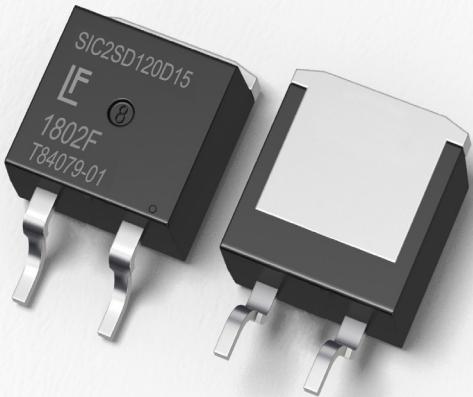


### LSIC2SD120D15

HF  



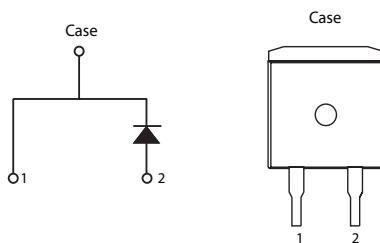
#### Description

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	$V_R$	$T_J = 25^\circ\text{C}$	1200	V
Continuous Forward Current	$I_F$	$T_c = 25^\circ\text{C}$	44	A
		$T_c = 135^\circ\text{C}$	21	
		$T_c = 150^\circ\text{C}$	15	
Non-Repetitive Forward Surge Current	$I_{FSM}$	$T_c = 25^\circ\text{C}, T_p = 10\text{ ms, Half sine pulse}$	120	A
Power Dissipation	$P_{\text{Tot}}$	$T_c = 25^\circ\text{C}$	214	W
		$T_c = 110^\circ\text{C}$	93	
Operating Junction Temperature	$T_J$	-	-55 to 175	°C
Storage Temperature	$T_{STG}$	-	-55 to 150	°C
Soldering Temperature (reflow MSL1)	$T_{\text{sold}}$	-	260	°C

### Electrical Characteristics

Characteristics	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	$V_F$	$I_F = 15 \text{ A}, T_J = 25 \text{ }^\circ\text{C}$	-	1.5	1.8	V
		$I_F = 15 \text{ A}, T_J = 175 \text{ }^\circ\text{C}$	-	2.2		
Reverse Current	$I_R$	$V_R = 1200 \text{ V}, T_J = 25 \text{ }^\circ\text{C}$	-	<1	100	$\mu\text{A}$
		$V_R = 1200 \text{ V}, T_J = 175 \text{ }^\circ\text{C}$	-	10		
Total Capacitance	C	$V_R = 1 \text{ V}, f = 1 \text{ MHz}$	-	920		$\text{pF}$
		$V_R = 400 \text{ V}, f = 1 \text{ MHz}$	-	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

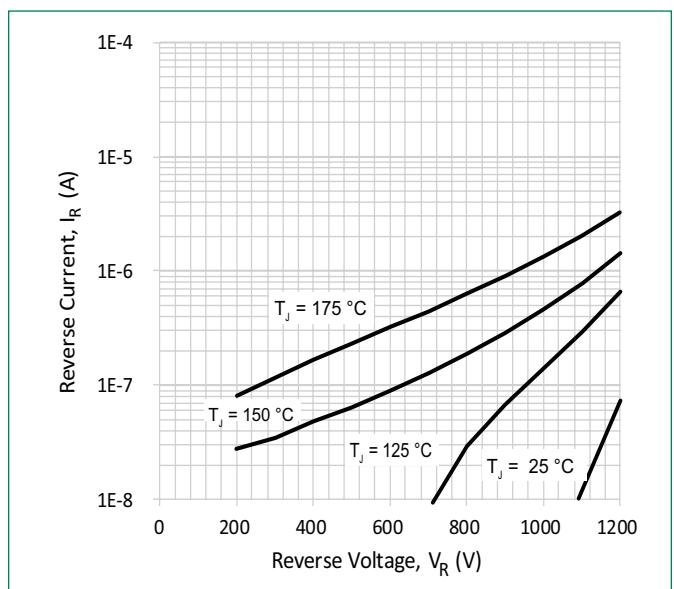
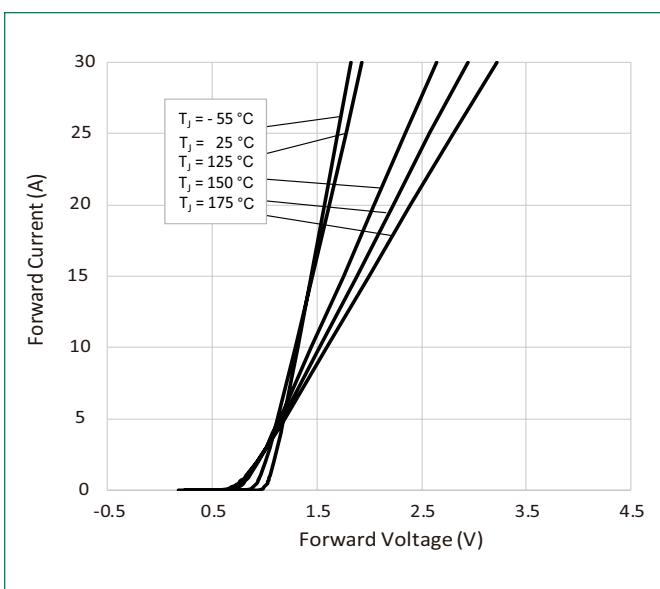
Footnote:  $T_J = +25 \text{ }^\circ\text{C}$  unless otherwise specified

### Thermal Characteristics

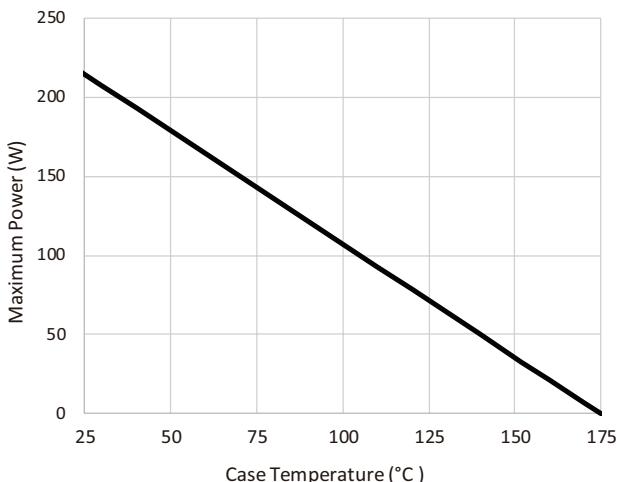
Characteristics	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Thermal Resistance	$R_{\text{th}JC}$	-	-	0.7	-	$^\circ\text{C}/\text{W}$

Figure 1: Typical Forward Characteristics

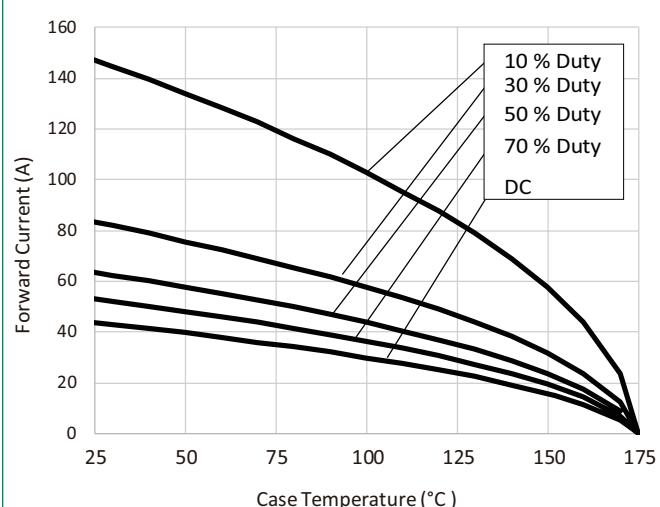
Figure 2: Typical Reverse Characteristics



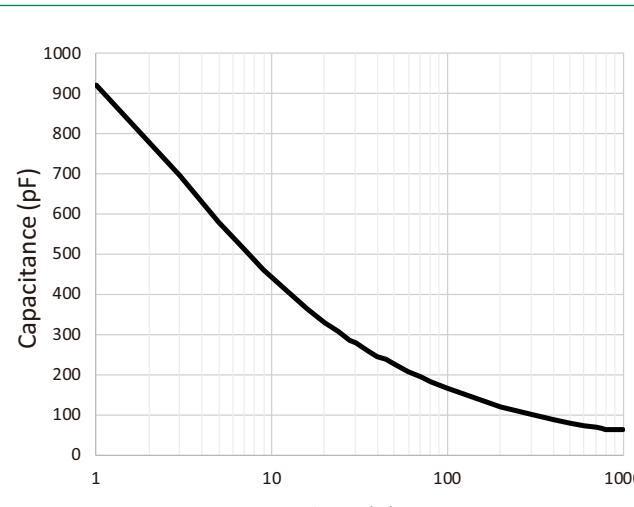
**Figure 3: Power Derating**



**Figure 4: Current Derating**



**Figure 5: Capacitance vs. Reverse Voltage**



**Figure 6: Capacitive Charge vs. Reverse Voltage**

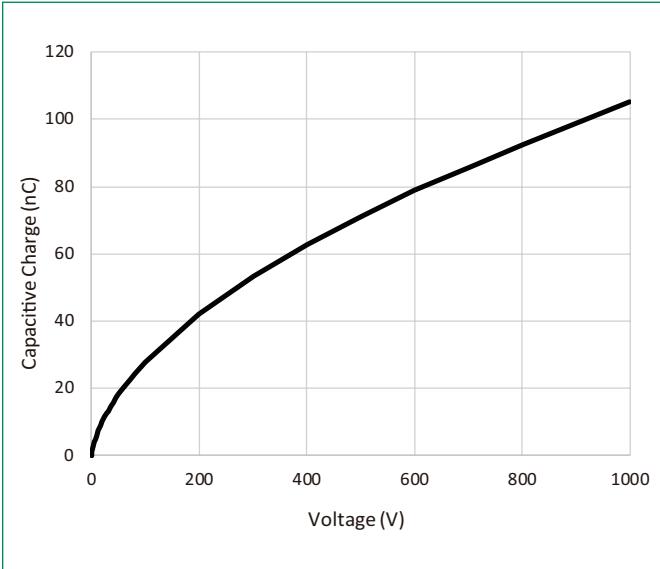


Figure 7: Stored Energy vs. Reverse Voltage

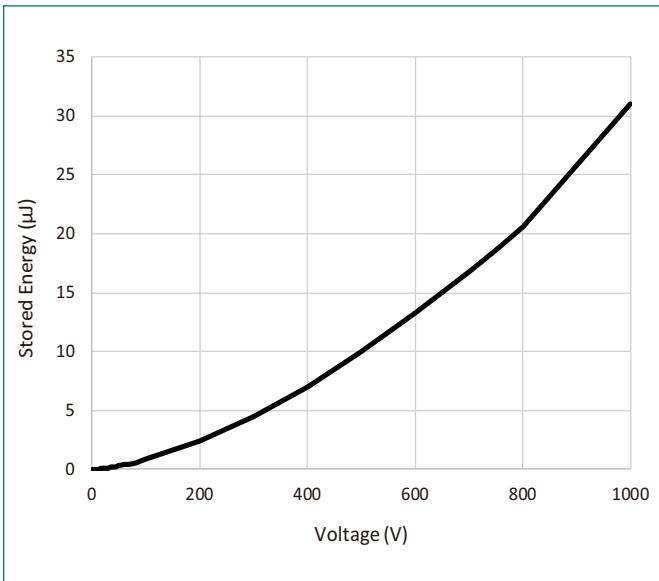
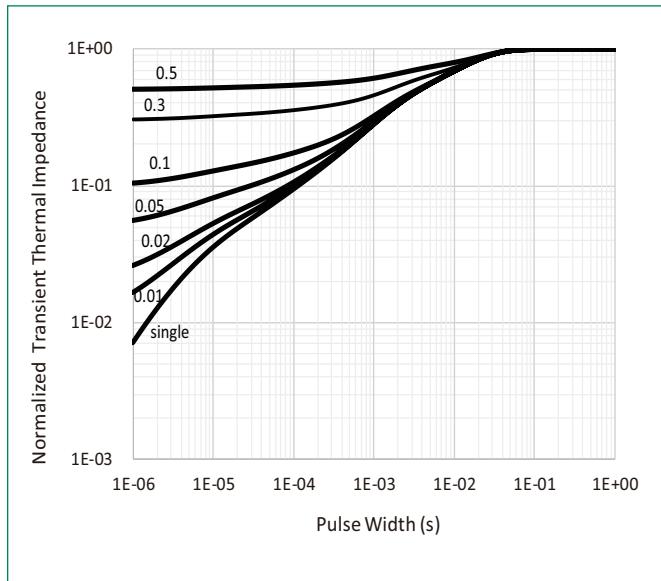
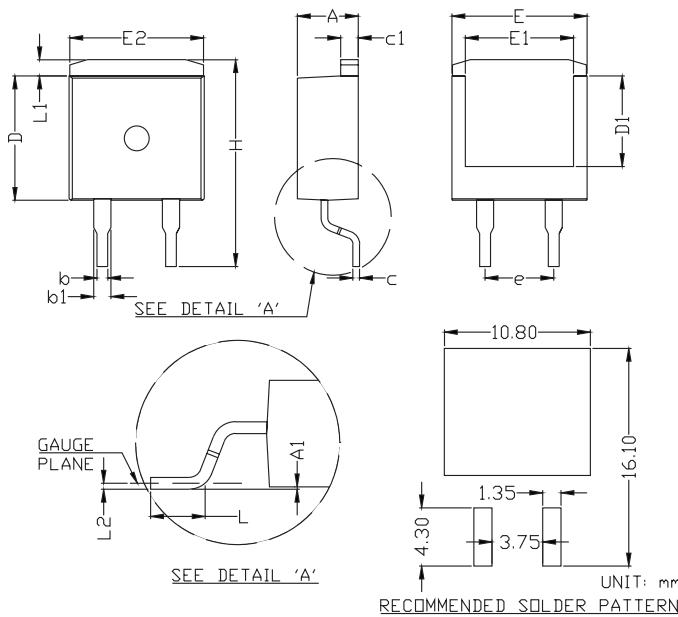


Figure 8: Transient Thermal Impedance

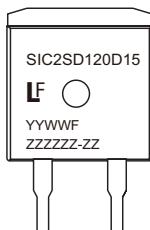


Dimensions-Package TO-263-2L



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

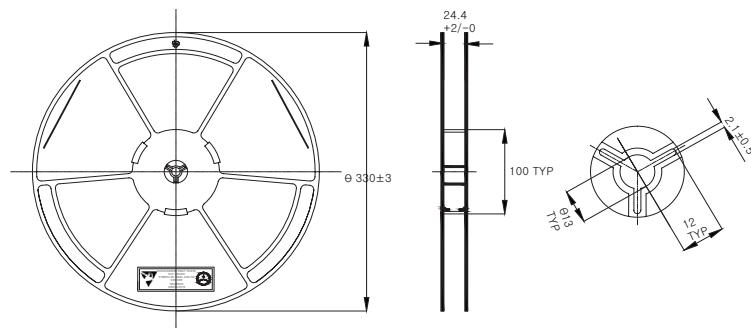
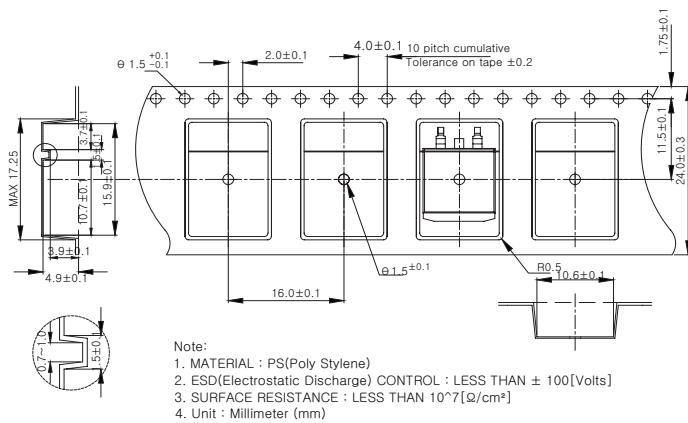


SIC	= SiC Diode
2	= Gen2
SD	= Schottky Diode
120	= Voltage Rating (1200 V)
D	= TO-263 Package (2 Lead)
15	= Current Rating (15 A)
YY	= Year
WW	= Week
F	= Special Code
ZZZZZZ-ZZ	= Lot Number

### Packing Option

Part Number	Marking	Packing Mode	M.O.Q
LSIC2SD120D15	SIC2SD120D15	Tape and Reel	800

### TO-263 Carrier Reel Specifications



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