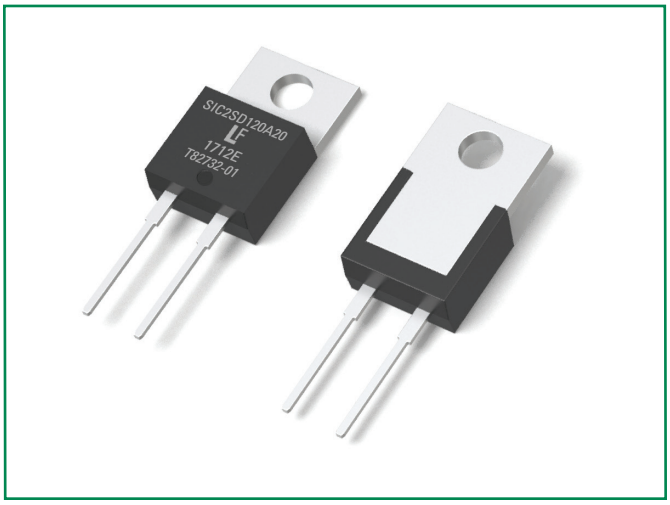
GEN2 SiC Schottky Diode
LSIC2SD120A20, 1200 V, 20 A, TO-220-2L

LSIC2SD120A20



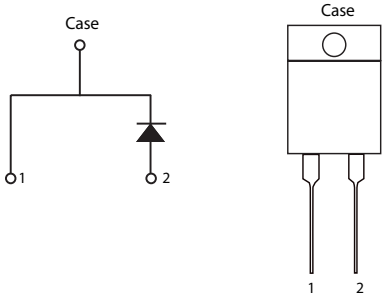
Description

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. These diodes series are 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-220-2L



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 = HF 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	T_{sold}	-	260	°C

Revised: 10/20/17

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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

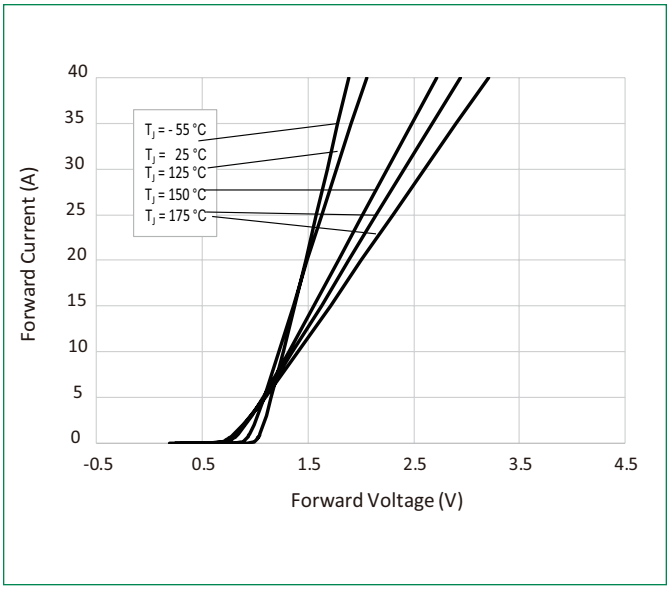
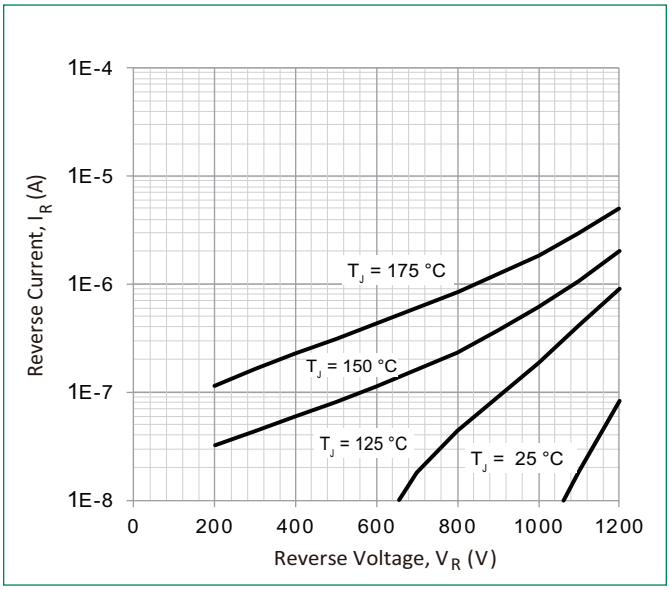


Figure 2: Typical Reverse Characteristics



Revised: 10/20/17

Figure 3: Power Derating

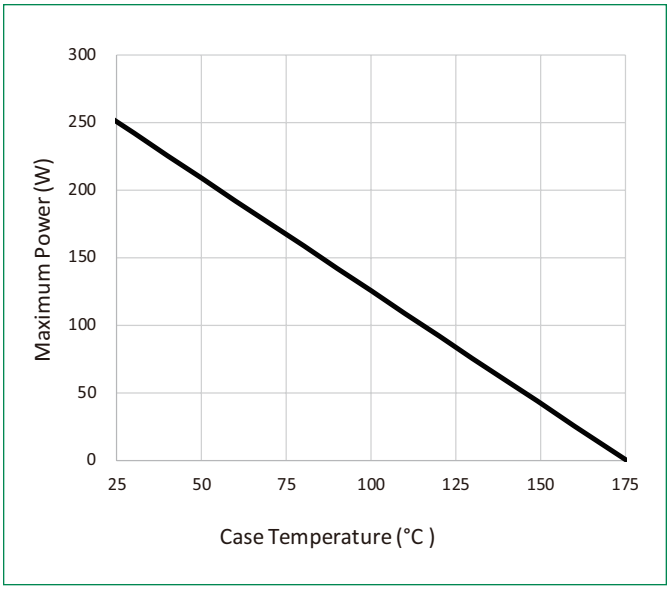


Figure 4: Current Derating

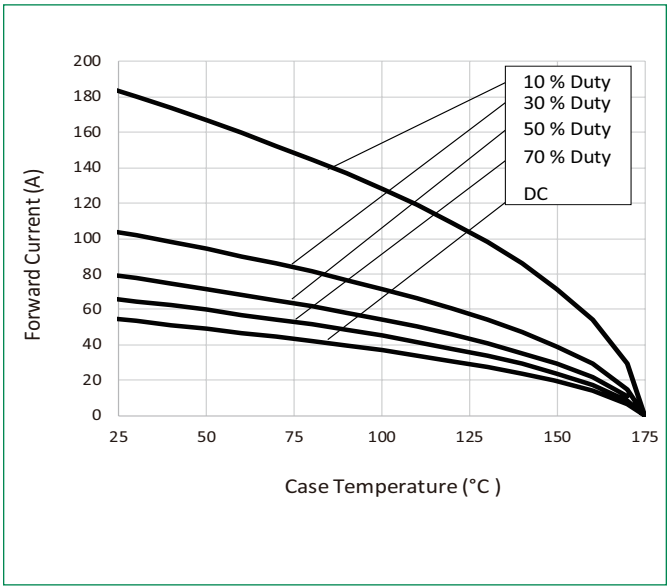


Figure 5: Capacitance vs. Reverse Voltage

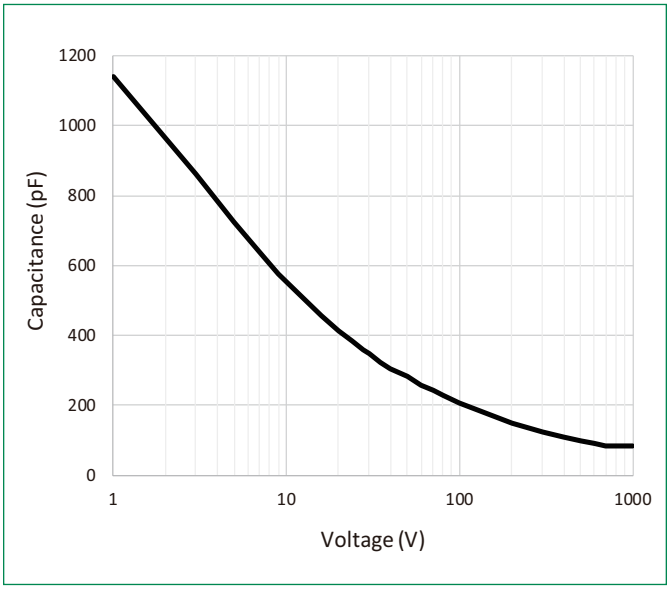
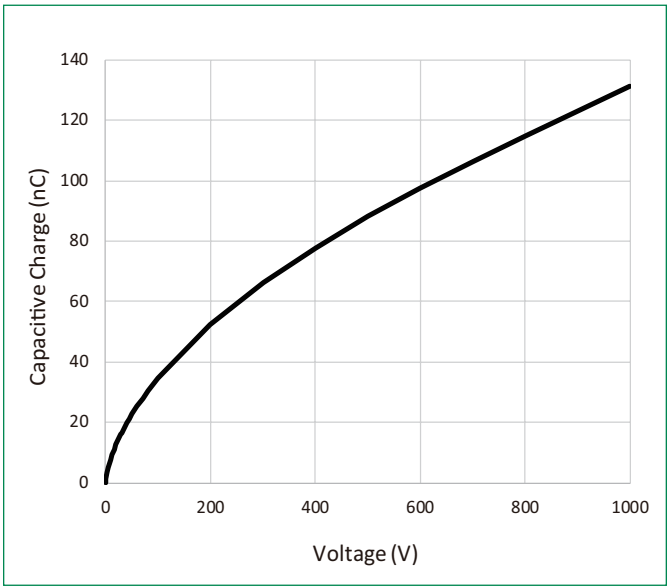


Figure 6: Capacitive Charge vs. Reverse Voltage



Revised: 10/20/17

Figure 7: Stored Energy vs. Reverse Voltage

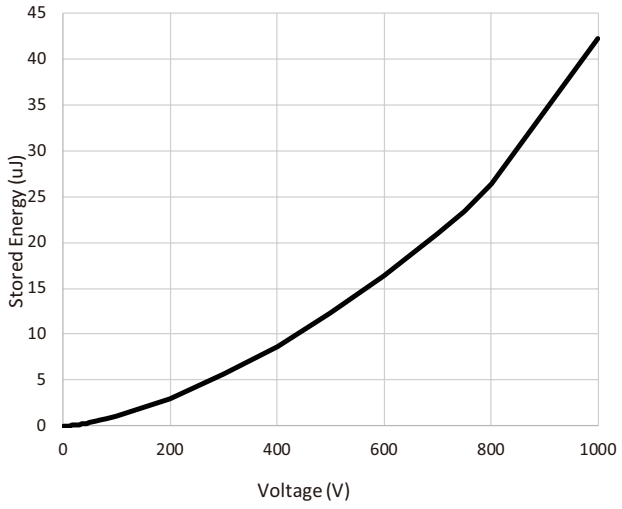
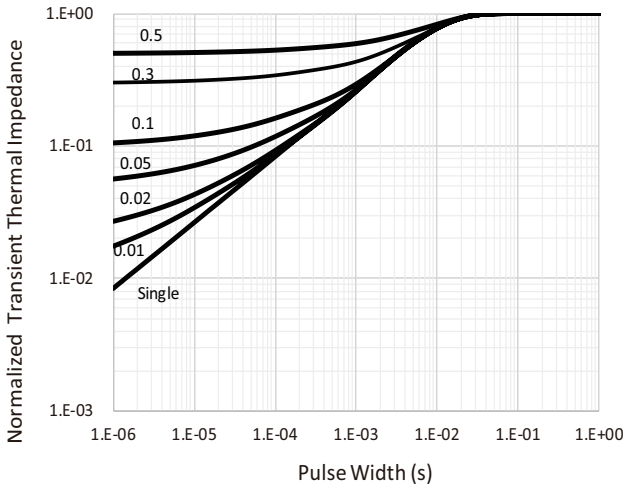
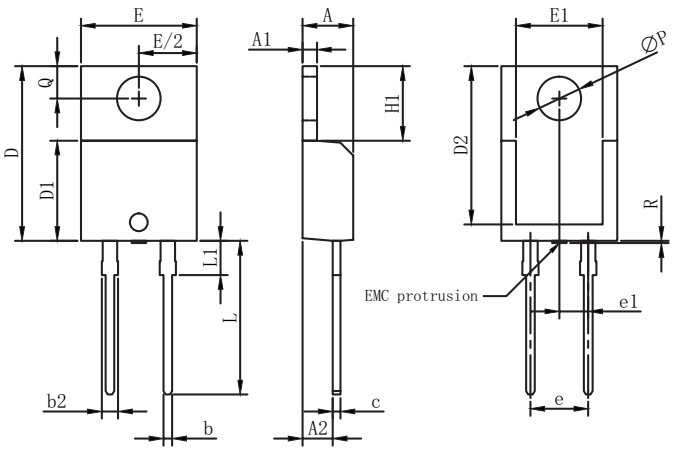


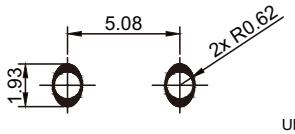
Figure 8: Transient Thermal Impedance



Dimensions-Package TO-220-2L



Recommended Solder Pad Layout



UNIT: mm

Symbol	Millimeters		
	Min	Nom	Max
A	4.32	4.45	4.70
A1	1.14	1.27	1.40
A2	2.20	-	2.74
b	0.69	-	0.90
b2	1.17	-	1.62
c	0.36	-	0.60
D	14.90	-	15.90
D1	8.62	-	9.40
D2	12.50	-	12.95
E	9.70	10.18	10.36
E1	7.57	7.61	8.30
e1	-	2.54	-
e	5.03	5.08	5.13
H1	6.30	6.55	6.80
L	12.88	13.50	14.00
L1	2.39	-	3.25
øP	3.50	3.84	3.96
Q	2.65	-	3.05
R	-	-	0.25

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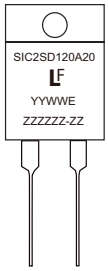
Part Numbering and Marking System

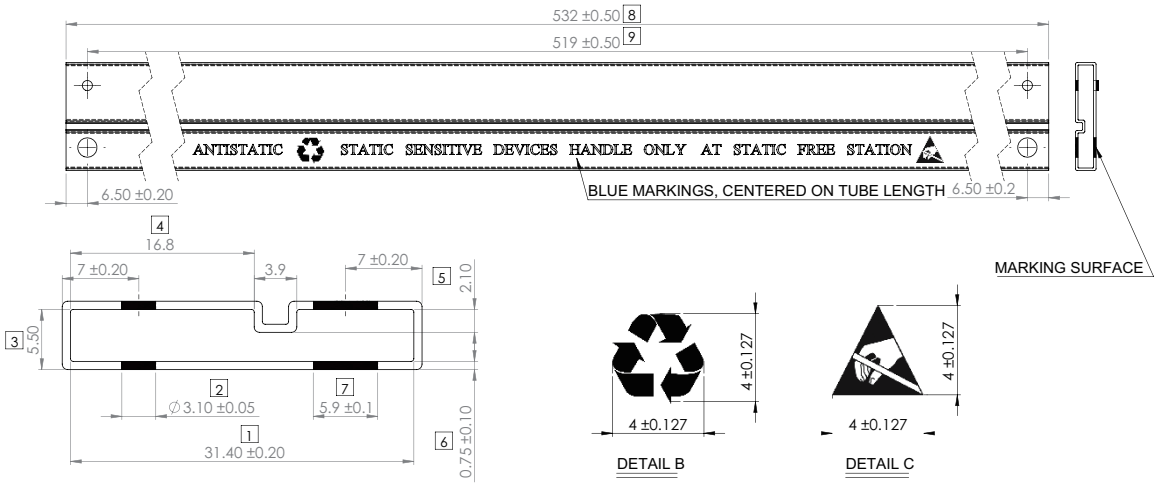


SIC	= SiC Diode
2	= Gen2
SD	= Schottky Diode
120	= Voltage Rating (1200 V)
A	= TO-220 Package (2 Lead)
20	= Current Rating (20 A)
YY	= Year
WW	= Week
E	= Special Code
ZZZZZZ-ZZ	= Lot Number

Packing Options

Part Number	Marking	Packing Mode	M.O.Q
LSIC2SD120A20	SIC2SD120A20	Tube	1000

Packing Specification (Tube for TO-220-2L)



NOTES:
1. Material transparent extruded PVC with antistatic dipping
2. Radius : 0.5 maximum unless otherwisen specified
3. Critical areas : Labelled in Box
4. All pin plug holes are considered critical dimension
5. Marking Font Type : Times new roman, 3.12 ±0.127 in height
6. Material Thickness : 0.75 ±0.10
7. Tolerance unless otherwise specified: Decimal: ±0.05 Angle: ±1°
8. Unit : Millimeter (mm)