

Silicon Carbide Schottky Barrier Diode

| | | | |
|---------------|-------|-------|---------|
| V_{RRM} | 650 V | I_F | 16 A |
| $V_{F(Typ.)}$ | 1.5 V | Q_C | 34.9 nC |

Features

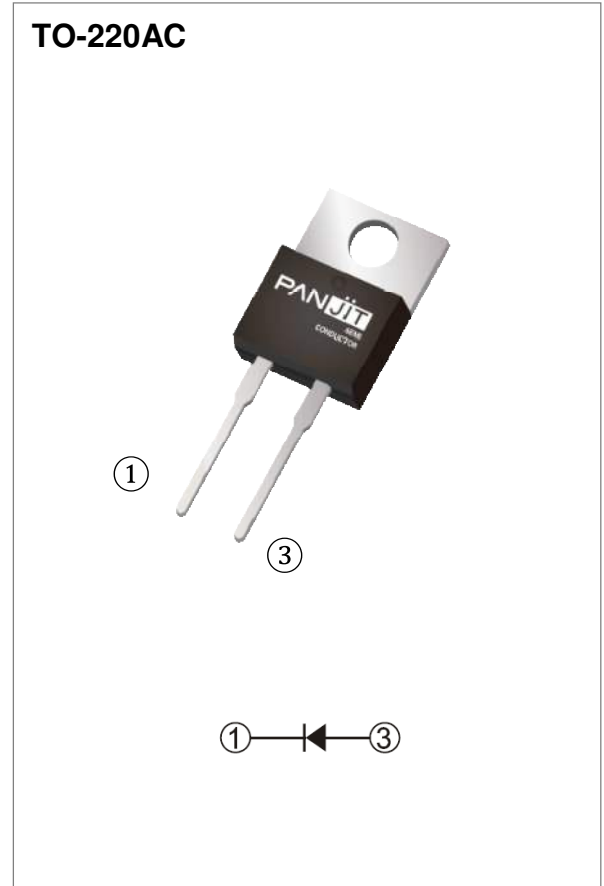
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Positive Temperature Coefficient on V_F
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: TO-220AC molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.067 ounces, 1.89 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} | 650 | V |
| DC Blocking Voltage | | V_{DC} | 650 | V |
| Continuous Forward Current | $T_C = 140\text{ }^\circ\text{C}$ | I_F | 16 | A |
| Repetitive Peak Surge Current <i>Half Sine Wave, D=0.1</i> | $T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | I_{FRM} | 56 | A |
| | $T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | | 44 | |
| Peak Forward Surge Current <i>Half Sine Wave</i> | $T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | I_{FSM} | 72 | A |
| | $T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$ | | 60 | |
| Peak Forward Surge Current <i>$t_p = 10\mu\text{s}$, Pulse</i> | | | 720 | |
| Maximum Power Dissipation | | P_{total} | 136.4 | W |
| Operating Junction Temperature Range | | T_J | -55~175 | $^\circ\text{C}$ |
| Storage Temperature Range | | T_{STG} | -55~175 | $^\circ\text{C}$ |

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

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|---------------------------|-----------------|---|------|------|------|--------------------|
| Forward Voltage Drop | V_F | $I_F = 16\text{ A}, T_J = 25\text{ }^\circ\text{C}$ | - | 1.5 | 1.7 | V |
| | | $I_F = 16\text{ A}, T_J = 175\text{ }^\circ\text{C}$ | - | 1.8 | - | |
| Reverse Leakage Current | I_R | $V_R = 650\text{ V}, T_J = 25\text{ }^\circ\text{C}$ | - | 5 | 100 | μA |
| | | $V_R = 650\text{ V}, T_J = 175\text{ }^\circ\text{C}$ | - | 0.06 | - | mA |
| Total Capacitive Charge | Q_C | $I_F = 16\text{ A}, V_R = 400\text{V}$ | - | 34.9 | - | nC |
| Total Capacitance | C | $V_R = 1\text{V}, f = 1\text{MHz}$ | - | 618 | - | pF |
| | | $V_R = 200\text{V}, f = 1\text{MHz}$ | - | 62.1 | - | pF |
| | | $V_R = 400\text{V}, f = 1\text{MHz}$ | - | 48.3 | - | pF |
| Capacitance Stored Energy | E_C | $V_R = 400\text{V}$ | - | 5.3 | - | μJ |
| Thermal Resistance | $R_{\theta JC}$ | | - | 1.1 | - | $^\circ\text{C/W}$ |

TYPICAL CHARACTERISTIC CURVES

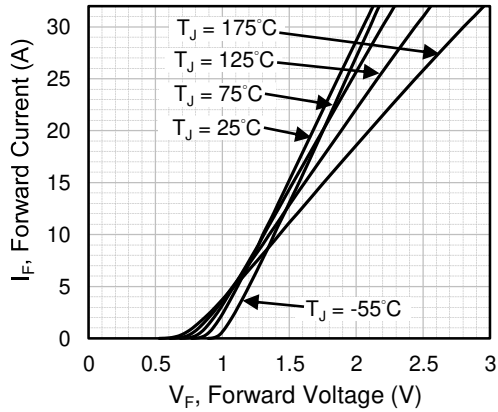


Fig.1 Forward Characteristics

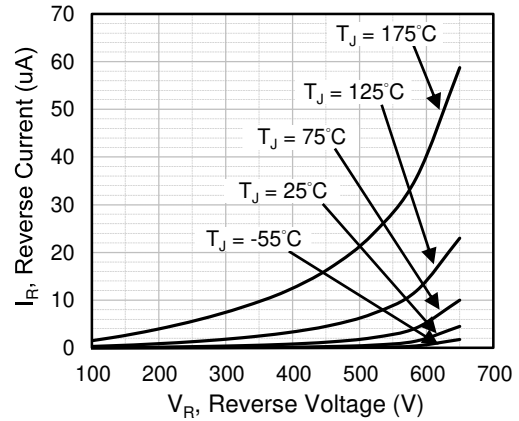


Fig.2 Reverse Characteristics

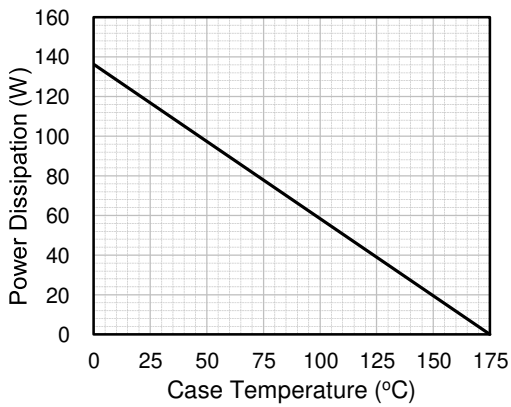


Fig.3 Power Derating Curve

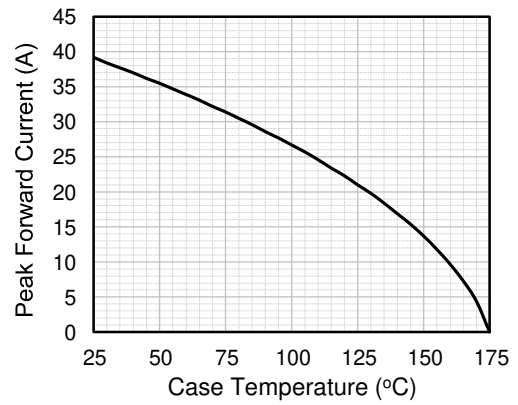


Fig.4 Current Derating Curve

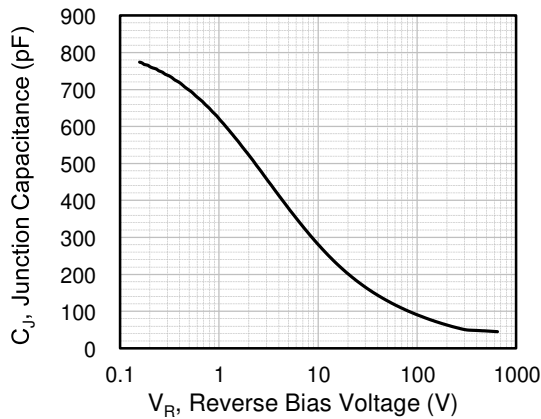


Fig.5 Typical Junction Capacitance

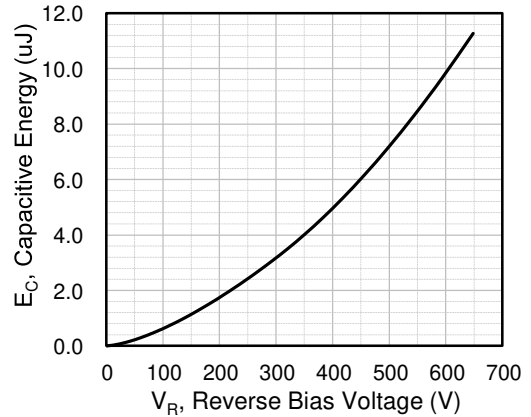
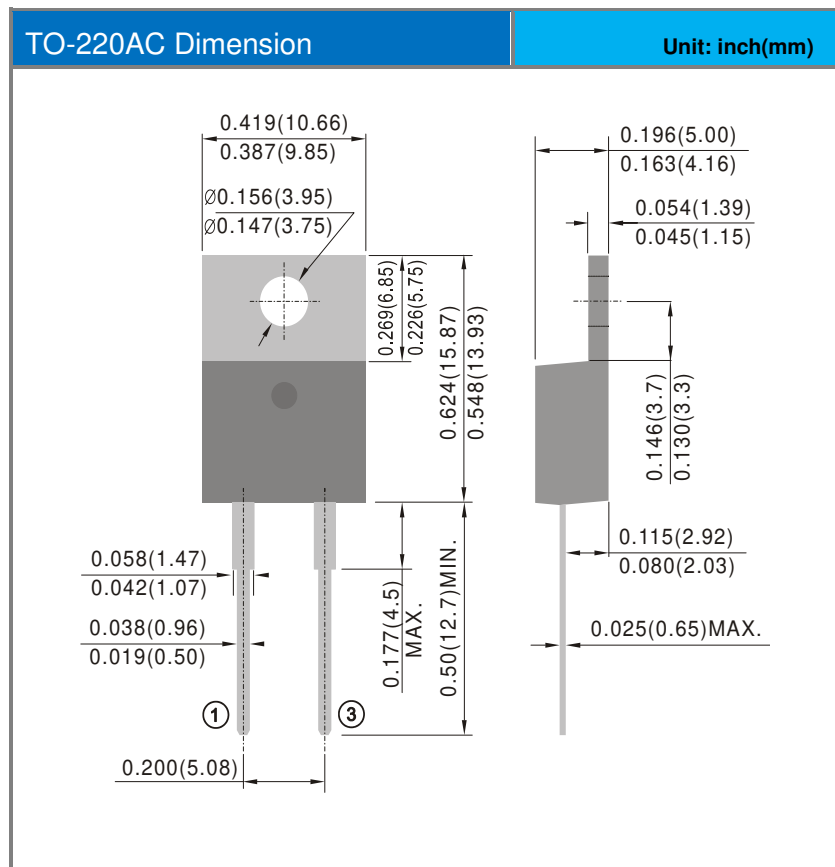


Fig.6 Capacitance Stored Energy

Product and Packing Information

| Part No. | Package Type | Packing Type | Marking |
|------------|--------------|--------------|-----------|
| PCDP1665G1 | TO-220AC | 50pcs / Tube | CDP1665G1 |

Packaging Information



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