

Silicon Carbide Schottky Barrier Diode

| | | | |
|---------------|--------|-------|----------|
| V_{RRM} | 1200 V | I_F | 2 x 10 A |
| $V_{F(Typ.)}$ | 1.5 V | Q_C | 47.6 nC |

Features

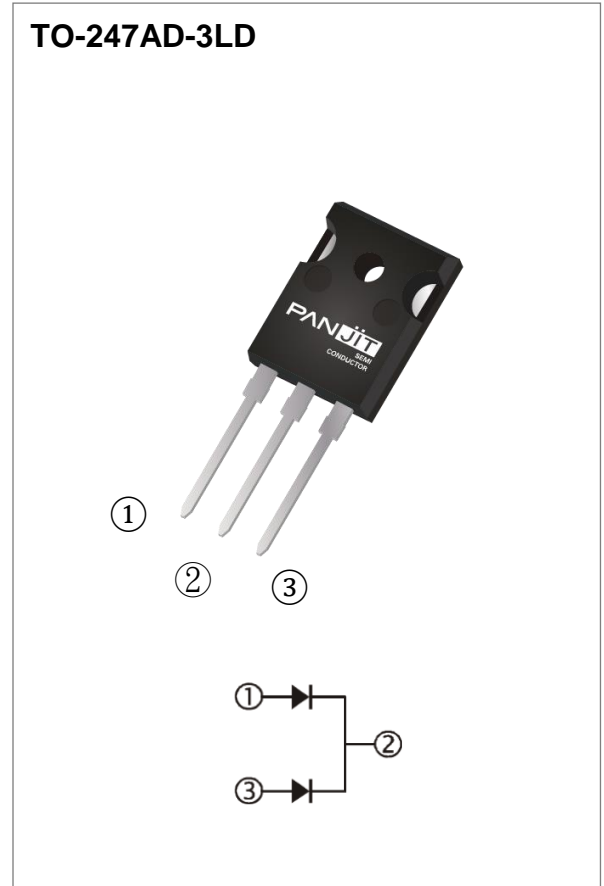
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: TO-247AD-3LD molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.2198 ounces, 6.231 grams

Application

- PFC, UPS, PV Inverter, EV Charging Station, Welder



Maximum Ratings and Thermal Characteristics ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise specified)

| PARAMETER | | SYMBOL | LIMIT | UNITS |
|--|---|-------------|---------|------------------|
| Repetitive Peak Reverse Voltage | | V_{RRM} | 1200 | V |
| DC Blocking Voltage | | V_{DC} | 1200 | V |
| Continuous Forward Current (Per Leg/Device) | $T_C = 155\text{ }^\circ\text{C}$ | I_F | 10 / 20 | A |
| Repetitive Peak Surge Current <i>Half Sine Wave, D=0.1</i> (Per Leg) | $T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | I_{FRM} | 60 | A |
| | $T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | | 52 | |
| Peak Forward Surge Current <i>Half Sine Wave</i> (Per Leg) | $T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | I_{FSM} | 76 | A |
| | $T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | | 64 | |
| Peak Forward Surge Current $t_p = 10\mu\text{s}$, <i>Pulse</i> (Per Leg) | | | 720 | |
| Maximum Power Dissipation (Per Leg) | | P_{total} | 164.8 | W |
| Operating Junction Temperature Range | | T_J | -55~175 | $^\circ\text{C}$ |
| Storage Temperature Range | | T_{STG} | -55~175 | $^\circ\text{C}$ |

Electrical Characteristics (Per Leg) ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|---------------------------|-----------------|--|------|------|------|--------------------|
| Forward Voltage Drop | V_F | $I_F = 10\text{ A}, T_J = 25\text{ }^\circ\text{C}$ | - | 1.5 | 1.7 | V |
| | | $I_F = 10\text{ A}, T_J = 175\text{ }^\circ\text{C}$ | - | 2.1 | - | |
| Reverse Leakage Current | I_R | $V_R = 1200\text{ V}, T_J = 25\text{ }^\circ\text{C}$ | - | 1.16 | 100 | μA |
| | | $V_R = 1200\text{ V}, T_J = 175\text{ }^\circ\text{C}$ | - | 0.03 | - | mA |
| Total Capacitive Charge | Q_C | $I_F = 10\text{ A}, V_R = 800\text{V}$ | - | 47.6 | - | nC |
| Total Capacitance | C | $V_R = 1\text{V}, f = 1\text{MHz}$ | - | 516 | - | pF |
| | | $V_R = 400\text{V}, f = 1\text{MHz}$ | - | 45 | - | pF |
| | | $V_R = 800\text{V}, f = 1\text{MHz}$ | - | 35 | - | pF |
| Capacitance Stored Energy | E_C | $V_R = 800\text{V}$ | - | 13.8 | - | μJ |
| Thermal Resistance | $R_{\theta JC}$ | | - | 0.91 | - | $^\circ\text{C/W}$ |

TYPICAL CHARACTERISTIC CURVES (Per Leg)

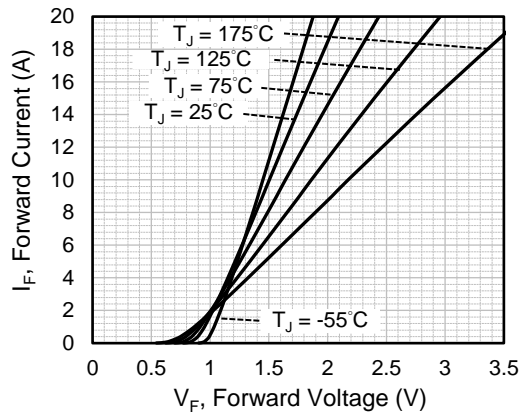


Fig.1 Forward Characteristics

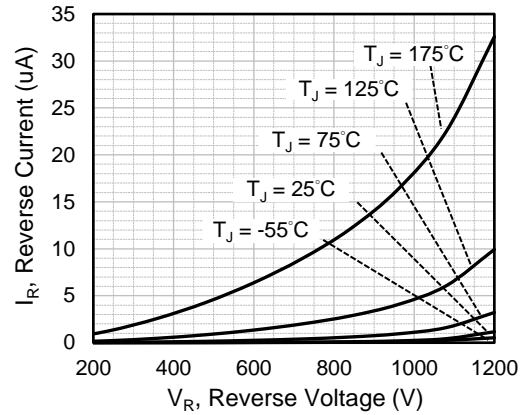


Fig.2 Reverse Characteristics

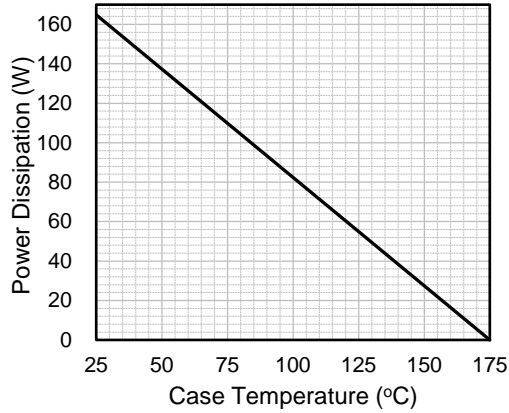


Fig.3 Power Derating Curve

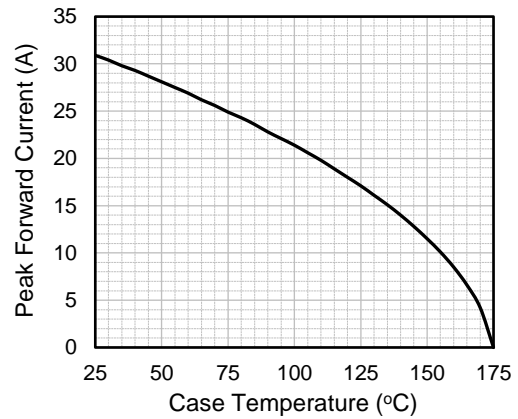


Fig.4 Current Derating Curve

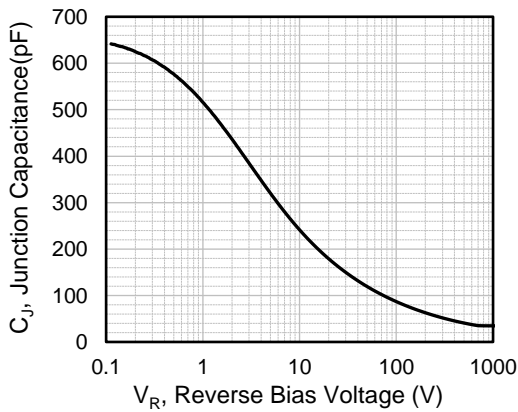


Fig.5 Typical Junction Capacitance

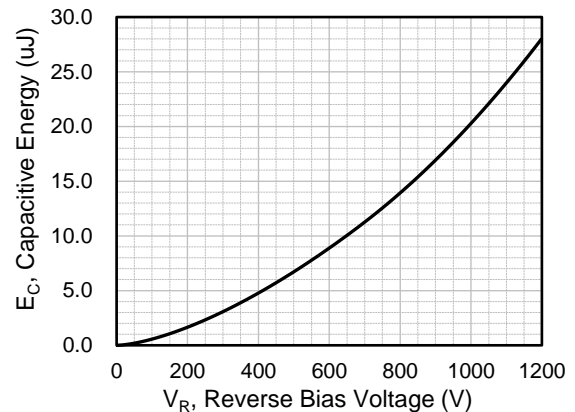


Fig.6 Capacitance Stored Energy

Product and Packing Information

| Part No. | Package Type | Packing Type | Marking |
|---------------|--------------|--------------|--------------|
| PCDH20120CCG1 | TO-247AD-3LD | 30pcs / Tube | CDH20120CCG1 |

Packaging Information

