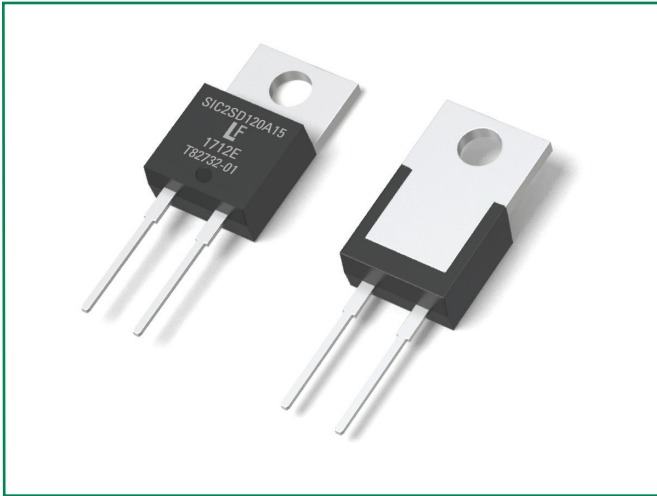


LSIC2SD120A15



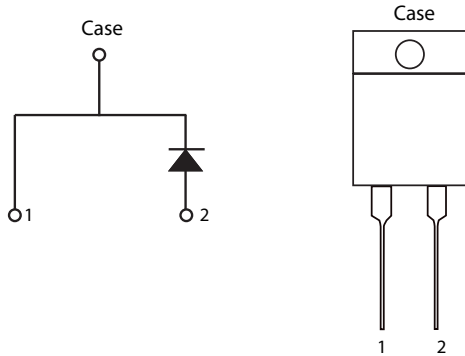
Description

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	$T_J = 25\text{ °C}$	1200	V
Continuous Forward Current	I_F	$T_C = 25\text{ °C}$	44	A
		$T_C = 135\text{ °C}$	21	
		$T_C = 150\text{ °C}$	15	
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C = 25\text{ °C}, T_P = 10\text{ ms}, \text{Half sine pulse}$	120	A
Power Dissipation	P_{Tot}	$T_C = 25\text{ °C}$	214	W
		$T_C = 110\text{ °C}$	93	
Operating Junction Temperature	T_J	-	-55 to 175	°C
Storage Temperature	T_{STG}	-	-55 to 150	°C
Soldering Temperature	T_{sold}	-	260	°C

Electrical Characteristics

Characteristics	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	$I_F = 15\text{ A}, T_J = 25\text{ °C}$	-	1.5	1.8	V
		$I_F = 15\text{ A}, T_J = 175\text{ °C}$	-	2.2		
Reverse Current	I_R	$V_R = 1200\text{ V}, T_J = 25\text{ °C}$	-	<1	100	μA
		$V_R = 1200\text{ V}, T_J = 175\text{ °C}$	-	10		
Total Capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}$	-	920		pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}$	-	88		
		$V_R = 800\text{ V}, f = 1\text{ MHz}$	-	64		
Total Capacitive Charge	Q_C	$V_R = 800\text{ V}, Q_C = \int_0^{V_R} C(V)dV$	-	92		nC

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

Thermal Characteristics

Characteristics	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Thermal Resistance	$R_{\theta JC}$	-	-	0.7	-	°C/W

Figure 1: Typical Forward Characteristics

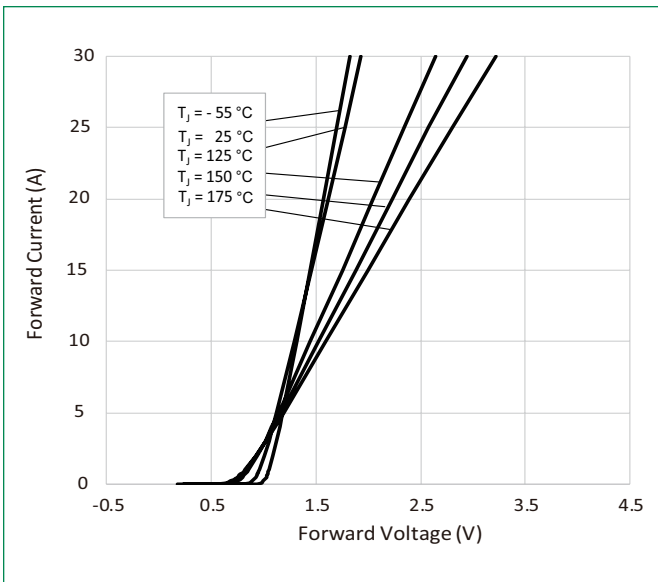


Figure 2: Typical Reverse Characteristics

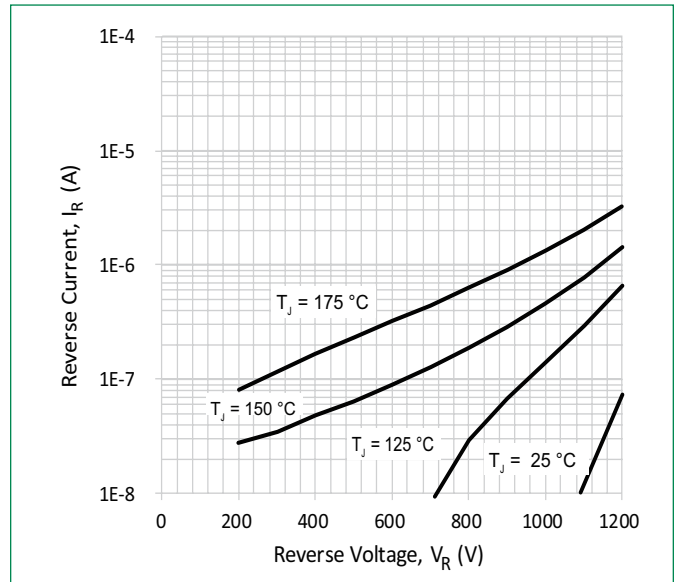


Figure 3: Power Derating

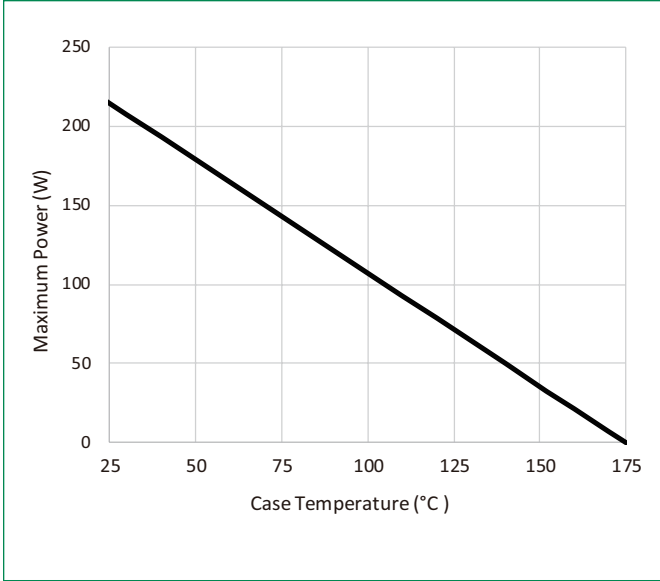


Figure 4: Current Derating

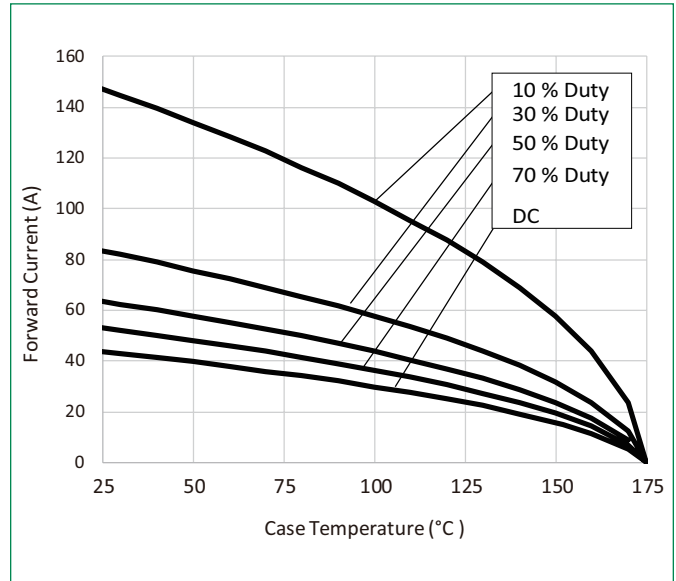


Figure 5: Capacitance vs. Reverse Voltage

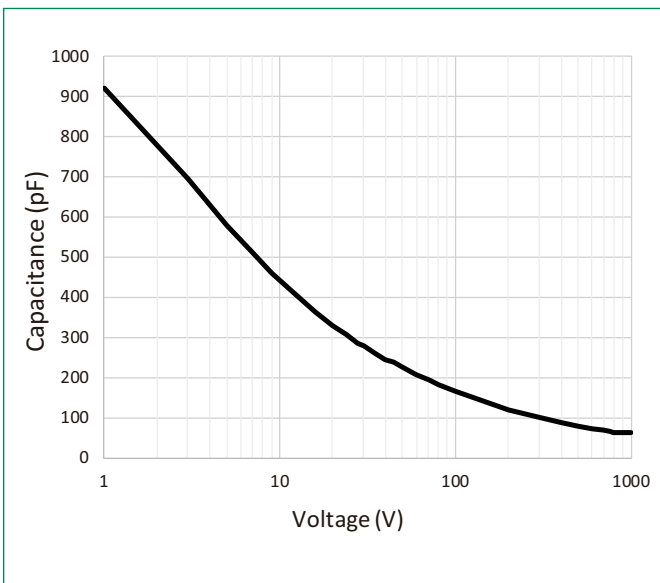


Figure 6: Capacitive Charge vs. Reverse Voltage

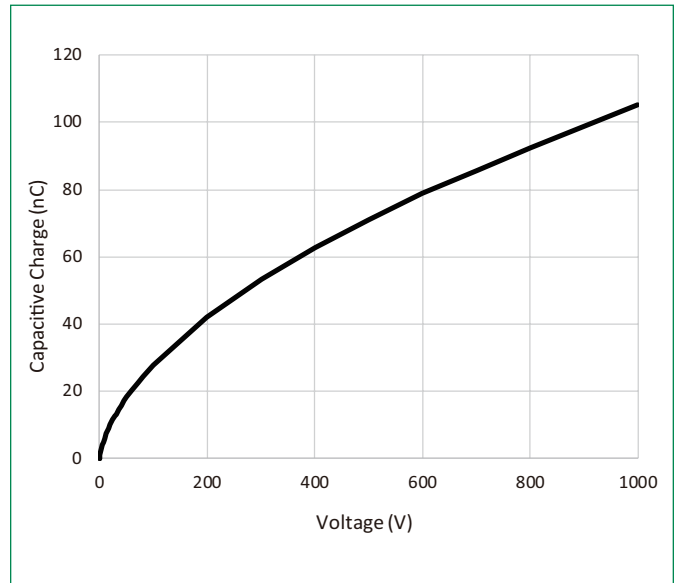


Figure 7: Stored Energy vs. Reverse Voltage

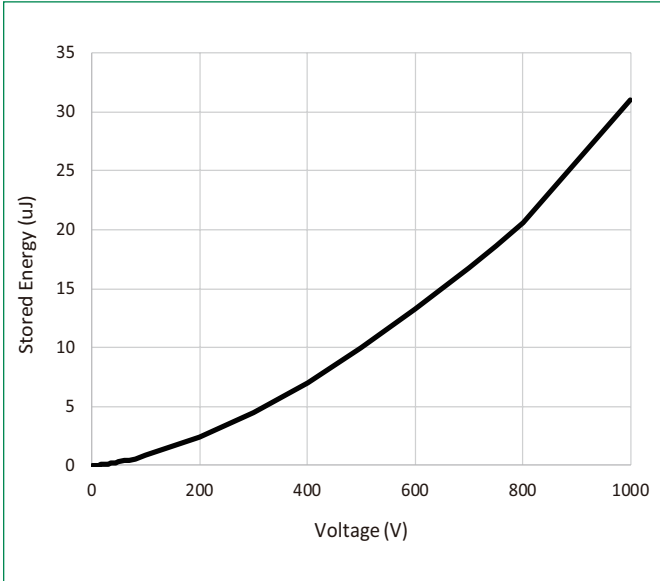
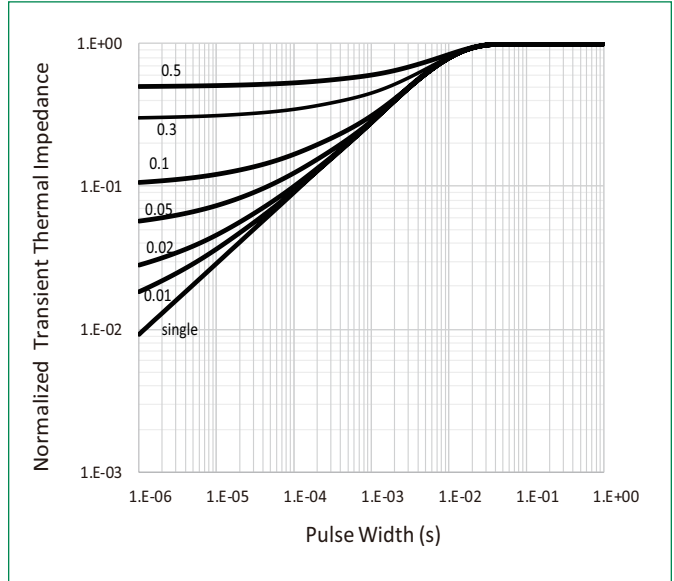
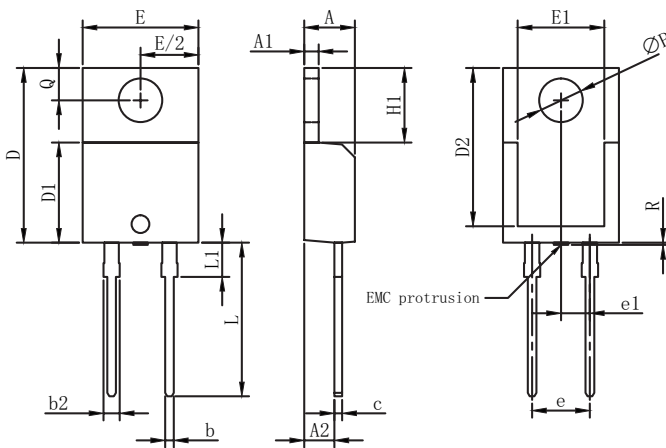


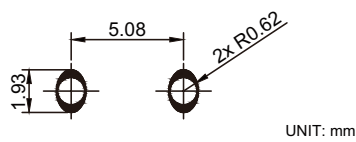
Figure 8: Transient Thermal Impedance



Dimensions-Package TO-220-2L

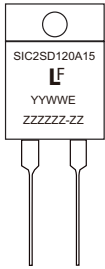


Recommended Solder Pad Layout



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

Part Numbering and Marking System

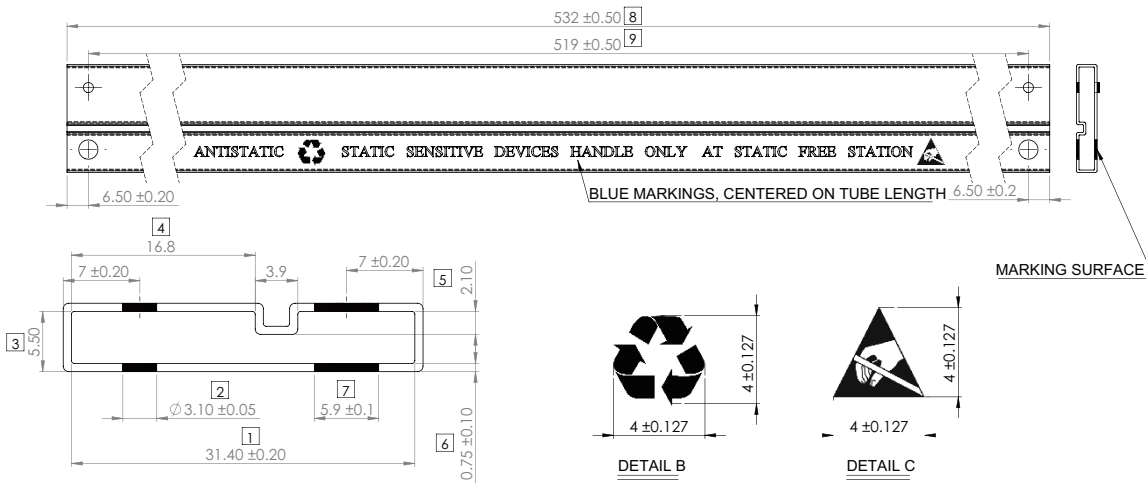


- SIC = SiC Diode
- 2 = Gen2
- SD = Schottky Diode
- 120 = Voltage Rating (1200 V)
- A = TO-220 Package (2 Lead)
- 15 = Current Rating (15 A)
- YY = Year
- WW = Week
- E = Special Code
- ZZZZZZ-ZZ = Lot Number

Packing Options

Part Number	Marking	Packing Mode	M.O.Q
LSIC2SD120A15	SIC2SD120A15	Tube	1000

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



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

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