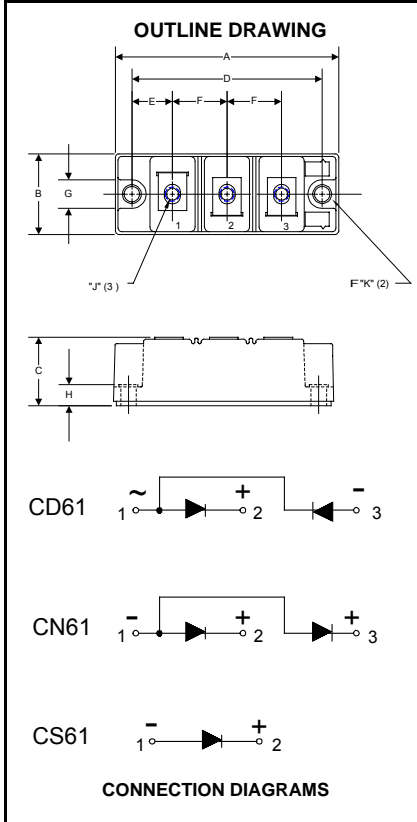


POW-R-BLOK™ Dual & Single Diode Isolated Module 160 Amperes / Up to 1600 Volts



**CD61__16A, CS61__16A
CN61__16A, CC61__16A
Dual & Single Diode Isolated
POW-R-BLOK™ Module
160 Amperes / Up to 1600 Volts**

Ordering Information:

Select the complete nine digit module part number from the table below.
Example: CD611616A is a 1600 Volt, 160 Ampere Dual Diode Isolated POW-R-BLOK™ Module

Type	Voltage Volts (x100)	Current Amperes (x10)
CD61	08	16
CN61	12	
CC61	14	
CS61	16	

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

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	1.38	35
C	1.18	30
D	3.15	80
E	0.67	17
F	0.91	23
G	0.57	14.5
H	0.35	9
J	M6	M6
K	0.26	6.5

Note: Dimensions are for reference only.



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

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160 Amperes / Up to 1600 Volts

Absolute Maximum Ratings

Characteristics	Conditions	Symbol		Units
Repetitive Peak Reverse Blocking Voltage		V_{RRM}	up to 2000	V
Non-Repetitive Peak Reverse Blocking Voltage ($t < 5$ msec)		V_{RSM}	$V_{RRM} + 200$	V
RMS Forward Current	180° Conduction, $T_C=112^\circ\text{C}$	$I_{F(RMS)}$	408	A
Average Forward Current	180° Conduction, $T_C=112^\circ\text{C}$	$I_{F(AV)}$	260	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied	I_{FSM}	8000	A
Peak Three Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied	I_{FSM}	5750	A
Peak Ten Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied	I_{FSM}	4975	A
I^2t for Fusing for One Cycle, 8.3 milliseconds		I^2t	266,000	$\text{A}^2 \text{sec}$
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			45 5	in.-Lb. Nm
Max. Mounting Torque, M8 Terminal Screw			110 12	in.-Lb. Nm
Module Weight, Typical			840 1.85	g lb.
V Isolation @ 25C		V_{rms}	2500	V



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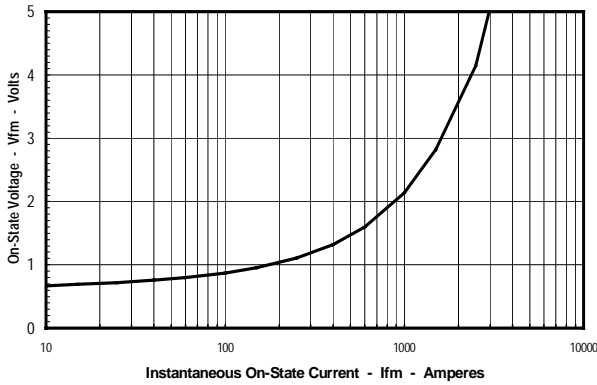
Electrical Characteristics, T_J=25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Reverse Leakage Current	I _{RRM}	Up to 2000V, T _J =150°C		50	mA
Peak On-State Voltage	V _{FM}	I _{FM} =1500A		1.35	V
Threshold Voltage, Low-level	V _{(TO)1}	T _J = 150°C, I = 15%I _{F(AV)} to I _{F(AV)}		0.764	V
Slope Resistance, Low-level	r _{T1}			0.360	mΩ
Threshold Voltage, High-level	V _{(TO)2}	T _J = 150°C, I = I _{F(AV)} to I _{FSM}		.710	V
Slope Resistance, High-level	r _{T2}			0.420	mΩ
V _{TM} Coefficients, Full Range		T _J = 150°C, I = 15%I _{F(AV)} to I _{FSM} V _{FM} = A + B Ln I + C I + D Sqrt I	A = B = C = D =	0.7140 0.0232 4.72 E-4 -6.71 E-3	
Diode Reverse Recovery Time (Typical)	t _{rr}	I _{fm} = 1500A, T _p = 190 μs di/dt = -25A/μs		10	μs

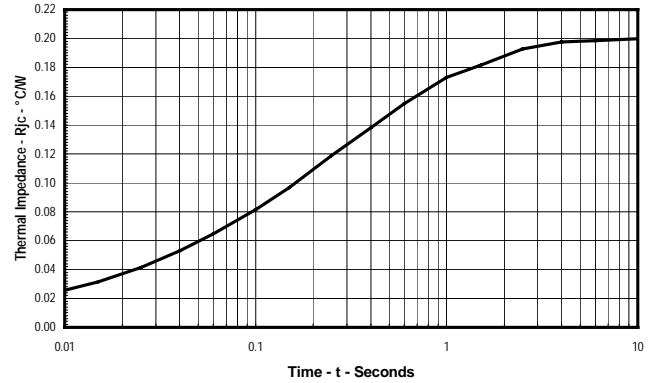
Thermal Characteristics

Characteristics	Symbol		Max.	Units
Thermal Resistance, Junction to Case	R _{ΘJ-C}	Per Module, both conducting Per Junction both conducting	0.07 0.14	°C/W °C/W
Thermal Impedance Coefficients	Z _{ΘJ-C}	Z _{ΘJ-C} = K ₁ (1-exp(-t/τ ₁)) + K ₂ (1-exp(-t/τ ₂)) + K ₃ (1-exp(-t/τ ₃)) + K ₄ (1-exp(-t/τ ₄))	K ₁ = 5.27E-3 K ₂ = 1.17E-2 K ₃ = 5.26E-2 K ₄ = 6.97E-2	τ ₁ = 1.69E-4 τ ₂ = 2.07E-2 τ ₃ = 2.37E-1 τ ₄ = 2.46
Thermal Resistance, Case to Sink Lubricated	R _{ΘC-S}	Per Module	0.03	°C/W

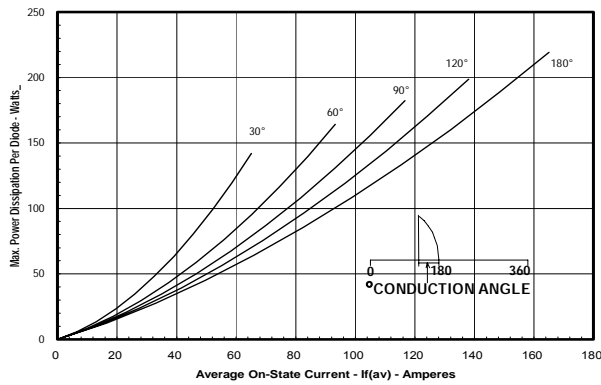
Maximum On-State Forward Voltage Drop
($T_j = 150^\circ\text{C}$)



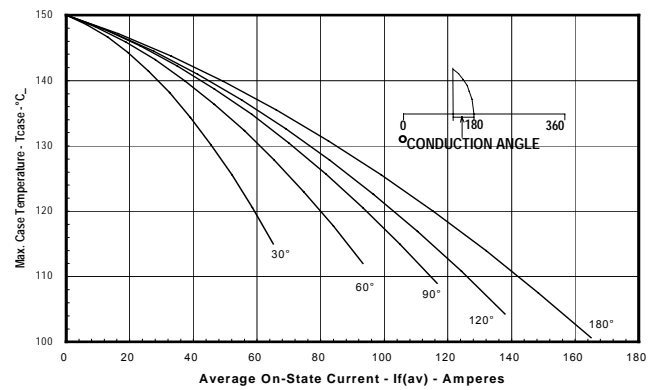
Maximum Transient Thermal Impedance
(Junction to Case, Per Diode)



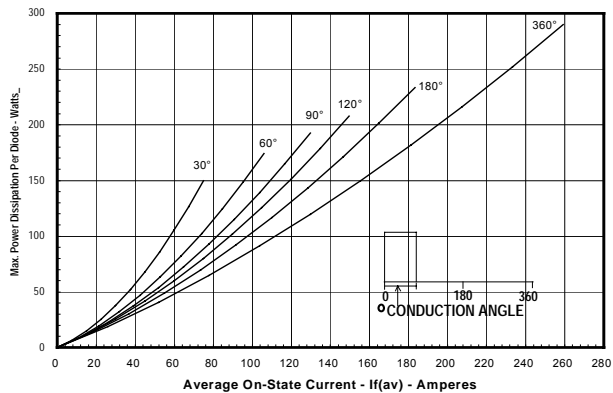
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)

