

Fast Recovery Diode Module 100 Amperes/3300 Volts



Description:

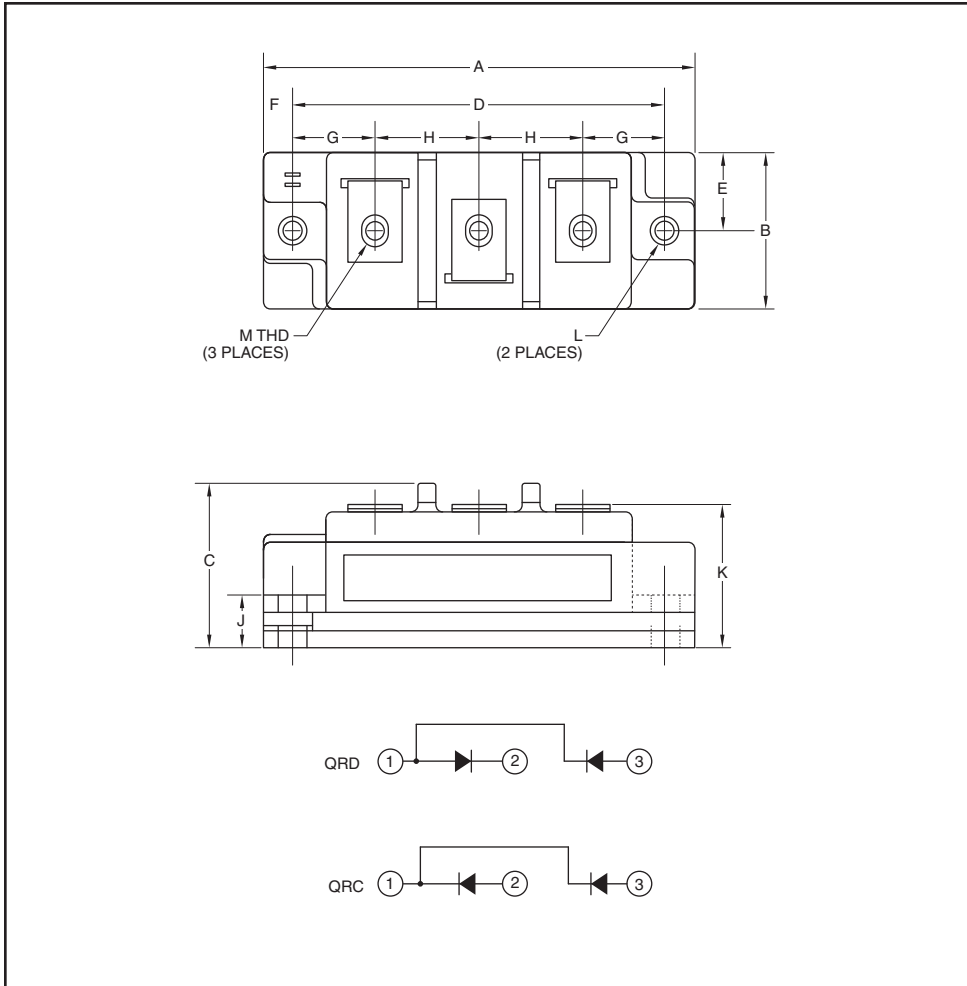
High voltage diodes feature highly insulating housings that offer enhanced protection by means of greater creepage and strike clearance distance for many demanding applications like medium voltage drives and auxiliary traction applications.

Features:

- Alumina Ceramic Substrate for Low Thermal Impedance
- Copper Baseplate
- Fast Recovery Time (1.2 μ s 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



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 |

QR_3310002
Fast Recovery Diode Module
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Absolute Maximum Ratings, $T_j = 25^\circ\text{C}$ unless otherwise specified

| Ratings | Symbol | QRD3310002 | QRC3310002 | Units |
|---|-------------|--------------------------|------------|------------------|
| Repetitive Peak Reverse Blocking Voltage | V_{RRM} | 3300 | | Volts |
| Non-Repetitive Peak Reverse Blocking Voltage | V_{RSM} | $V_{RRM} + 100$ | | Volts |
| Average Forward Current | $I_{F(av)}$ | $T_C = 80^\circ\text{C}$ | 60 | Amperes |
| | | $T_C = 25^\circ\text{C}$ | 90 | Amperes |
| Forward Current (Pulse) | I_{FM} | 200 | | Amperes |
| Operating Junction Temperature | T_j | -40 to 150 | | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -40 to 150 | | $^\circ\text{C}$ |
| 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, $T_j = 25^\circ\text{C}$ unless otherwise specified

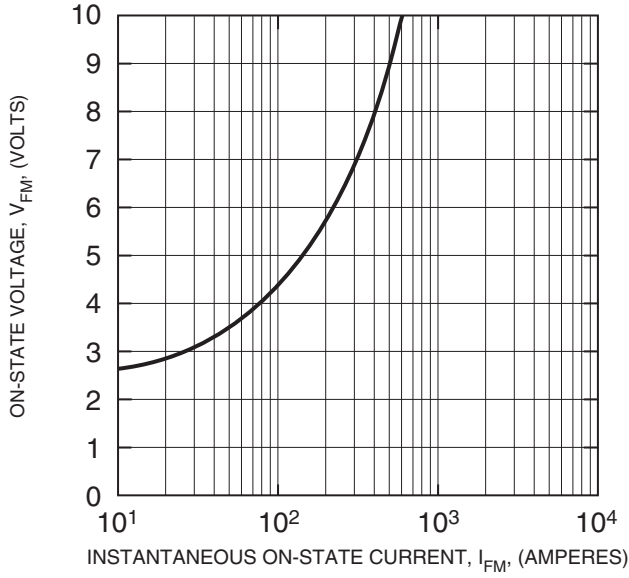
| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|------------------------------|-----------|--|------|------|------|---------------|
| Peak Reverse Leakage Current | I_{RRM} | Rated V_{RRM} | — | — | 5 | mA |
| Peak On-State Voltage | V_{FM} | $I_F = 100\text{A}$ | — | 3.3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

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

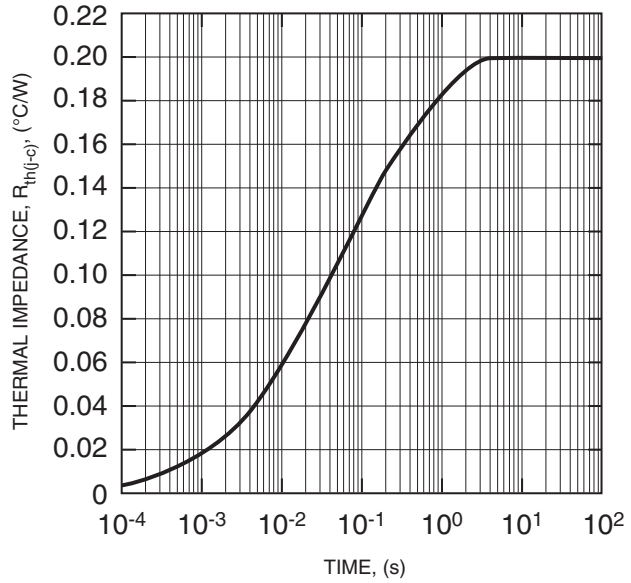
| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|---|----------------|-----------------|------|------|------|---------------------------|
| Thermal Resistance, Junction to Case | $R_{th(j-c)Q}$ | Per Diode | — | — | 0.20 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance,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

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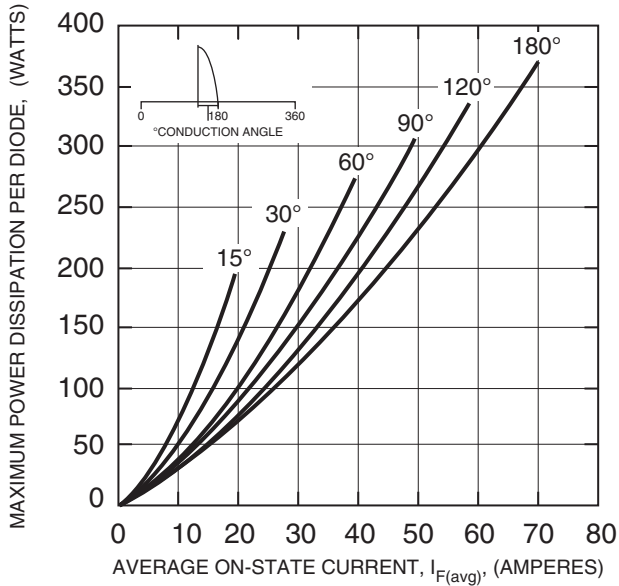
MAXIMUM ON-STATE FORWARD VOLTAGE DROP CHARACTERISTICS
 ($T_j = 150^\circ\text{C}$)



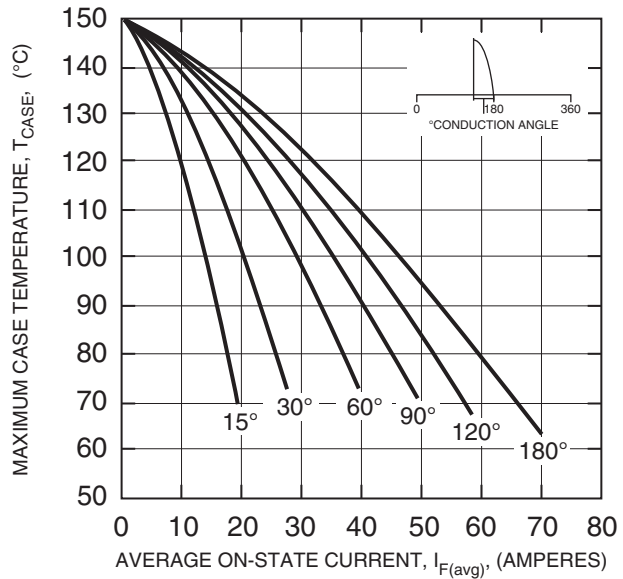
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS
 (JUNCTION TO CASE)



MAXIMUM ON-STATE POWER DISSIPATION
 (SINUSOIDAL WAVEFORM)



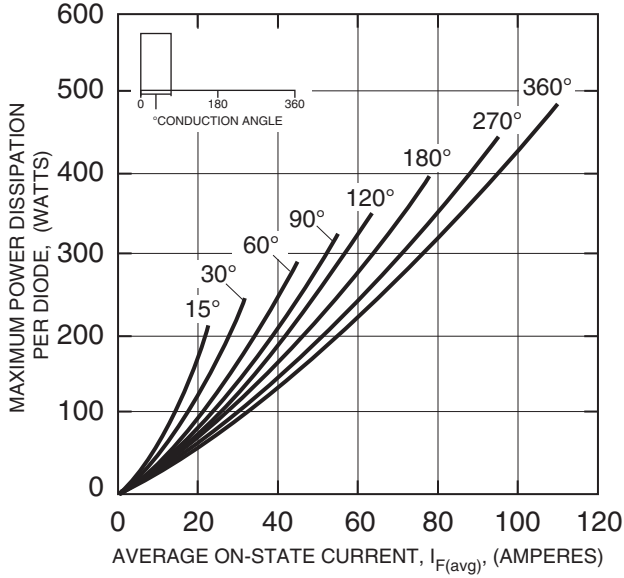
MAXIMUM ALLOWABLE CASE TEMPERATURE
 (SINUSOIDAL WAVEFORM)



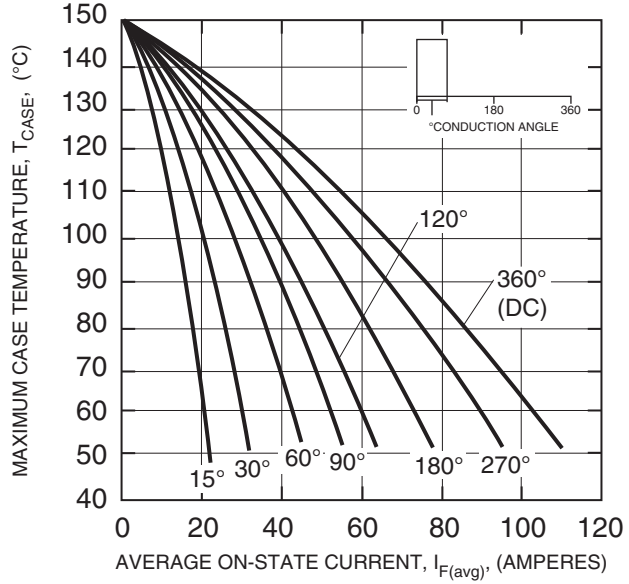
Information presented is based upon manufacturers testing and projected capabilities. This information is subject to change without notice. The manufacturer makes no claim as to the suitability of use, reliability, capability, or future availability of this product.

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



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



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