

**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: CD612216C is a 2200Volt, 160 Ampere Dual Diode Isolated POW-R-BLOK™ Module

Type	Voltage Volts (x100)	Current Amperes	Version
CD61	20	16	C
CN61	22	(160 A)	
CC61	24		
CS61	25		



**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 / 2000 to 2500 Volts**

**Absolute Maximum Ratings**

Characteristics	Conditions	Symbol		Units
Repetitive Peak Reverse Blocking Voltage		$V_{RRM}$	2000 to 2500	V
Non-Repetitive Peak Reverse Blocking Voltage (t < 5 msec)		$V_{RSM}$	$V_{RRM} +100$	V
RMS Forward Current	180° Conduction, $T_C=95^{\circ}C$	$I_{F(RMS)}$	250	A
Average Forward Current	180° Conduction, $T_C=95^{\circ}C$	$I_{F(AV)}$	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 <sup>2</sup> sec
Operating Temperature		$T_J$	-40 to +150	°C
Storage Temperature		$T_{stg}$	-40 to +125	°C
Max. Mounting Torque, M6 Mounting Screw on Terminals			53 6	in.-Lb. Nm
Max. Mounting Torque, Module to Heatsink			53 6	in.-Lb. Nm
Module Weight, Typical			320 0.71	g lb
V Isolation @ 25C	50 – 60 Hz, 1 minute 50 – 60 Hz, 1 second	$V_{rms}$	2500 3000	V 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.



**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 / 2000 to 2500 Volts**

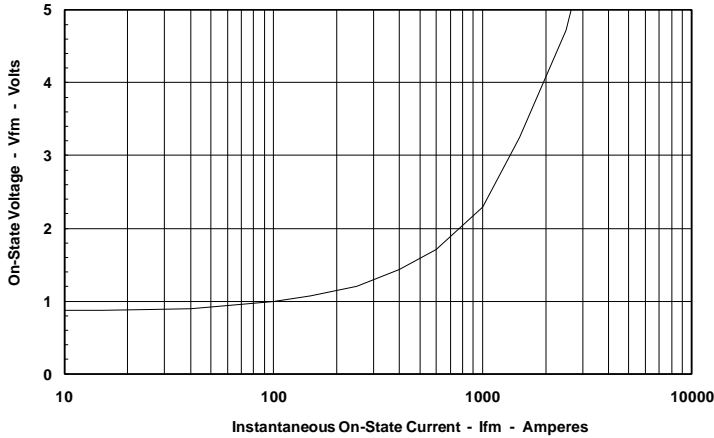
**Electrical Characteristics,  $T_J=25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Reverse Leakage Current	$I_{RRM}$	Up to $V_{RRM}$ , $T_J=150^\circ\text{C}$		14	mA
Peak On-State Voltage	$V_{FM}$	$I_{FM}=480\text{A}$		1.66	V
Threshold Voltage, Low-level	$V_{(TO)1}$	$T_J = 150^\circ\text{C}$ , $I = 16.7\% \times \pi I_{T(AV)}$ to $\pi I_{T(AV)}$		0.85	V
Slope Resistance, Low-level	$r_{T1}$			1.45	$\text{m}\Omega$

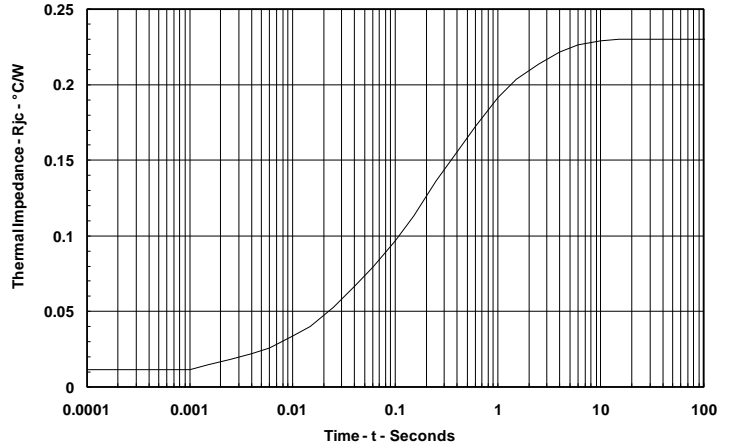
**Thermal Characteristics**

Characteristics	Symbol	Test Conditions	Max.	Units
Thermal Resistance, Junction to Case 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	$^\circ\text{C/W}$

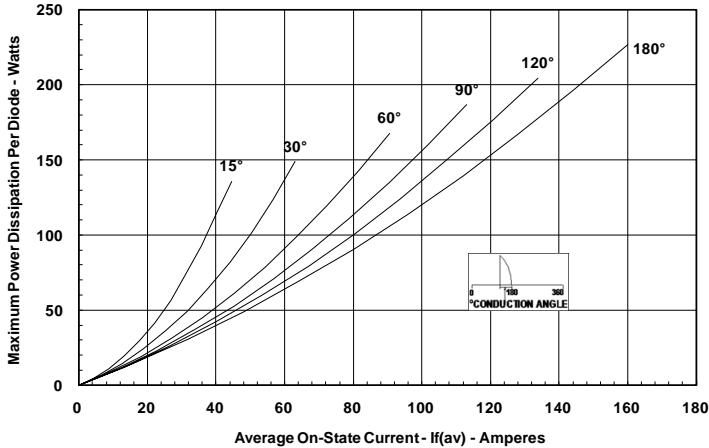
Maximum On-State Forward Voltage Drop  
 (T<sub>j</sub> = 150 °C)



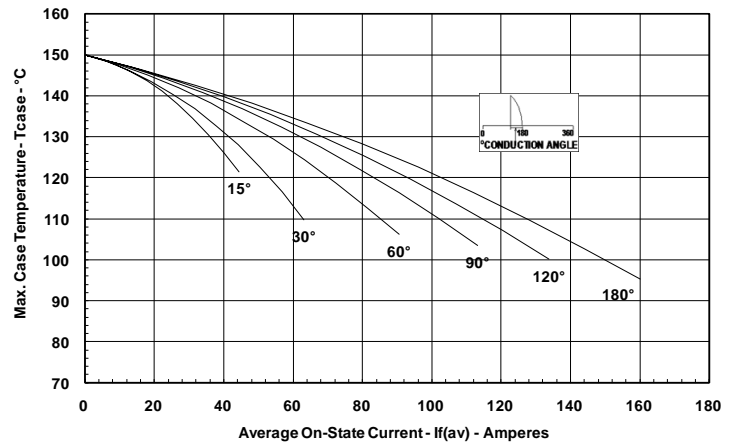
Maximum Transient Thermal Impedance  
 (Junction to Case)



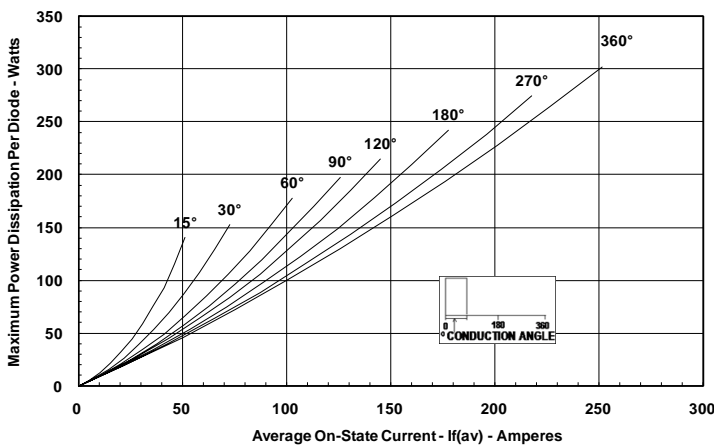
Maximum On-State Power Dissipation  
 (Sinusoidal Waveform)



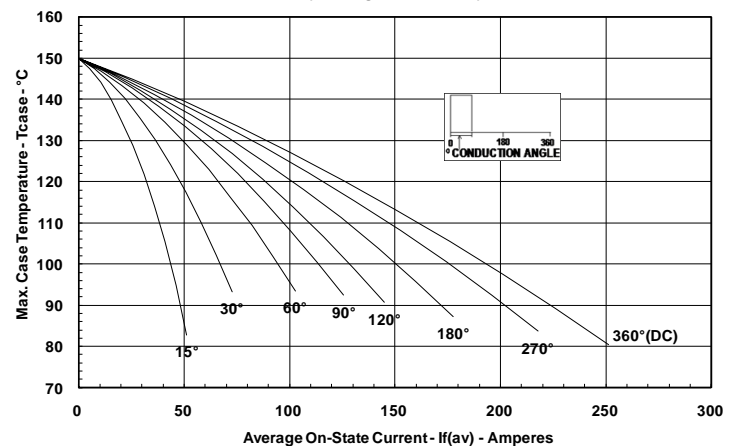
Maximum Allowable Case Temperature  
 (Sinusoidal Waveform)



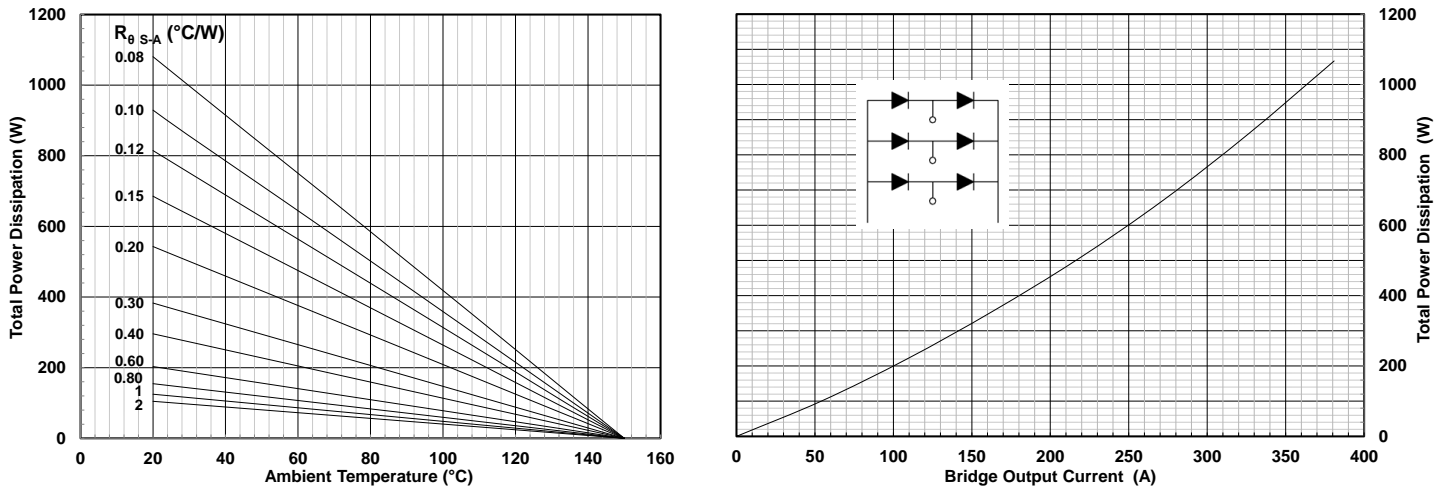
Maximum On-State Power Dissipation  
 (Rectangular Waveform)



Maximum Allowable Case Temperature  
 (Rectangular Waveform)



**6-Pulse Bridge Circuit Total Power Dissipation vs Maximum Rated Output Current**



**Six-Pulse Bridge Circuit Total Power Dissipation and Maximum Rated Output Current With Sink to Ambient Resistance of Heatsink as a Parameter.**