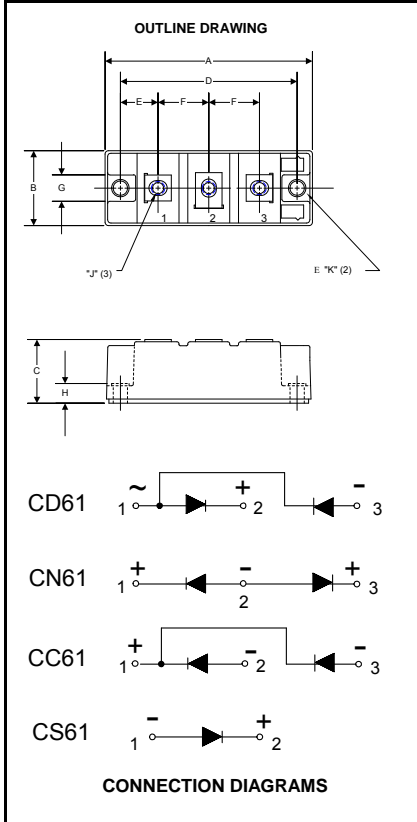


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (724) 925-7272  
www.pwr.com

**POW-R-BLOK™**  
**Dual & Single Diode Isolated Module**  
**160 Amperes / Up to 2200 Volts**



**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 Recognized (E78240)

**Benefits:**

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

**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

**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	1.18	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.

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



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**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, $T_C=109^{\circ}C$	$I_{F(RMS)}$	250	A
Average Forward Current	180° Conduction, $T_C=109^{\circ}C$	$I_{F(AV)}$	160	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% $V_{RRM}$ reapplied, $T_J=150C$	$I_{FSM}$	3,500	A
	60 Hz, 100% No $V_{RRM}$ reapplied, $T_J=150C$	$I_{FSM}$	4,200	A
	50 Hz, 100% $V_{RRM}$ reapplied, $T_J=150C$	$I_{FSM}$	3,350	A
	50 Hz, 100% No $V_{RRM}$ reapplied, $T_J=150C$	$I_{FSM}$	4,000	A
$I^2t$ for Fusing for One Cycle	8.3ms, 100% $V_{RRM}$ reapplied, $T_J=150C$	$I^2t$	52,000	$A^2 \text{ sec}$
	8.3ms, 100% No $V_{RRM}$ reapplied, $T_J=150C$	$I^2t$	73,000	$A^2 \text{ sec}$
	10ms, 100% $V_{RRM}$ reapplied, $T_J=150C$	$I^2t$	56,000	$A^2 \text{ sec}$
	10ms, 100% No $V_{RRM}$ reapplied, $T_J=150C$	$I^2t$	80,000	$A^2 \text{ sec}$
Operating Temperature		$T_J$	-40 to +150	$^{\circ}C$
Storage Temperature		$T_{stg}$	-40 to +150	$^{\circ}C$
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

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<sub>J</sub>=25°C unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Reverse Leakage Current	I <sub>RRM</sub>	Up to 2200V, T <sub>J</sub> =150°C		20	mA
Peak On-State Voltage	V <sub>FM</sub>	I <sub>FM</sub> =520A, 180 Deg Conduction		1.43	V
Threshold Voltage, Low-level	V <sub>(TO)1</sub>	T <sub>J</sub> = 150°C, I = 16.7% I <sub>F(AV)</sub> to I <sub>F(AV)</sub>		0.85	V
Slope Resistance, Low-level	r <sub>T1</sub>			1.2	mΩ

**Thermal Characteristics**

Characteristics	Symbol		Max.	Units
Thermal Resistance, Junction to Case	R <sub>θJ-C</sub>	Per Module, both conducting	0.09	°C/W
		Per Junction both conducting	0.18	°C/W
Thermal Resistance, Case to Sink Lubricated	R <sub>θC-S</sub>	Per Module	0.05	°C/W

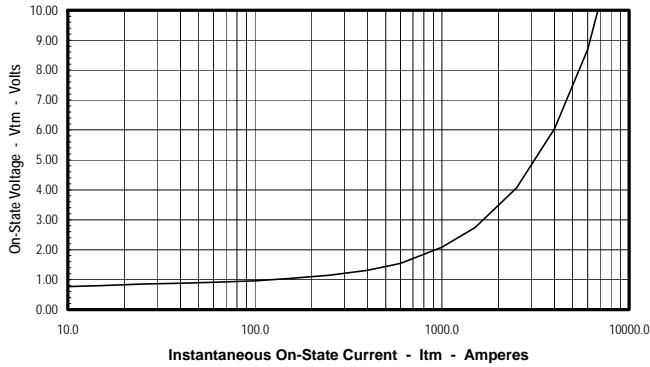


**CD61\_\_16B, CS61\_\_16B  
CN61\_\_16B, CC61\_\_16B**

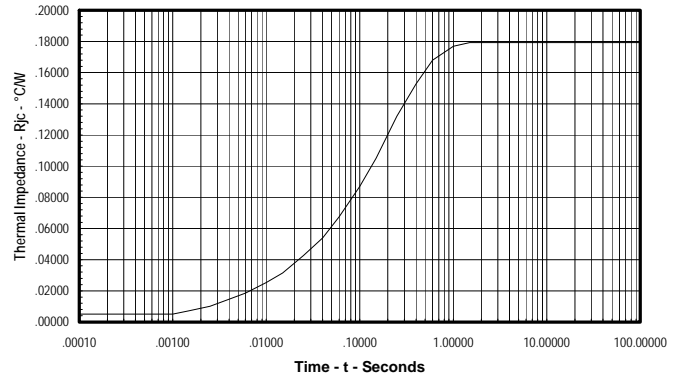
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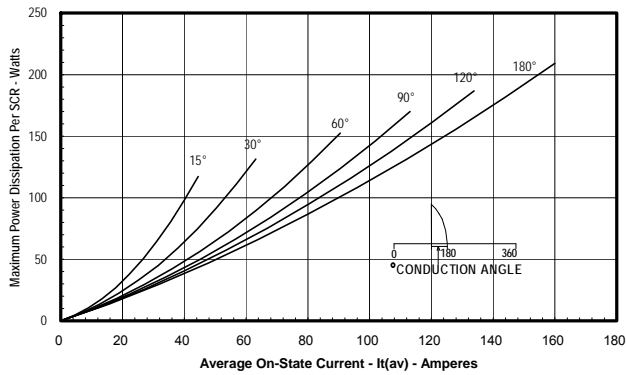
**Maximum On-State Forward Voltage Drop**  
( $T_j = 150^\circ\text{C}$ )



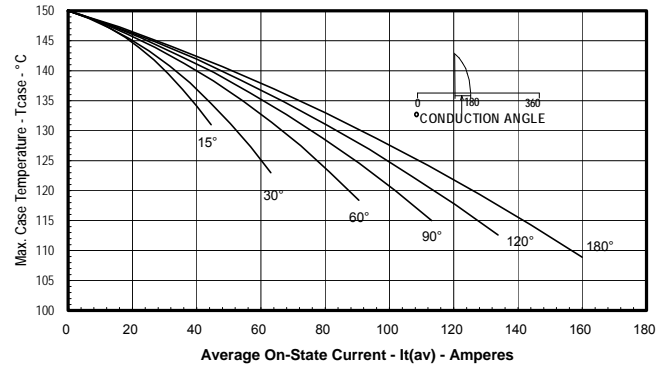
**Maximum Transient Thermal Impedance**  
(Junction to Case)



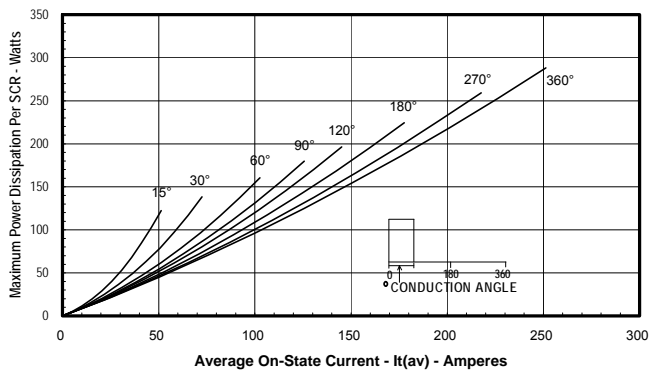
**Maximum On-State Power Dissipation**  
(Sinusoidal Waveform)



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



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



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

