

## Silicon Carbide Schottky Barrier Diode

|               |        |       |          |
|---------------|--------|-------|----------|
| $V_{RRM}$     | 1200 V | $I_F$ | 2 x 15 A |
| $V_{F(Typ.)}$ | 1.5 V  | $Q_C$ | 72 nC    |

### Features

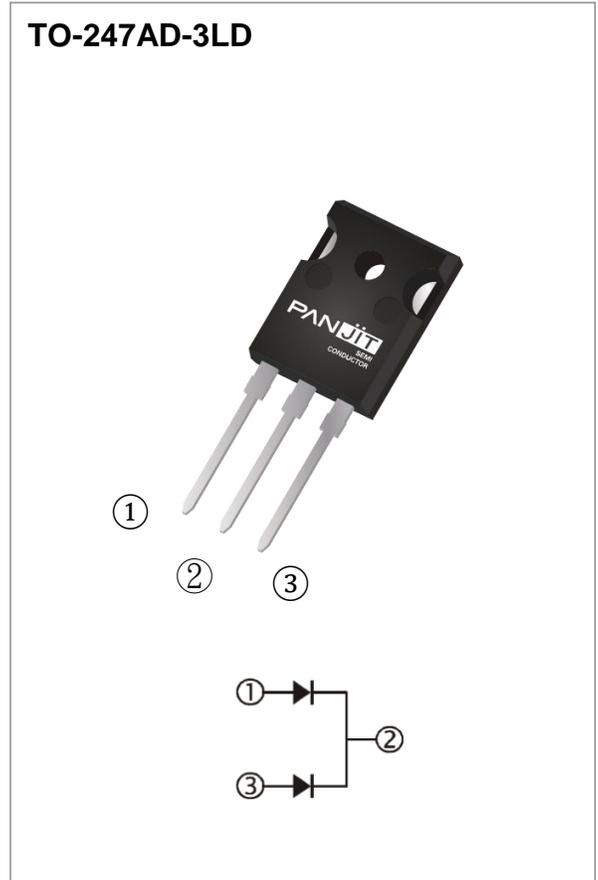
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### 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<br>(Per Leg/Device)                               | $T_C = 155\text{ }^\circ\text{C}$                       | $I_F$       | 15 / 30 | A                |
| Repetitive Peak Surge Current<br><i>Half Sine Wave, D=0.1</i> (Per Leg)      | $T_C = 25\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$  | $I_{FRM}$   | 88      | A                |
|  | $T_C = 125\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$ |             | 72      |                  |
| Peak Forward Surge Current<br><i>Half Sine Wave</i> (Per Leg)                | $T_C = 25\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$  | $I_{FSM}$   | 76      | A                |
|  | $T_C = 125\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$ |             | 72      |                  |
| Peak Forward Surge Current<br>$t_p = 10\mu\text{s}$ , <i>Pulse</i> (Per Leg) |   |             | 720     |                  |
| Maximum Power Dissipation (Per Leg)  |   | $P_{total}$ | 230.8   | 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      | $V_F$           | $I_F = 15\text{ A}, T_J = 25\text{ }^\circ\text{C}$    | -    | 1.5  | 1.7  | V                  |
|                           |                 | $I_F = 15\text{ A}, T_J = 175\text{ }^\circ\text{C}$   | -    | 2.0  | -    |                    |
| Reverse Leakage Current   | $I_R$           | $V_R = 1200\text{ V}, T_J = 25\text{ }^\circ\text{C}$  | -    | 5.3  | 140  | $\mu\text{A}$      |
|                           |                 | $V_R = 1200\text{ V}, T_J = 175\text{ }^\circ\text{C}$ | -    | 0.05 | -    | mA                 |
| Total Capacitive Charge   | $Q_C$           | $I_F = 15\text{ A}, V_R = 800\text{ V}$                | -    | 72   | -    | nC                 |
| Total Capacitance         | C               | $V_R = 1\text{ V}, f = 1\text{ MHz}$                   | -    | 784  | -    | pF                 |
|                           |                 | $V_R = 400\text{ V}, f = 1\text{ MHz}$                 | -    | 69.3 | -    | pF                 |
|                           |                 | $V_R = 800\text{ V}, f = 1\text{ MHz}$                 | -    | 50.2 | -    | pF                 |
| Capacitance Stored Energy | $E_C$           | $V_R = 800\text{ V}$                                   | -    | 21   | -    | $\mu\text{J}$      |
| Thermal Resistance        | $R_{\theta JC}$ |  | -    | 0.65 | -    | $^\circ\text{C/W}$ |

TYPICAL CHARACTERISTIC CURVES ( Per Leg )

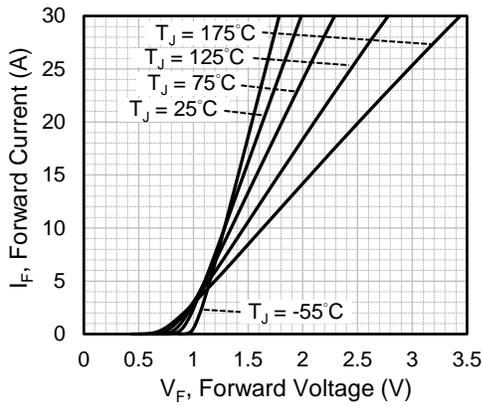


Fig.1 Forward Characteristics

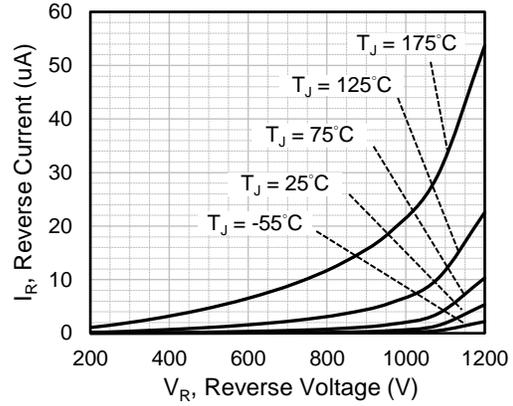


Fig.2 Reverse Characteristics

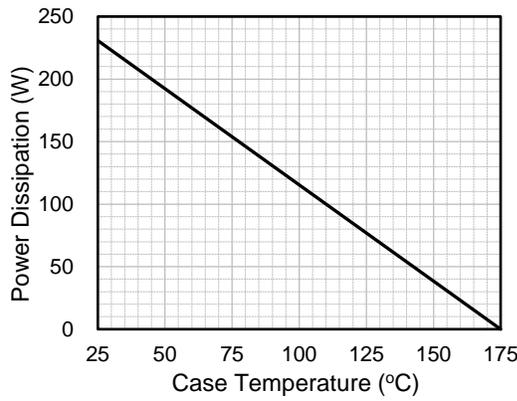


Fig.3 Power Derating Curve

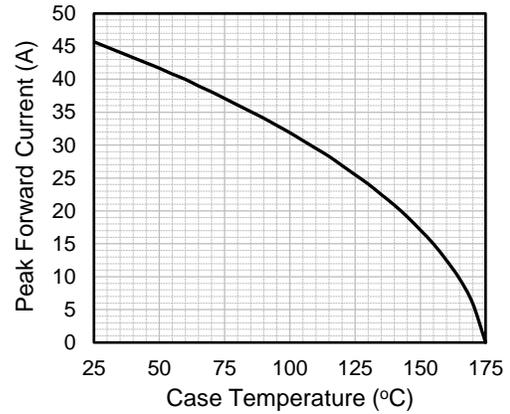


Fig.4 Current Derating Curve

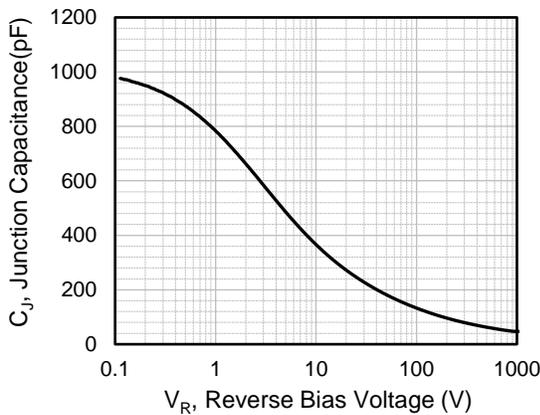


Fig.5 Typical Junction Capacitance

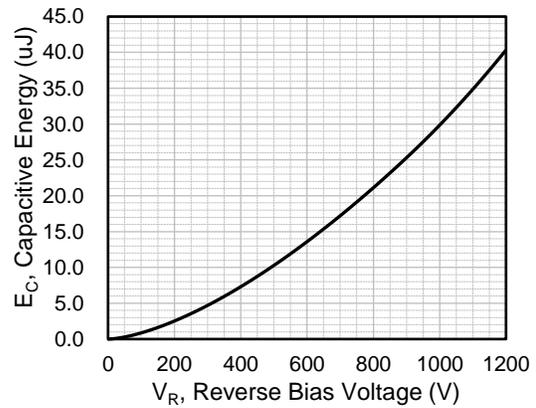
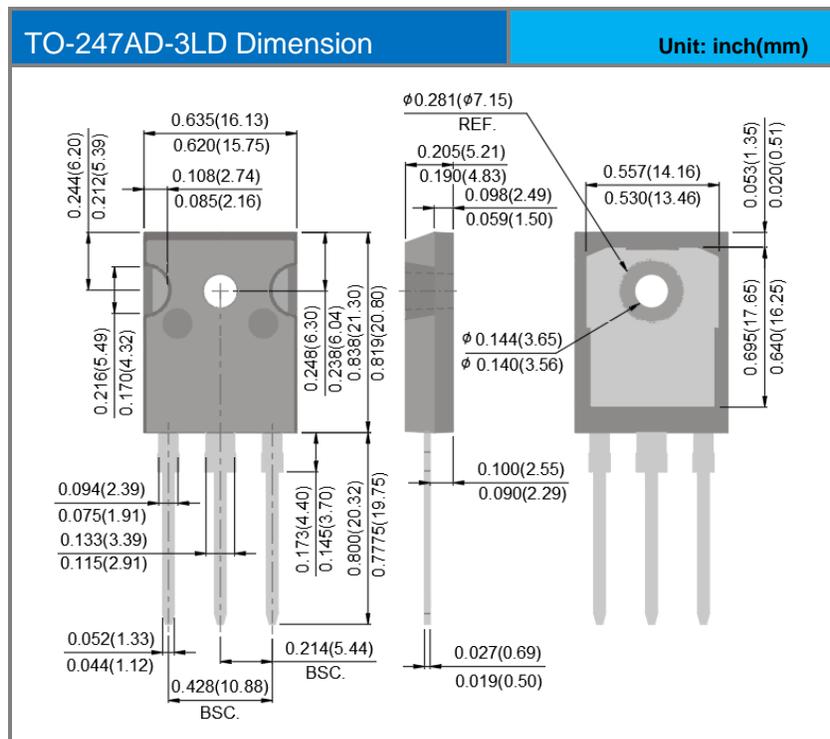


Fig.6 Capacitance Stored Energy

**Product and Packing Information**

| Part No.      | Package Type | Packing Type | Marking      |
|---------------|--------------|--------------|--------------|
| PCDH30120CCG1 | TO-247AD-3LD | 30pcs / Tube | CDH30120CCG1 |

**Packaging Information**



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