

**CD41__99C, CS41__99C,
 CC41__99C, CN41__99C**
**Single & Dual Diode Isolated
 POW-R-BLOK™ Module**
 100 Amperes / 2000 to 2500 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: CD412099C is a 2000Volt, 100 Ampere Dual Diode Isolated POW-R-BLOK™ Module

Type	Voltage Volts (x100)	Current Amperes	Version
CD41	20	99	C
CS41	22	(100 A)	
CC41	24		
CN41	25		



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

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Absolute Maximum Ratings

Characteristics	Conditions	Symbol		Units
Repetitive Peak Reverse Blocking Voltage		V_{RRM}	up to 2500	V
Non-Repetitive Peak Reverse Blocking Voltage (t < 5 msec)		V_{RSM}	$V_{RRM} + 100$	V
RMS Forward Current	180° Conduction, $T_C=101^{\circ}C$	$I_{F(RMS)}$	157	A
Average Forward Current	180° Conduction, $T_C=101^{\circ}C$	$I_{F(AV)}$	100	A
Peak One Cycle Surge Current, Non-Repetitive	50 Hz, 60% V_{RRM} reapplied, $T_j=150^{\circ}C$	I_{FSM}	2,600	A
I^2t for Fusing for One Cycle, 10 milliseconds	50 Hz, 60% V_{RRM} reapplied, $T_j=150^{\circ}C$	I^2t	34,400	$A^2 \text{ sec}$
Operating Temperature		T_J	-40 to +150	$^{\circ}C$
Storage Temperature		T_{stg}	-40 to +150	$^{\circ}C$
Max. Mounting Torque, M5 Mounting Screw on Terminals			35 4	in.-Lb. Nm
Max. Mounting Torque, Module to Heatsink			53 6	in.-Lb. Nm
Module Weight, Typical			160 5.64	g oz.
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.



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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} , $T_J=150^\circ\text{C}$		12	mA
Peak On-State Voltage	V_{FM}	$I_{FM}=330\text{A}$		1.65	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}			1.88	m Ω

Thermal Characteristics

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

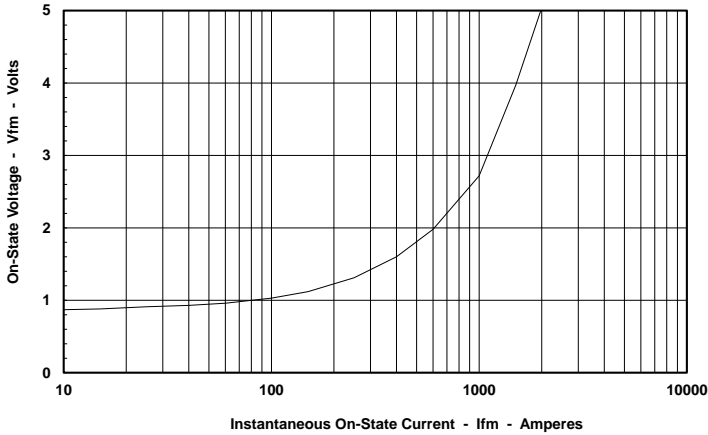


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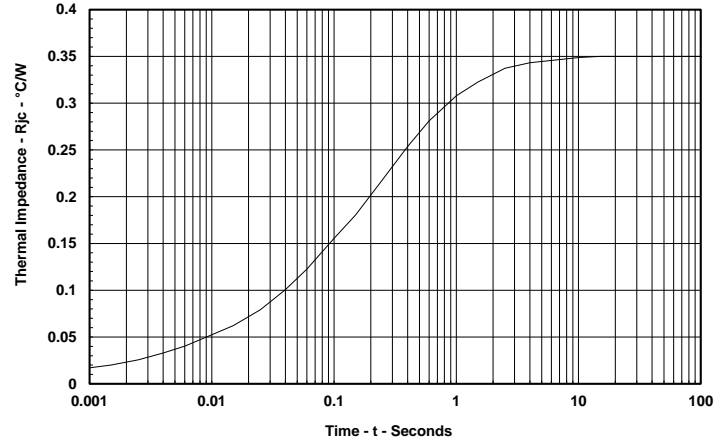
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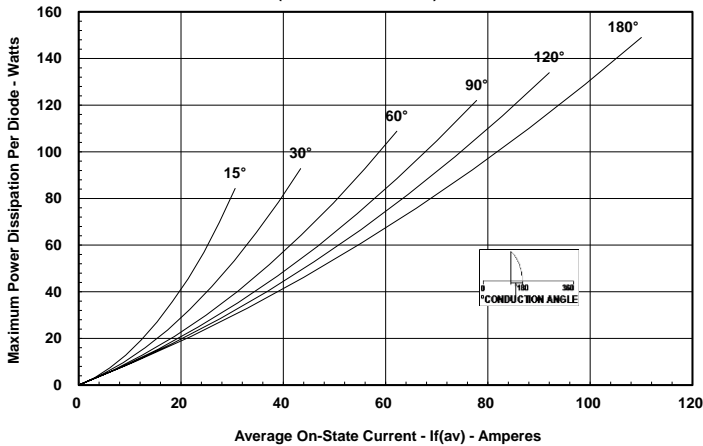
Maximum On-State Forward Voltage Drop
 (T_j = 150 °C)



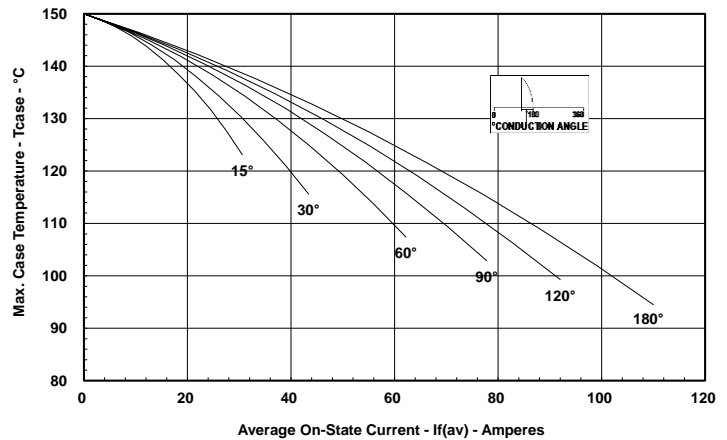
Maximum Transient Thermal Impedance
 (Junction to Case)



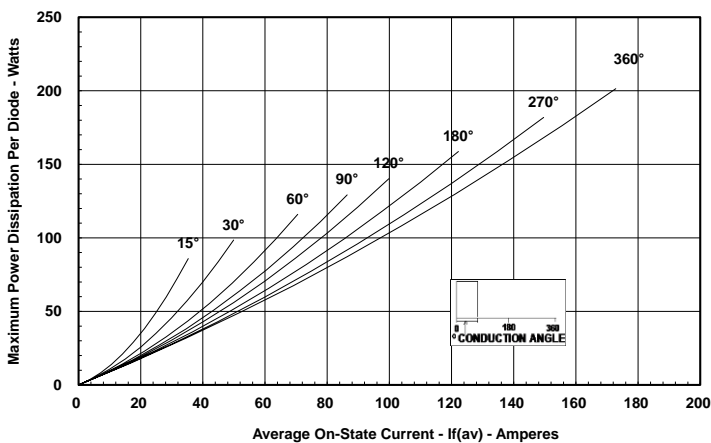
Maximum On-State Power Dissipation
 (Sinusoidal Waveform)



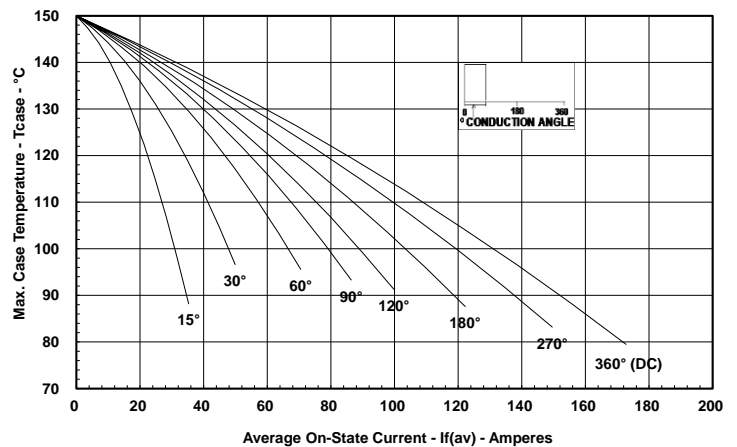
Maximum Allowable Case Temperature
 (Sinusoidal Waveform)



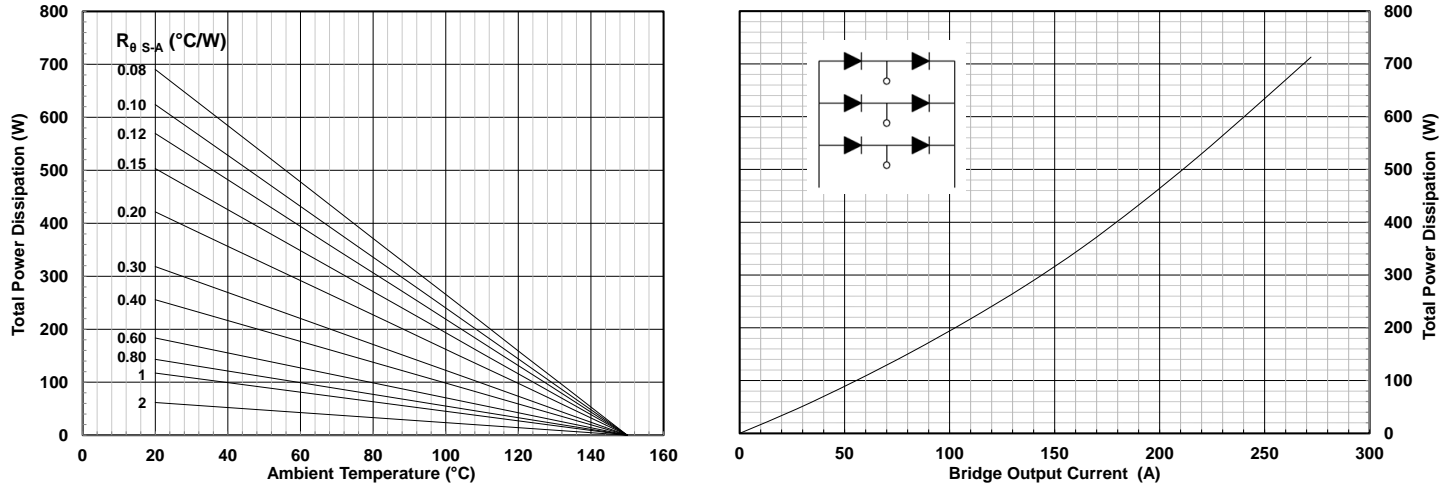
Maximum On-State Power Dissipation
 (Rectangular Waveform)



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.