



Description:

Powerex Single Fast Recovery Diode Module features fast switching is specially designed for customer applications. The modules are isolated for easy mounting with other components on a common heatsink.

Features:

- Fast Recovery Time
- Isolated Mounting
- Metal Baseplate
- Low Thermal Impedance
- 3000 V isolating voltage

Applications:

- Switching Power Supplies
- Inverters
- Choppers
- Welding Power Supplies
- Free Wheeling Diode
- High Frequency Rectifiers

| Dim | Inches | Millimeters |
|-----|------------|-------------|
| A | 4.21 | 107.0 |
| B | 3.661±0.01 | 93.0±0.25 |
| C | 2.44 | 62.0 |
| D | 1.89±0.01 | 48.0±0.25 |
| E | 1.42 Max. | 36.0 Max. |
| G | 1.18 | 30.0 |
| H | 1.14 | 29.0 |
| K | 0.94 | 24.0 |

| Dim | Inches | Millimeters |
|-----|-----------|-------------|
| L | 0.93 | 23.5 |
| N | 0.69 | 17.5 |
| P | 0.63 | 16.0 |
| R | 0.43 | 11.0 |
| U | 0.12 | 3.0 |
| V | 0.26 Dia. | 6.5 Dia. |
| W | M6 Metric | M6 |

Absolute Maximum Ratings, $T_J=25^\circ\text{C}$ unless otherwise specified

| Characteristics | Conditions | Symbol | QRS1450001 | Units |
|--|--|-------------|-----------------|------------------------|
| Repetitive Peak Reverse Blocking Voltage | - | V_{RRM} | 1400 | Volts |
| Non-Repetitive Peak Reverse Blocking Voltage | - | V_{RSM} | $V_{RRM} + 100$ | Volts |
| Average Forward Current | 180° Conduction, $T_C=25^\circ\text{C}$ | $I_{F(AV)}$ | 500 | Amperes |
| Peak Half Cycle Non-Repetitive Surge Current | $t = 8.3\text{mS}$, 100% V_{RRM} Reapplied | I_{FSM} | 3330 | Amperes |
| I^2t for Fusing for One Cycle | $t = 8.3\text{mS}$, 100% V_{RRM} Reapplied | I^2t | 46200 | A^2sec |
| Operating Junction Temperature | - | T_J | -40 to 150 | $^\circ\text{C}$ |
| Storage Temperature | - | T_{STG} | -40 to 125 | $^\circ\text{C}$ |
| Maximum Mounting Torque, M6 Mounting Screw | - | - | 26 | In.-lb. |
| Maximum Terminal Torque, M6 Terminal Screw | - | - | 26 | In.-lb. |
| Module Weight (Typical) | - | - | 400 | Grams |
| V Isolation | 60 Hz, circuit to base, all terminals shorted, $t = 1 \text{ sec}$ | V_{RMS} | 3000 | Volts |

Electrical Characteristics, $T_J=25^\circ\text{C}$ unless otherwise specified

| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|------------------------------|-----------|---|------|------|------|---------------|
| Peak Reverse Leakage Current | I_{RRM} | Rated V_{RRM} | - | - | 4 | mA |
| Peak On-State Voltage | V_{FM} | $I_F=500\text{A}$ | - | 3.1 | 3.8 | Volts |
| Reverse Recovery Time | t_{rr} | $I_F = 500\text{A}$, $di/dt = -1000\text{A}/\mu\text{s}$ | - | - | 300 | ns |
| Reverse Recovery Charge | Q_{rr} | $I_F = 500\text{A}$, $di/dt = -1000\text{A}/\mu\text{s}$ | - | 5 | - | μC |

Thermal Characteristics, $T_J=25^\circ\text{C}$ unless otherwise specified

| Characteristics | Symbol | Min. | Typ. | Max. | Units |
|---|-----------------|------|------|-------|------------------------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | - | - | 0.075 | $^\circ\text{C}/\text{Watt}$ |
| Thermal Resistance, Case to Sink Lubricated | $R_{\theta CS}$ | - | - | 0.04 | $^\circ\text{C}/\text{Watt}$ |