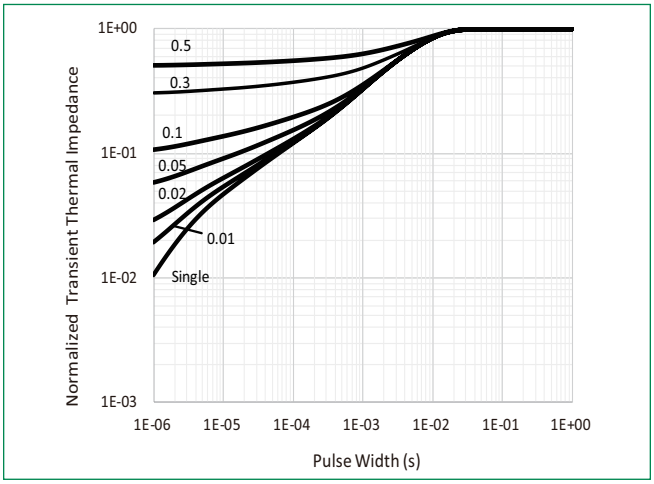


Figure 8: Transient Thermal Impedance



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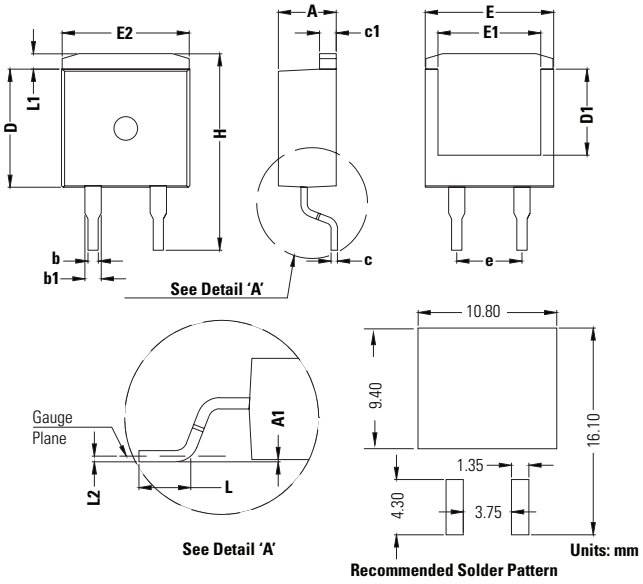
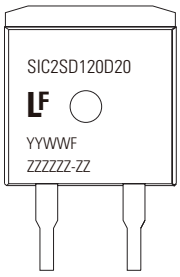
Dimensions-Package TO-263-2L



Symbol	Millimeters		
	Min	Nom	Max
A	4.30	4.50	4.70
A1	0.00	-	0.25
b	0.70	0.80	0.90
b1	1.17	1.27	1.37
c	0.46	0.50	0.60
c1	1.25	1.30	1.40
D	9.00	9.20	9.40
D1	6.50	6.70	6.90
E	9.80	10.00	10.20
E1	7.80	8.00	8.20
E2	9.70	9.90	10.10
e	5.08 BSC		
H	15.00	15.30	15.60
L	2.00	2.30	2.60
L1	1.00	1.20	1.40
L2	0.254 BSC		

Part Numbering and Marking System



SIC = SiC Diode
2 = Gen2
SD = Schottky Diode
120 = Voltage Rating (1200 V)
D = TO-263 Package (2 Lead)
20 = Current Rating (20 A)
YY = Year
WW = Week
F = Special Code
ZZZZZZ-ZZ = Lot Number

Packing Option

Part Number	Marking	Packing Mode	M.O.Q
LSIC2SD120D20	SIC2SD120D20	Tape and Reel	800

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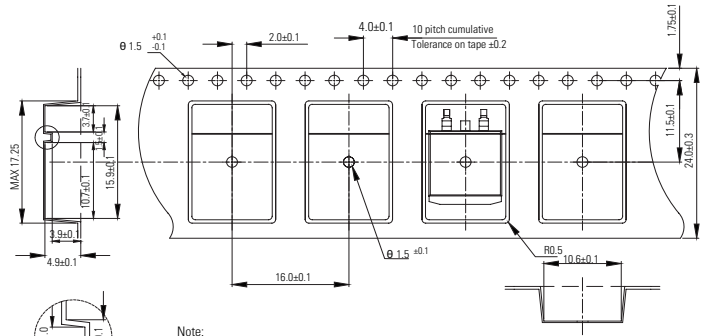
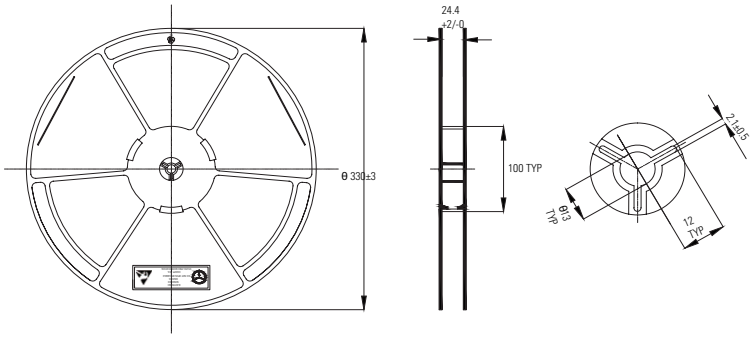
TO-263 Carrier Reel Specifications



Note:
1. MATERIAL : PS(Poly Stylene)
2. ESD(Electrostatic Discharge) CONTROL : LESS THAN ± 100[Volts]
3. SURFACE RESISTANCE : LESS THAN 10^7[Ω/cm²]
4. Unit : Millimeter (mm)



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