

**CD61\_\_16B, CS61\_\_16B  
CN61\_\_16B, CC61\_\_16B**  
**Dual & Single Diode Isolated  
POW-R-BLOK™ Module**  
160 Amperes / Up to 2200 Volts

**Description:**

Powerex Dual Diode & Single 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. *POW-R-BLOK™* has been tested and recognized by the Underwriters Laboratories.

**Features:**

- Electrically Isolated Heatsinking
- DBC Alumina Insulator
- Glass Passivated Chips
- Metal Baseplate
- Low Thermal Impedance for Improved Current Capability
- UL Recognition Pending

**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

**Ordering Information:**

Select the complete nine digit module part number from the table below.  
Example: CD611616B is a 1600 Volt, 160 Ampere Dual Diode Isolated *POW-R-BLOK™* Module

Type	Voltage Volts (x100)	Current Amperes (x 10)	Version
CD61	08	16	B
CC61	12		
CN61	14		
CS61	16		
	18		
	20		
	22		

**Outline Dimensions**

Dimension	Inches	Millimeters
A	3.70	94
B	1.34	34
C	1.18	30
D	3.15	80
E	0.67	17
F	0.91	23
G	0.51	13
H	0.33	8.3
J	M6	M6
K	0.25	6.4

Note: Dimensions are for reference only.

**Absolute Maximum Ratings**

Characteristics	Conditions	Symbol		Units
Repetitive Peak Reverse Blocking Voltage		$V_{RRM}$	up to 2200	V
Non-Repetitive Peak Reverse Blocking Voltage ( $t < 5$ msec)		$V_{RSM}$	$V_{RRM} + 100$	V
RMS Forward Current	180° Conduction, $T_C=109^\circ\text{C}$	$I_{F(RMS)}$	250	A
Average Forward Current	180° Conduction, $T_C=109^\circ\text{C}$	$I_{F(AV)}$	160	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I_{FSM}$	3,500	A
	60 Hz, 100% No $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I_{FSM}$	4,200	A
	50 Hz, 100% $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I_{FSM}$	3,350	A
	50 Hz, 100% No $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I_{FSM}$	4,000	A
$I^2t$ for Fusing for One Cycle	8.3ms, 100% $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I^2t$	52,000	$\text{A}^2 \text{ sec}$
	8.3ms, 100% No $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I^2t$	73,000	$\text{A}^2 \text{ sec}$
	10ms, 100% $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I^2t$	56,000	$\text{A}^2 \text{ sec}$
	10ms, 100% No $V_{RRM}$ reapplied, $T_J=150\text{C}$	$I^2t$	80,000	$\text{A}^2 \text{ sec}$
Operating Temperature		$T_J$	-40 to +150	$^\circ\text{C}$
Storage Temperature		$T_{stg}$	-40 to +150	$^\circ\text{C}$
Max. Mounting Torque, M6 Mounting Screw			35 - 50	in.-Lb.
			4 - 6	Nm
Max. Mounting Torque, M8 Terminal Screw			35 - 50	in.-Lb.
			4 - 6	Nm
Module Weight, Typical			165	g
			0.36	lb.
V Isolation @ 25C, $V_{rms}$ for 1 sec		$V_{rms}$	3000	V

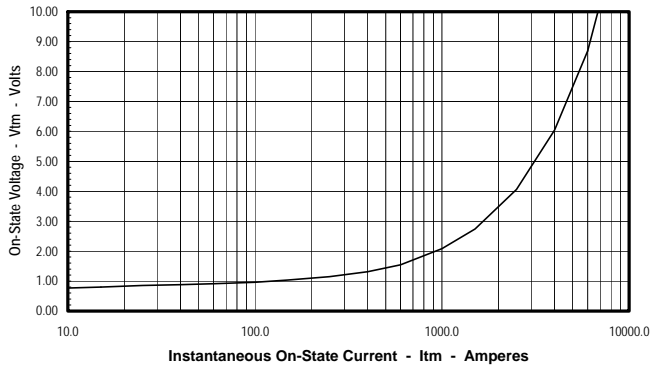
**Electrical Characteristics,  $T_J=25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Reverse Leakage Current	$I_{RRM}$	Up to 2200V, $T_J=150^\circ\text{C}$		20	mA
Peak On-State Voltage	$V_{FM}$	$I_{FM}=520\text{A}$ , 180 Deg Conduction		1.43	V
Threshold Voltage, Low-level	$V_{(TO)1}$	$T_J = 150^\circ\text{C}$ , $I = 16.7\% I_{F(AV)}$ to $I_{F(AV)}$		0.85	V
Slope Resistance, Low-level	$r_{T1}$			1.2	m $\Omega$

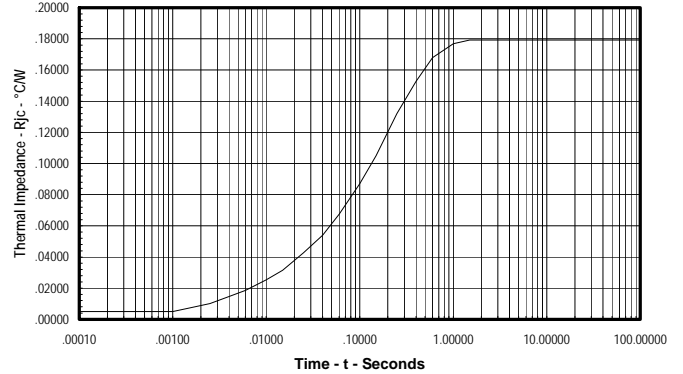
**Thermal Characteristics**

Characteristics	Symbol		Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta J-C}$	Per Module, both conducting Per Junction both conducting	0.09 0.18	$^\circ\text{C/W}$ $^\circ\text{C/W}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta C-S}$	Per Module	0.05	$^\circ\text{C/W}$

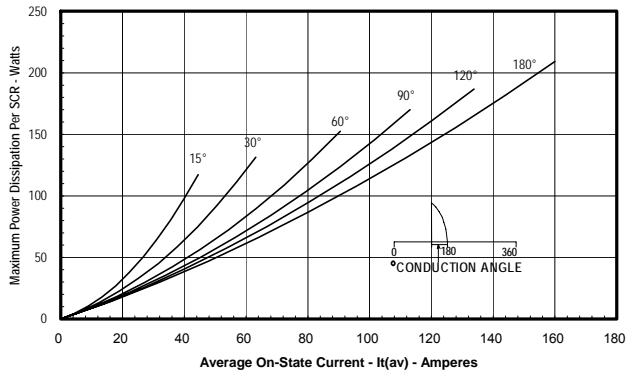
**Maximum On-State Forward Voltage Drop  
(T<sub>j</sub> = 150 °C)**



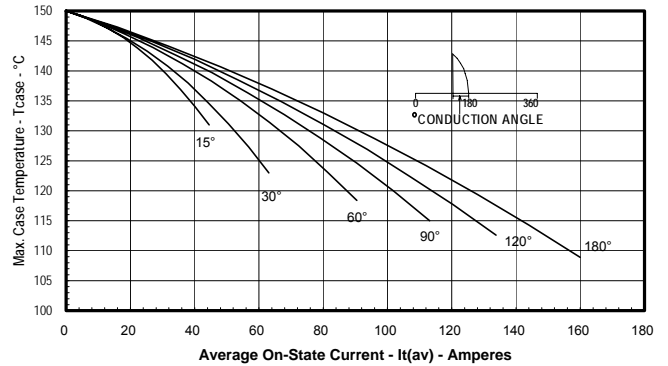
**Maximum Transient Thermal Impedance  
(Junction to Case)**



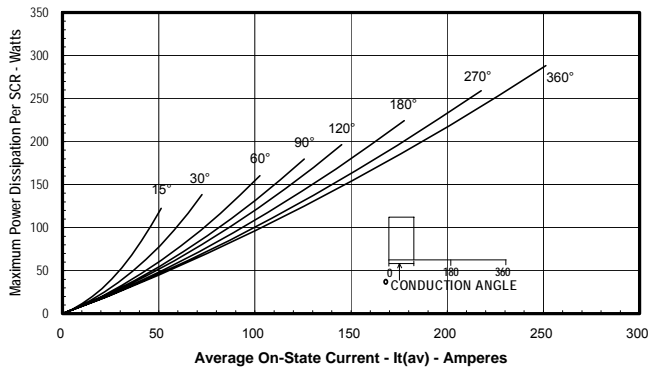
**Maximum On-State Power Dissipation  
(Sinusoidal Waveform)**



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



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



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

