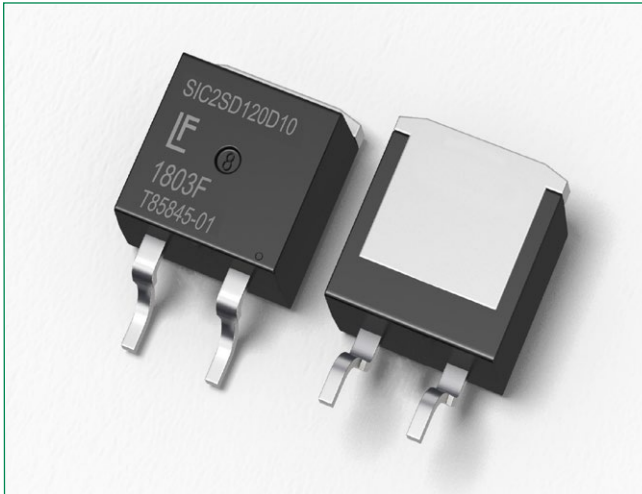


LSIC2SD120D10 Series



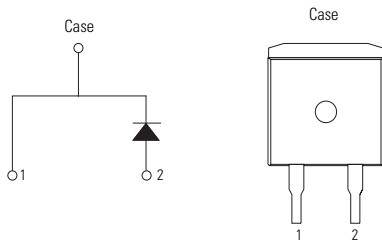
Description

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 = **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 | $T_C = 25\text{ °C}$ | 28 | A |
| | | $T_C = 125\text{ °C}$ | 15 | |
| | | $T_C = 151\text{ °C}$ | 10 | |
| Non-Repetitive Forward Surge Current | I_{FSM} | $T_C = 25\text{ °C}, T_p = 10\text{ ms}, \text{Half sine pulse}$ | 80 | A |
| Power Dissipation | P_{Tot} | $T_C = 25\text{ °C}$ | 136 | W |
| | | $T_C = 110\text{ °C}$ | 59 | |
| 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 |

Electrical Characteristics

| Characteristics | Symbol | Conditions | Value | | | Unit |
|-------------------------|--------|--|-------|------|------|---------------|
| | | | Min. | Typ. | Max. | |
| Forward Voltage | V_F | $I_F = 10\text{ A}, T_J = 25\text{ }^\circ\text{C}$ | - | 1.5 | 1.8 | V |
| | | $I_F = 10\text{ A}, T_J = 175\text{ }^\circ\text{C}$ | - | 2.2 | | |
| Reverse Current | I_R | $V_R = 1200\text{ V}, T_J = 25\text{ }^\circ\text{C}$ | - | <1 | 100 | μA |
| | | $V_R = 1200\text{ V}, T_J = 175\text{ }^\circ\text{C}$ | - | 10 | | |
| Total Capacitance | C | $V_R = 1\text{ V}, f = 1\text{ MHz}$ | - | 582 | | pF |
| | | $V_R = 400\text{ V}, f = 1\text{ MHz}$ | - | 53 | | |
| | | $V_R = 800\text{ V}, f = 1\text{ MHz}$ | - | 40 | | |
| Total Capacitive Charge | Q_C | $V_R = 800\text{ V}, Q_C = \int_0^{V_R} C(V)dV$ | - | 57 | | nC |

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

Thermal Characteristics

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

Figure 1: Typical Forward Characteristics

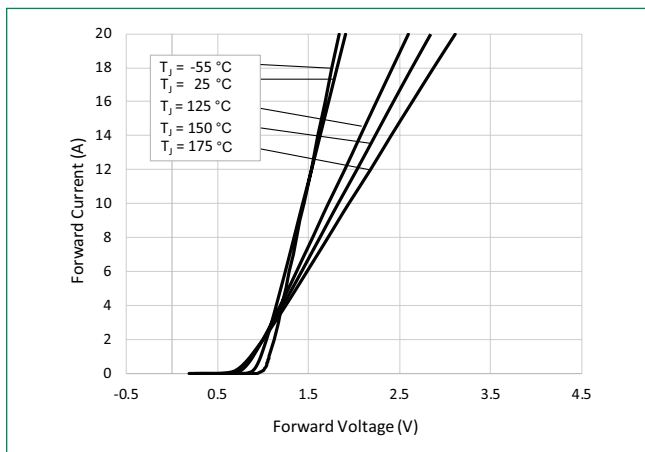


Figure 2: Typical Reverse Characteristics

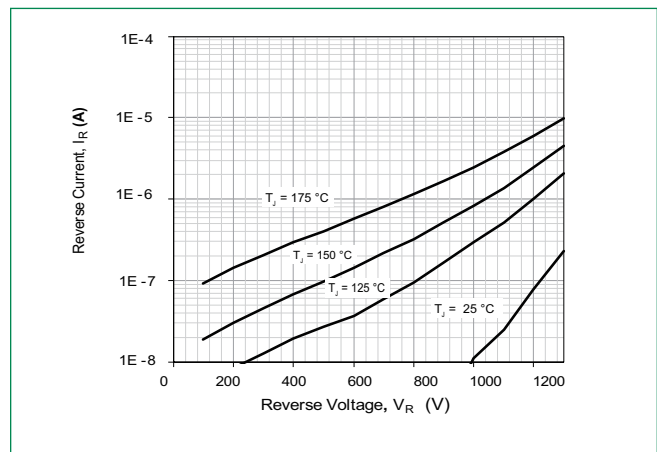


Figure 3: Power Derating

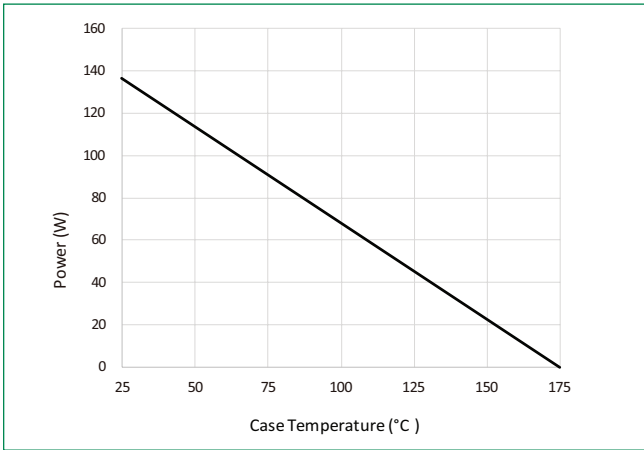


Figure 4: Current Derating

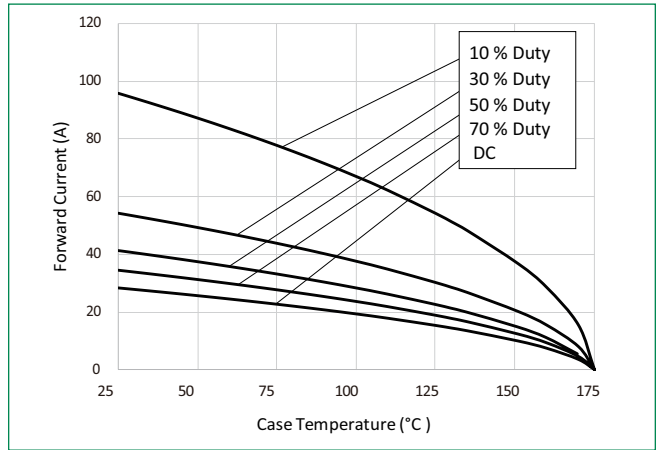


Figure 5: Capacitance vs. Reverse Voltage

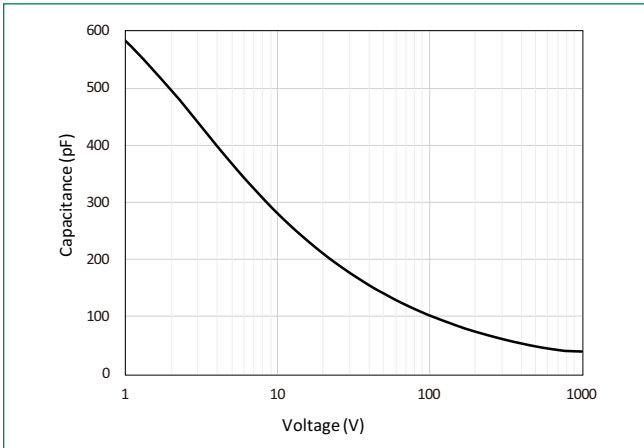


Figure 6: Capacitive Charge vs. Reverse Voltage

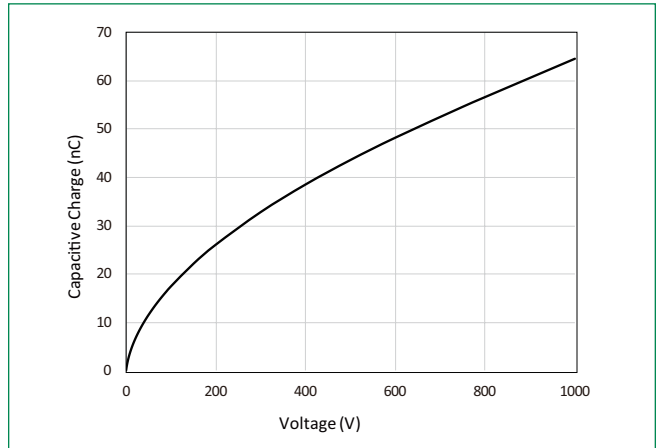


Figure 7: Stored Energy vs. Reverse Voltage

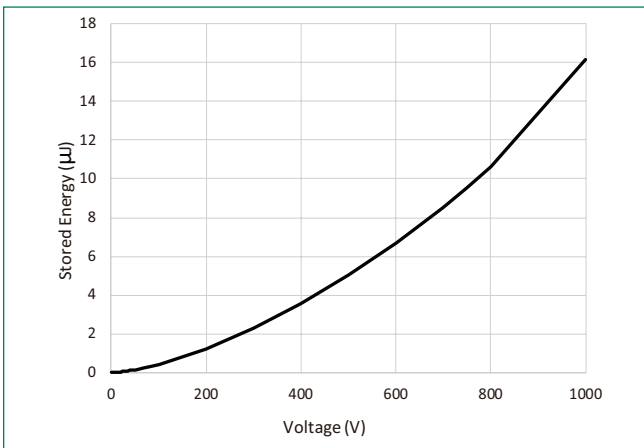
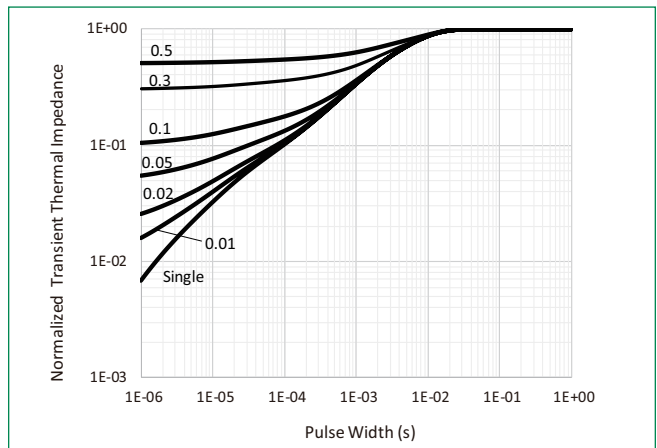
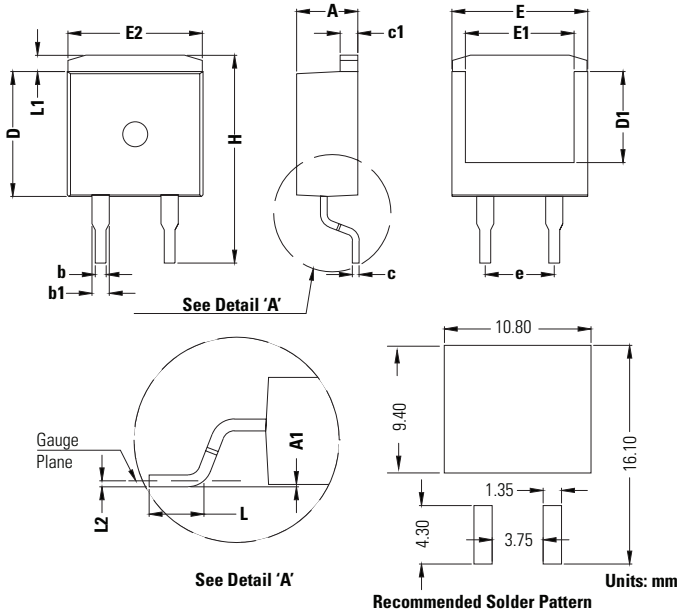


Figure 8: Transient Thermal Impedance

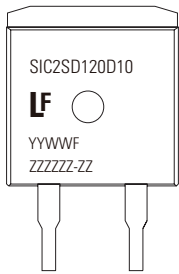


Dimensions-Package TO-263-2L



| 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

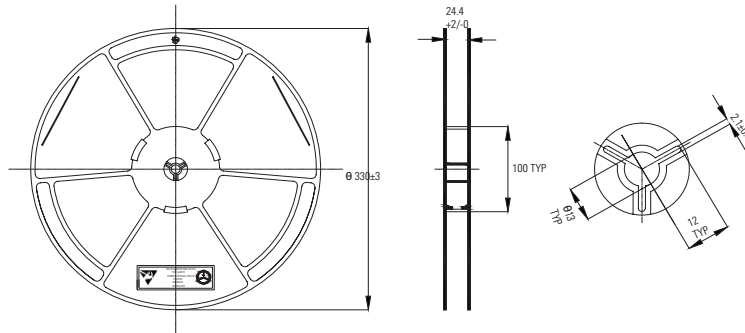
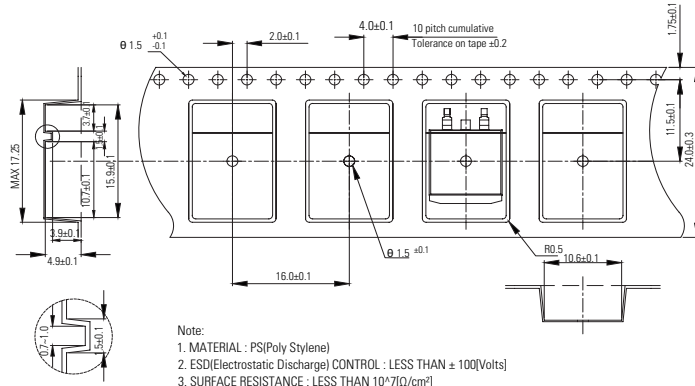


- SIC = SiC Diode
- 2 = Gen2
- SD = Schottky Diode
- 120 = Voltage Rating (1200 V)
- D = TO-263 Package (2 Lead)
- 10 = Current Rating (10 A)
- YY = Year
- WW = Week
- F = Special Code
- ZZZZZ-ZZ = Lot Number

Packing Option

| Part Number | Marking | Packing Mode | M.O.Q |
|---------------|--------------|---------------|-------|
| LSIC2SD120D10 | SIC2SD120D10 | Tape and Reel | 800 |

TO-263 Carrier Reel Specifications



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