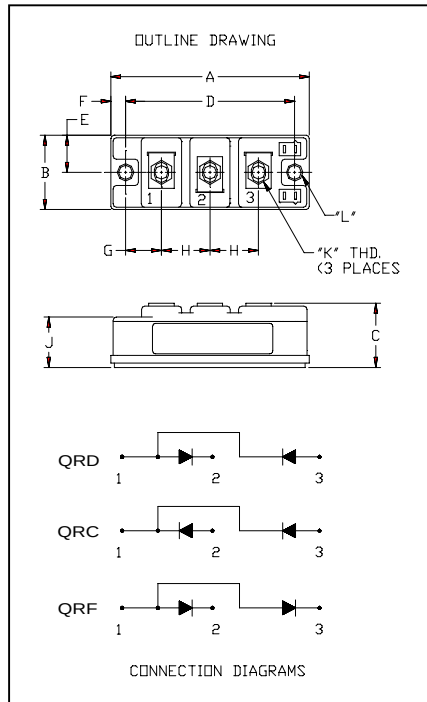
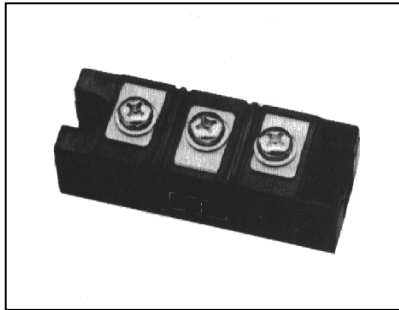


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724) 925-7272

### Fast Recovery Diode Module 400 Amp/600 Volts



### QR\_0640T30 Fast Recovery Diode Module 400 Amperes / 600 Volts

#### Description:

Powerex Fast Recovery Diode Modules are designed for use in applications requiring fast switching. 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

| Dimensions | Inches    | Millimeters |
|------------|-----------|-------------|
| A          | 3.70      | 94          |
| B          | 1.34      | 34          |
| C          | 1.18      | 30          |
| D          | 3.15      | 80          |
| E          | 0.67      | 17          |
| F          | 0.28      | 6.99        |
| G          | 0.67      | 17.1        |
| H          | 0.91      | 23          |
| J          | 0.91      | 23          |
| K          | M6X1.0    | M6X1.0      |
| L          | DIA 0.256 | DIA. 6.5    |



Preliminary

QR\_0640T30  
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**Fast Recovery Diode Module**  
**400 Amp/600 Volts**

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

|                                              |                                                          |                    | QRD0640T30             |                    |
|----------------------------------------------|----------------------------------------------------------|--------------------|------------------------|--------------------|
|                                              |                                                          |                    | QRC0640T30             |                    |
| Characteristics                              | Conditions                                               | Symbol             | QRF0640T30             | Units              |
| Repetitive Peak Reverse Blocking Voltage     | -                                                        | V <sub>RRM</sub>   | 600                    | Volts              |
| Non-Repetitive Peak Reverse Blocking Voltage | -                                                        | V <sub>RSM</sub>   | V <sub>RRM</sub> + 100 | Volts              |
| Average Forward Current                      | 180° Conduction, Tc=25°C                                 | I <sub>F(AV)</sub> | 400                    | Amperes            |
| Peak Half Cycle Non-Repetitive Surge Current | t = 8.3mS, 100%V <sub>RRM</sub> Reapplied                | I <sub>FSM</sub>   | 2400                   | Amperes            |
| I <sup>2</sup> t for Fusing for One Cycle    | t = 8.3mS, 100%V <sub>RRM</sub> Reapplied                | I <sup>2</sup> t   | 24000                  | A <sup>2</sup> sec |
| Operating Junction Temperature               | -                                                        | T <sub>J</sub>     | -40 to 150             | °C                 |
| Storage Temperature                          | -                                                        | T <sub>STG</sub>   | -40 to 150             | °C                 |
| Maximum Mounting Torque, M6 Mounting Screw   | -                                                        | -                  | 26                     | In.-lb.            |
| Maximum Terminal Torque, M6 Terminal Screw   | -                                                        | -                  | 26                     | In.-lb.            |
| Module Weight (Typical)                      | -                                                        | -                  | 220                    | Grams              |
| V Isolation                                  | 60 Hz, circuit to base, all terminals shorted, t = 1 sec | V <sub>RMS</sub>   | 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 $V_{RRM}$                                          | -    | -    | 1   | mA            |
| Peak On-State Voltage        | $V_{FM}$  | $I_F=400\text{A}$                                        | -    | -    | 2.8 | Volts         |
| Reverse Recovery Time        | $t_{rr}$  | $I_F = 400\text{A}$ , $di/dt = -800\text{A}/\mu\text{S}$ | -    | -    | 110 | ns            |
| Reverse Recovery Charge      | $Q_{rr}$  | $I_F = 400\text{A}$ , $di/dt = -800\text{A}/\mu\text{S}$ | -    | 1.08 | -   | $\mu\text{C}$ |

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

| Characteristics                             | Symbol          |            | Min. | Typ. | Max. | Units                          |
|---------------------------------------------|-----------------|------------|------|------|------|--------------------------------|
| Thermal Resistance, Junction to Case        | $R_{\theta JC}$ | Per Diode  | -    | -    | 0.18 | $^{\circ}\text{C}/\text{Watt}$ |
| Thermal Resistance, Case to Sink Lubricated | $R_{\theta CS}$ | Per Module | -    | -    | 0.04 | $^{\circ}\text{C}/\text{Watt}$ |

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