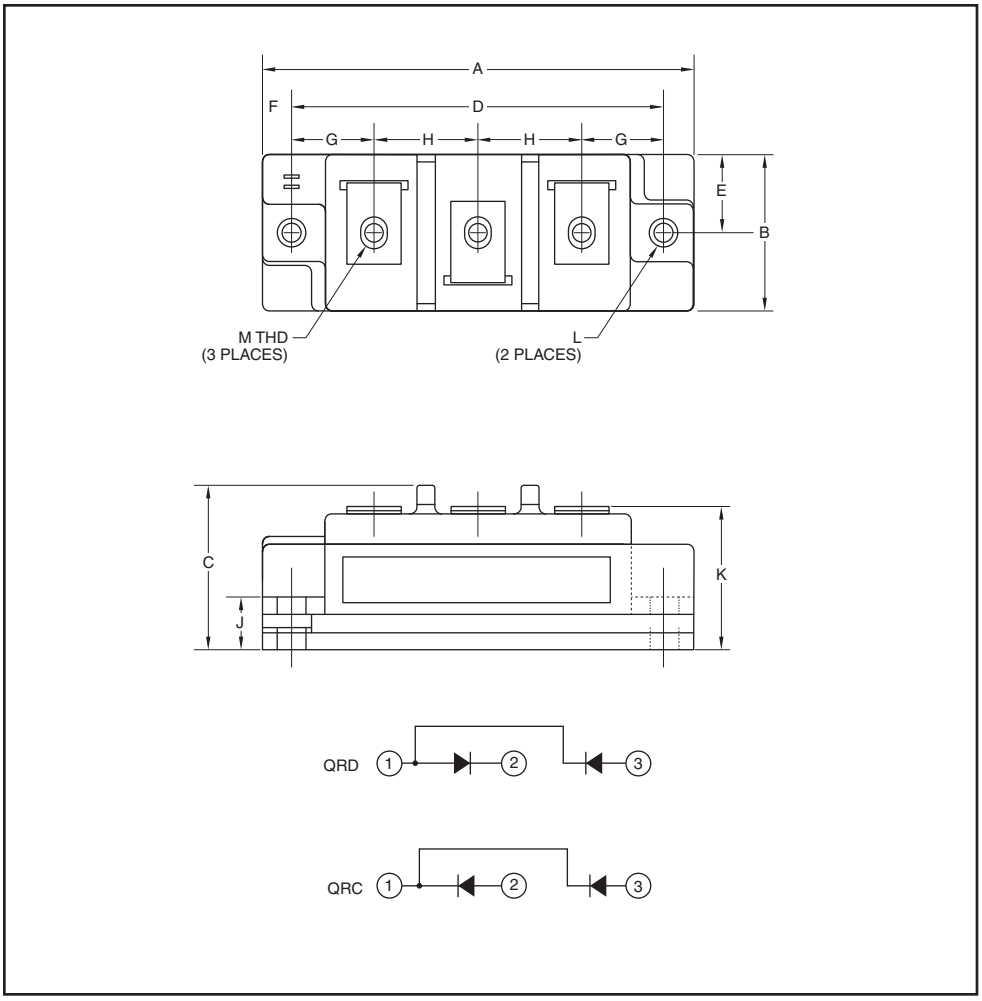
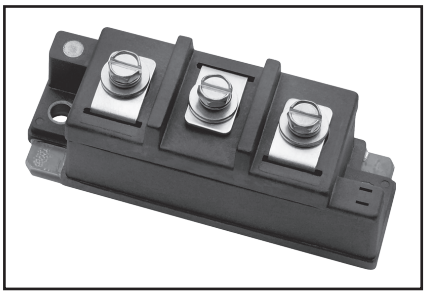
Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
www.pwrx.com

# Fast Recovery Diode Module
## 100 Amperes/3300 Volts



**Outline Drawing and Circuit Diagram**

| Dimensions | Inches | Millimeters |
|---|---|---|
| A | 3.70 | 94.0 |
| B | 1.34 | 34.0 |
| C | 1.40 | 35.6 |
| D | 3.15 | 80.0 |
| E | 0.67 | 17.0 |
| F | 0.28 | 6.99 |

| Dimensions | Inches | Millimeters |
|---|---|---|
| G | 0.67 | 17.1 |
| H | 0.91 | 23.0 |
| J | 0.36 | 9.0 |
| K | 1.18 | 30.0 |
| L | 0.216 Dia. | 5.5 Dia. |
| M | #10-32 | #10-32 |

**Description:**

High voltage diodes feature highly insulating housings that offer enhanced protection by means of greater creepage and strike clearance distance for many demanding applications like medium voltage drives and auxiliary traction applications.

**Features:**

- ☐ Alumina Ceramic Substrate for Low Thermal Impedance
- ☐ Copper Baseplate
- ☐ Fast Recovery Time (1.2 µs max.)
- ☐ Industry Standard Packages Allow Common Bus Work to Complementary High Isolation Diodes
- ☐ No Additional Insulation Components Required

**Applications:**

- ☐ High Voltage Power Supplies
- ☐ Medium Voltage Drives
- ☐ Motor Drives
- ☐ Traction

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***QR_3310002***
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## Absolute Maximum Ratings, $T_j$ = 25°C unless otherwise specified

| Ratings | | Symbol | QRD3310002 QRC3310002 | Units |
|---|---|---|---|---|
| Repetitive Peak Reverse Blocking Voltage | | $_{RRM}$ | 3300 | Volts |
| Non-Repetitive Peak Reverse Blocking Voltage | | $V_{RSM}$ | $V_{RRM}$ + 100 | Volts |
| Average Forward Current | $T_C$ = 80°C | $I_{F(avg)}$ | 60 | Amperes |
| | $T_C$ = 25°C | $I_{F(avg)}$ | 90 | Amperes |
| Forward Current (Pulse) | | $I_{FM}$ | 200 | Amperes |
| Operating Junction Temperature | | $T_j$ | -40 to 150 | °C |
| Storage Temperature | | $T_{stg}$ | -40 to 150 | °C |
| Maximum Mounting Torque, #10-32 Mounting Screw | | — | 26 | in-lb |
| Maximum Terminal Torque, #10-32 Terminal Screw | | — | 26 | in-lb |
| Module Weight (Typical) | | — | 250 | Grams |
| V Isolation (60 Hz, Circuit to Base, All Terminals Shorted, t = 1 sec.) | | $V_{RMS}$ | 6000 | Volts |

## IGBT Electrical Characteristics, $T_j$ = 25°C unless otherwise specified

| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Peak Reverse Leakage Current | $I_{RRM}$ | Rated $V_{RRM}$ | — | — | 5 | mA |
| Peak On-State Voltage | $V_{FM}$ | $I_F$ = 100A | — | 3.3 | 4.3 | Volts |
| Reverse Recovery Time | $t_{rr}$ | $I_F$ = 100A, di/dt = -200A/µs | — | — | 1.2 | µs |
| Reverse Recovery Charge | $Q_{rr}$ | $I_F$ = 100A, di/dt = -200A/µs | — | 25 | — | µC |

## Thermal and Mechanical Characteristics, $T_j$ = 25 °C unless otherwise specified

| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Thermal Resistance, Junction to Case | $R_{th(j-c)}Q$ | Per Diode | — | — | 0.20 | °C/W |
| Thermal Resistance, Case to Sink Lubricated | $R_{th(c-s)}Q$ | Per Module | — | — | 0.05 | °C/W |

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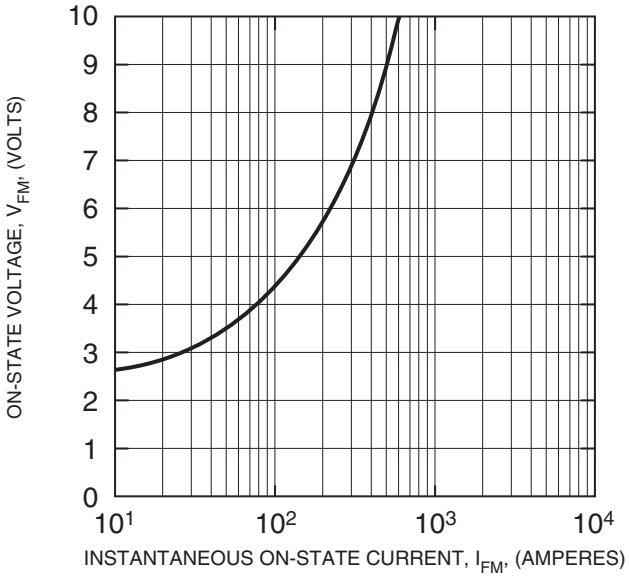
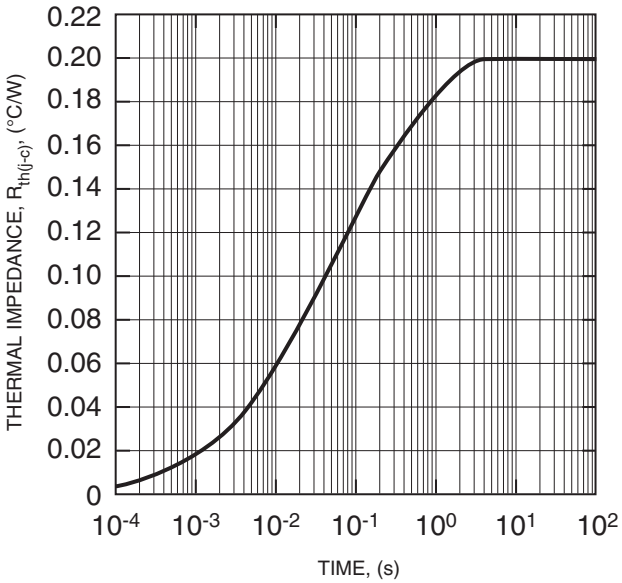
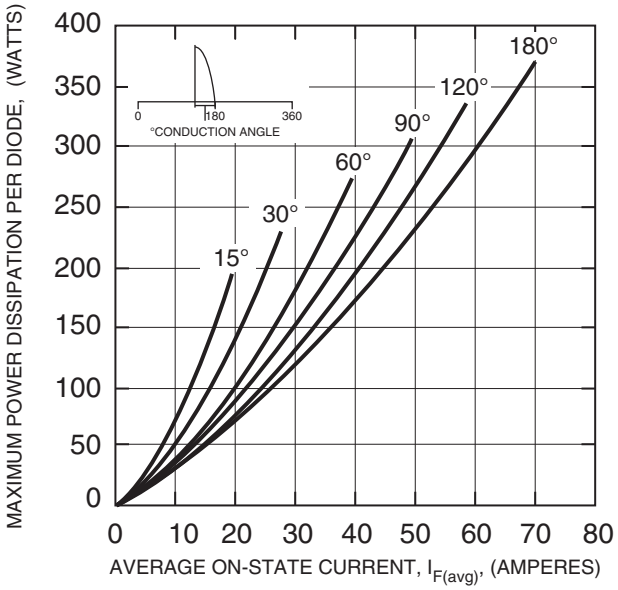
**MAXIMUM ON-STATE FORWARD VOLTAGE DROP CHARACTERISTICS ($T_j$ = 150°C)**



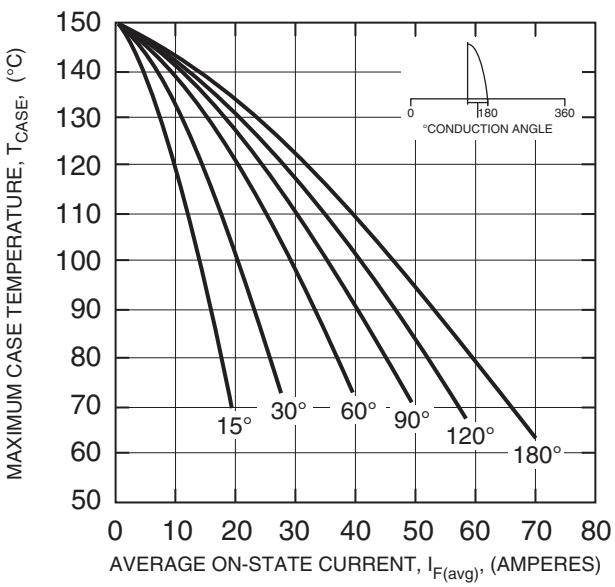

**MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)**




**MAXIMUM ON-STATE POWER DISSIPATION (SINUSOIDAL WAVEFORM)**




**MAXIMUM ALLOWABLE CASE TEMPERATURE (SINUSOIDAL WAVEFORM)**



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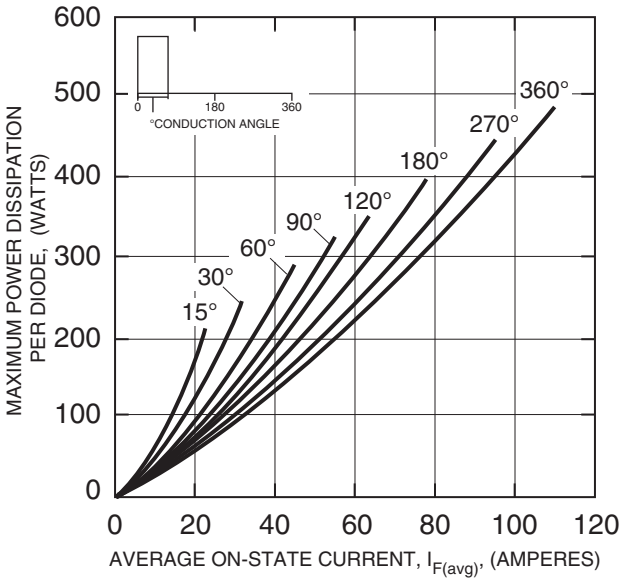
**MAXIMUM ON-STATE POWER DISSIPATION (RECTANGULAR WAVEFORM)**




**MAXIMUM ALLOWABLE CASE TEMPERATURE (RECTANGULAR WAVEFORM)**