

**Description:**

Powerex Single and Dual Diode Modules are designed for use in applications requiring rectification and isolated packaging. The modules are isolated for easy mounting with other components on a common heatsink.

**Features:**

- Electrically Isolated Heatsinking
- Compression bonded construction
- Low Thermal Impedance for Improved Current Capability
- RoHS Compliant
- UL Recognized (E78240)

**Benefits:**

- No Additional Insulation Components Required
- Easy Installation
- No Clamping Components Required
- Reduce Engineering Time

**Applications:**

- Power Supplies
- Bridge Circuits
- AC & DC Motor Drives
- Battery Supplies
- Large IGBT Circuit Front Ends
- Welders

**Outline Dimensions**

| Dimension | Inches | Millimeters |
|-----------|--------|-------------|
| A         | 3.70   | 94          |
| B         | 1.34   | 34          |
| C         | 1.15   | 29.2        |
| D         | 3.15   | 80          |
| E         | 0.94   | 24          |
| F         | 0.91   | 23          |
| G         | 0.51   | 13          |
| H         | 0.35   | 9           |
| J         | M6     | M6          |
| K         | 0.24   | 6.2         |

Note: Dimensions are for reference only.

**Ordering Information:**

Select the complete nine digit module part number from the table below. Example: CD611616C is a 1600Volt, 160 Ampere Dual Diode Isolated POW-R-BLOK™ Module

| Type | Voltage Volts (x100) | Current Amperes | Version |
|------|----------------------|-----------------|---------|
| CD61 | 08                   | 16              | C       |
| CN61 | 12                   | (160 A)         |         |
| CC61 | 14                   |                 |         |
|      | 16                   |                 |         |
| CS61 | 18                   |                 |         |



**CD61\_\_16C, CS61\_\_16C**  
**CC61\_\_16C, CN61\_\_16C**

Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272  
<http://www.pwr.com>

**POW-R-BLOK™**  
**Single & Dual Diode Isolated Module**  
**160 Amperes / 800 to 1800 Volts**

**Absolute Maximum Ratings**

| Characteristics  | Conditions   | Symbol       |                 | Units             |
|--|--|--------------|-----------------|-------------------|
| Repetitive Peak Reverse Blocking Voltage                     |  | $V_{RRM}$    | up to 1800      | V                 |
| Non-Repetitive Peak Reverse Blocking Voltage<br>(t < 5 msec) |  | $V_{RSM}$    | $V_{RRM} + 200$ | V                 |
| RMS Forward Current  | 180° Conduction, $T_C=99^{\circ}C$                 | $I_{F(RMS)}$ | 250             | A                 |
| Average Forward Current                                      | 180° Conduction, $T_C=99^{\circ}C$                 | $I_{F(AV)}$  | 160             | A                 |
| Peak One Cycle Surge Current, Non-Repetitive                 | 50 Hz, 60% $V_{RRM}$ reapplied, $T_j=150^{\circ}C$ | $I_{FSM}$    | 6,000           | A                 |
| $I^2t$ for Fusing for One Cycle, 10 milliseconds             | 50 Hz, 60% $V_{RRM}$ reapplied, $T_j=150^{\circ}C$ | $I^2t$       | 184,000         | $A^2 \text{ sec}$ |
| Operating Temperature  |  | $T_J$        | -40 to +150     | $^{\circ}C$       |
| Storage Temperature  |  | $T_{stg}$    | -40 to +125     | $^{\circ}C$       |
| Max. Mounting Torque, M6 Mounting Screw on<br>Terminals      |  |              | 53<br>6         | in.-Lb.<br>Nm     |
| Max. Mounting Torque, Module to Heatsink                     |  |              | 53<br>6         | in.-Lb.<br>Nm     |
| Module Weight, Typical                                       |  |              | 320<br>0.71     | g<br>lb           |
| V Isolation @ 25C  | 50 – 60 Hz, 1 minute                               | $V_{rms}$    | 2500            | V                 |

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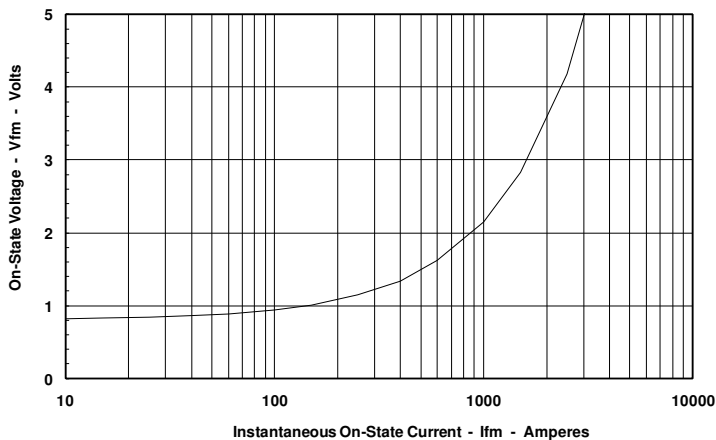
**Electrical Characteristics,  $T_J=25^\circ\text{C}$  unless otherwise specified**

| Characteristics                         | Symbol      | Test Conditions  | Min. | Max. | Units      |
|---|-------------|--|------|------|------------|
| Repetitive Peak Reverse Leakage Current | $I_{RRM}$   | Up to $V_{RRM}$ , $T_J=150^\circ\text{C}$  |      | 12   | mA         |
| Peak On-State Voltage                   | $V_{FM}$    | $I_{FM}=480\text{A}$   |      | 1.56 | V          |
| Threshold Voltage, Low-level            | $V_{(TO)1}$ | $T_J = 150^\circ\text{C}$ , $I = 16.7\% \times \pi I_{T(AV)}$ to $\pi I_{T(AV)}$ |      | 0.80 | V          |
| Slope Resistance, Low-level             | $r_{T1}$    |  |      | 1.35 | m $\Omega$ |

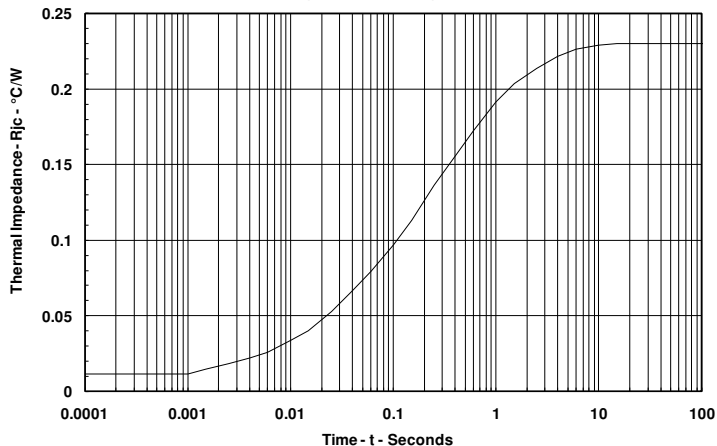
**Thermal Characteristics**

| Characteristics                                      | Symbol           | Test Conditions               | Max. | Units              |
|--|------------------|-------------------------------|------|--------------------|
| Thermal Resistance, Junction to Case<br>DC Operation | $R_{\theta J-C}$ | Per Junction, both conducting | 0.23 | $^\circ\text{C/W}$ |
| Thermal Resistance, Case to Sink Lubricated          | $R_{\theta C-S}$ | Per Module                    | 0.08 | $^\circ\text{C/W}$ |

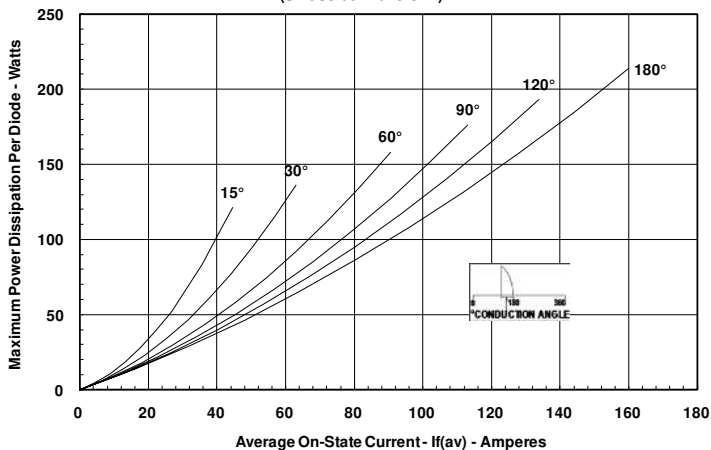
**Maximum On-State Forward Voltage Drop**  
 (T<sub>J</sub> = 150 °C)



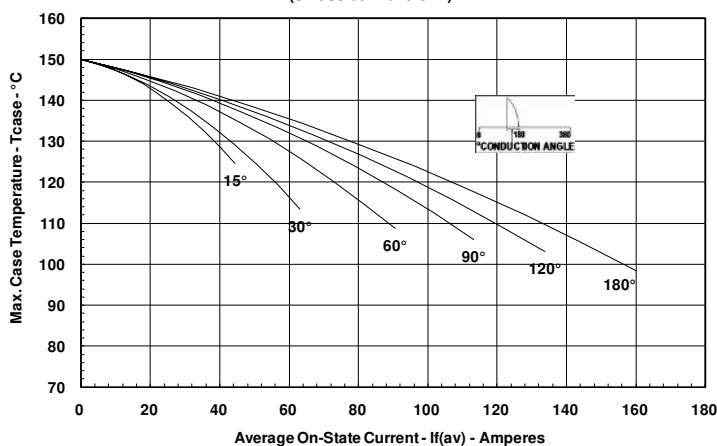
**Maximum Transient Thermal Impedance**  
 (Junction to Case)



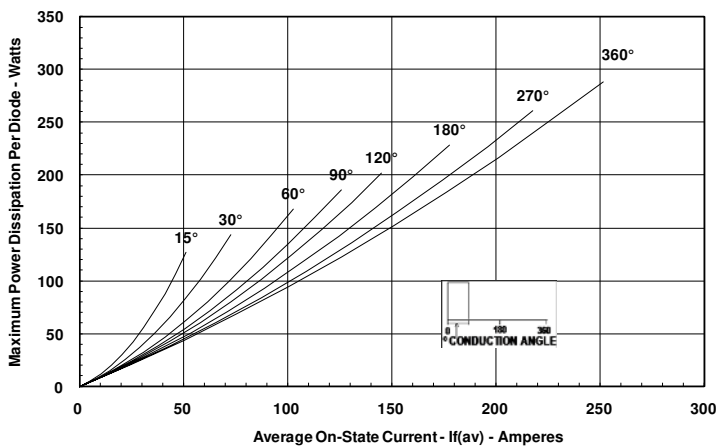
**Maximum On-State Power Dissipation**  
 (Sinusoidal Waveform)



**Maximum Allowable Case Temperature**  
 (Sinusoidal Waveform)



**Maximum On-State Power Dissipation**  
 (Rectangular Waveform)



**Maximum Allowable Case Temperature**  
 (Rectangular Waveform)

