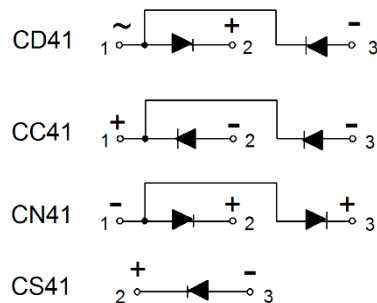
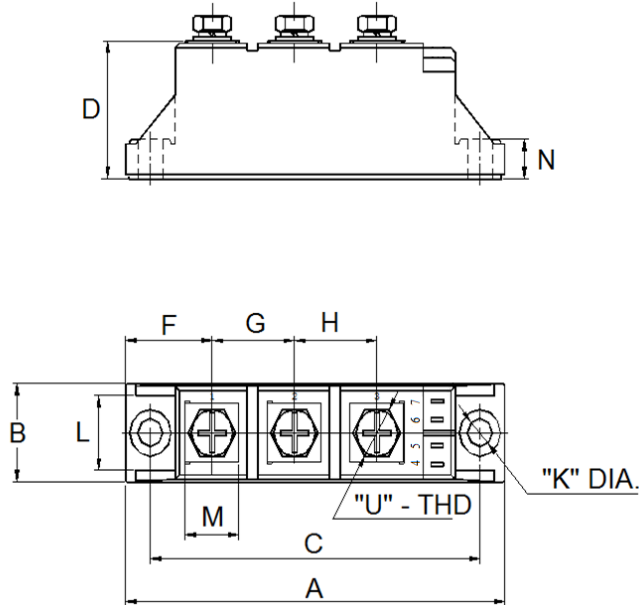


**POW-R-BLOK™****Single & Dual Diode Isolated Module  
100 Amperes / Up to 1800 Volts**

CONNECTION DIAGRAMS

**CD41\_\_99C, CS41\_\_99C,  
CC41\_\_99C, CN41\_\_99C**  
**Single & Dual Diode Isolated  
POW-R-BLOK™ Module**  
100 Amperes / Up to 1800 Volts**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
- Lighting Control
- Heat & Temperature Control
- Welders

**Outline Dimensions**

| Dimension | Inches | Millimeters |
|-----------|--------|-------------|
| A         | 3.62   | 92          |
| B         | 0.83   | 21          |
| C         | 3.15   | 80          |
| D         | 1.18   | 30          |
| F         | 0.83   | 21          |
| G         | 0.79   | 20          |
| H         | 0.79   | 20          |
| K         | 0.24   | 6.2         |
| L         | 0.63   | 16          |
| M         | 0.51   | 13          |
| N         | 0.33   | 8.5         |
| U         | M5     | M5          |

Note: Dimensions are for reference only.

**Ordering Information:**

Select the complete nine digit module part number from the table below.  
Example: CD411699C is a 1600Volt, 100 Ampere Dual Diode Isolated POW-R-BLOK™ Module

| Type | Voltage<br>Volts<br>(x100) | Current<br>Amperes | Version |
|------|----------------------------|--------------------|---------|
| CD41 | 08                         | 99                 | C       |
| CS41 | 12                         | (100 A)            |         |
| CC41 | 14                         |                    |         |
|      | 16                         |                    |         |
| CN41 | 18                         |                    |         |



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

**CD41\_\_99C, CS41\_\_99C**  
**CC41\_\_99C, CN41\_\_99C**

**POW-R-BLOK™**  
**Single & Dual Diode Isolated Module**  
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#### 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) |                                                           | $V_{RSM}$    | $V_{RRM} + 100$ | V                        |
| RMS Forward Current                                             | 180° Conduction, $T_C=104^{\circ}\text{C}$                | $I_{F(RMS)}$ | 157             | A                        |
| Average Forward Current                                         | 180° Conduction, $T_C=104^{\circ}\text{C}$                | $I_{F(AV)}$  | 100             | A                        |
| Peak One Cycle Surge Current, Non-Repetitive                    | 50 Hz, 60% $V_{RRM}$ reapplied, $T_J=150^{\circ}\text{C}$ | $I_{FSM}$    | 2,600           | A                        |
| $I^2t$ for Fusing for One Cycle, 10 milliseconds                | 50 Hz, 60% $V_{RRM}$ reapplied, $T_J=150^{\circ}\text{C}$ | $I^2t$       | 34,400          | $\text{A}^2 \text{ sec}$ |
| Operating Temperature                                           |                                                           | $T_J$        | -40 to +150     | $^{\circ}\text{C}$       |
| Storage Temperature                                             |                                                           | $T_{stg}$    | -40 to +150     | $^{\circ}\text{C}$       |
| Max. Mounting Torque, M5 Mounting Screw on<br>Terminals         |                                                           |              | 30<br>3.4       | in.-Lb.<br>Nm            |
| Max. Mounting Torque, Module to Heatsink                        |                                                           |              | 53<br>6         | in.-Lb.<br>Nm            |
| Module Weight, Typical                                          |                                                           |              | 160<br>5.64     | g<br>oz.                 |
| 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.



**CD41\_\_99C, CS41\_\_99C**  
**CC41\_\_99C, CN41\_\_99C**

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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 $V_{RRM}$ , $T_J=150^{\circ}\text{C}$                                        |      | 8    | mA         |
| Peak On-State Voltage                   | $V_{FM}$    | $I_{FM}=330\text{A}$                                                               |      | 1.55 | V          |
| Threshold Voltage, Low-level            | $V_{(TO)1}$ | $T_J = 150^{\circ}\text{C}$ , $I = 16.7\% \times \pi I_{T(AV)}$ to $\pi I_{T(AV)}$ |      | 0.8  | V          |
| Slope Resistance, Low-level             | $r_{T1}$    |                                                                                    |      | 1.74 | m $\Omega$ |

#### Thermal Characteristics

| Characteristics                                      | Symbol           |                               | Max. | Units                |
|------------------------------------------------------|------------------|-------------------------------|------|----------------------|
| Thermal Resistance, Junction to Case<br>DC Operation | $R_{\theta J-C}$ | Per Junction, both conducting | 0.35 | $^{\circ}\text{C/W}$ |
| Thermal Resistance, Case to Sink Lubricated          | $R_{\theta C-S}$ | Per Module                    | 0.15 | $^{\circ}\text{C/W}$ |



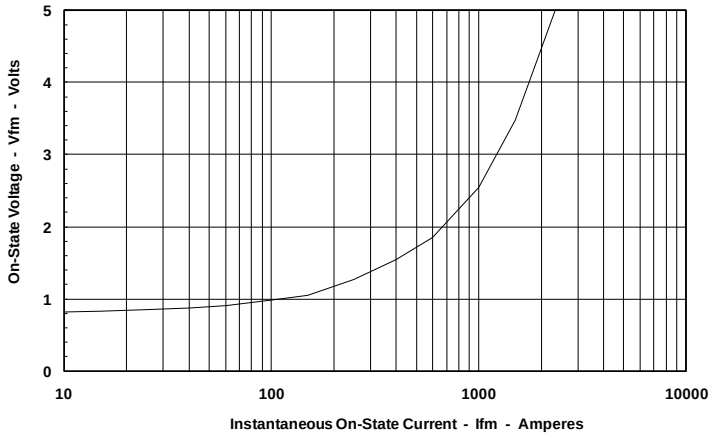
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<http://www.pwr.com>

CD41 99C, CS41 99C  
CC41 99C, CN41 99C

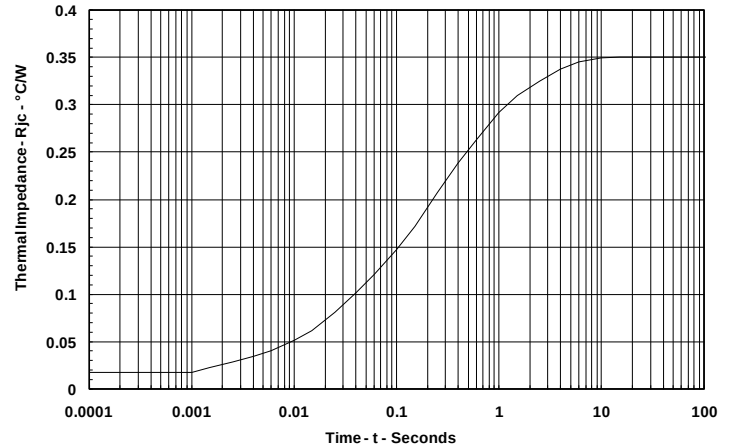
POW-R-BLOK™

Single & Dual Diode Isolated Module  
100 Amperes / Up to 1800 Volts

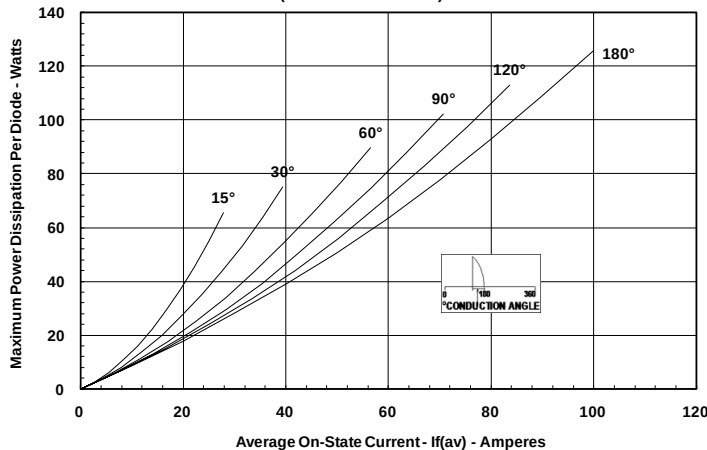
Maximum On-State Forward Voltage Drop  
( $T_j = 150^\circ\text{C}$ )



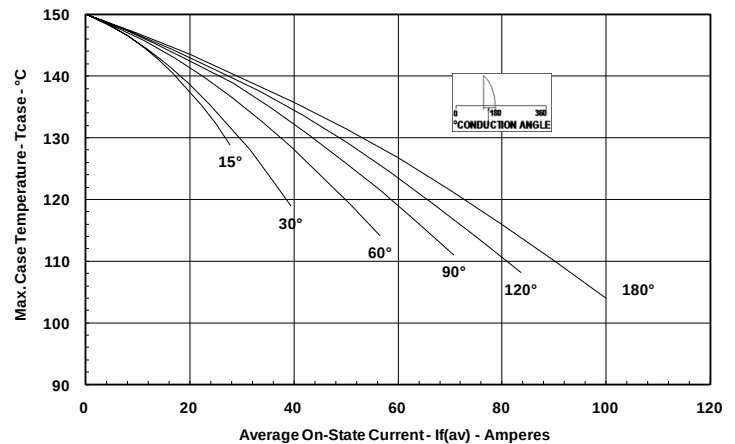
Maximum Transient Thermal Impedance  
(Junction to Case)



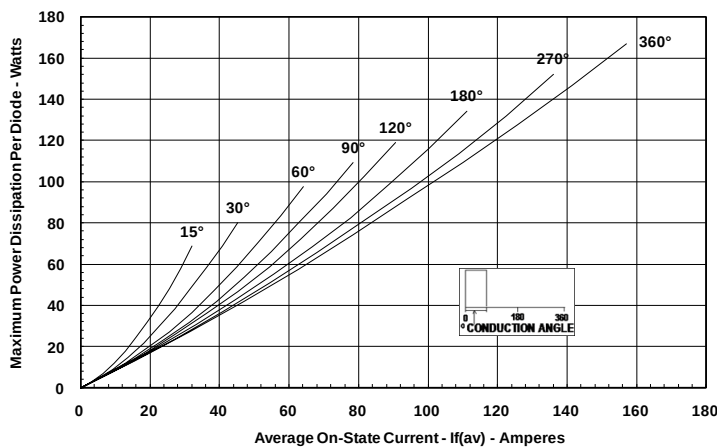
Maximum On-State Power Dissipation  
(Sinusoidal Waveform)



Maximum Allowable Case Temperature  
(Sinusoidal Waveform)



Maximum On-State Power Dissipation  
(Rectangular Waveform)



Maximum Allowable Case Temperature  
(Rectangular Waveform)

