

**CD41__99B, CS41__99B
CN41__99B, CC41__99B**
Dual & Single Diode Isolated
POW-R-BLOK™ Module
100 Amperes / Up to 1800 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 (Al₂O₃) Insulator
- Copper Baseplate
- Low Thermal Impedance for Improved Current Capability

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	3.66	93
B	0.79	20
C	3.15	80
D	1.18	30
F	0.61	15.5
G	0.79	20
H	0.79	20
M	1.16	29.4
N	0.31	8
P	0.94	24
T	0.25	6.4
U	M5	M5

Note: Dimensions are for reference only.

Ordering Information:

Select the complete nine digit module part number from the table below.
Example: CD411699B is a 1600 Volt, 100 Ampere Dual Diode Isolated *POW-R-BLOK™* Module

Type	Voltage Volts (x100)	Current Amperes	Version
CD41	08	99	B
CC41	12	(100 A)	
CN41	14		
	16		
CS41	18		



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

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Absolute Maximum Ratings

Characteristics	Conditions	Symbol		Units
Repetitive Peak Reverse Blocking Voltage		V_{RRM}	up to 1800	V
Non-Repetitive Peak Reverse Blocking Voltage		V_{RSM}	$V_{RRM} + 100$	V
(t < 5 msec)				
RMS Forward Current	DC Conduction, $T_C=90^\circ\text{C}$	$I_{F(RMS)}$	157	A
Average Forward Current	180° Conduction, $T_C=100^\circ\text{C}$	$I_{F(AV)}$	100	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I_{FSM}	1,780	A
	60 Hz, No V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I_{FSM}	2,110	A
	50 Hz, 100% V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I_{FSM}	1,700	A
	50 Hz, No V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I_{FSM}	2,020	A
I^2t for Fusing for One Cycle	8.3 ms, 100% V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I^2t	13,190	$\text{A}^2 \text{sec}$
	8.3 ms, No V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I^2t	18,650	$\text{A}^2 \text{sec}$
	10 ms, 100% V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I^2t	14,450	$\text{A}^2 \text{sec}$
	10 ms, No V_{RRM} reapplied, $T_J = 150^\circ\text{C}$	I^2t	20,430	$\text{A}^2 \text{sec}$
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 on Terminals			25	in. – Lb.
			3	Nm
Max. Mounting Torque, Module to Heatsink			44	in. – Lb.
			5	Nm
Module Weight, Typical			95	g
			3.35	Oz
V Isolation @ 25C	50-60 Hz, 1 second	V_{rms}	3500	V
Circuit To Base, All Terminals Shorted Together				



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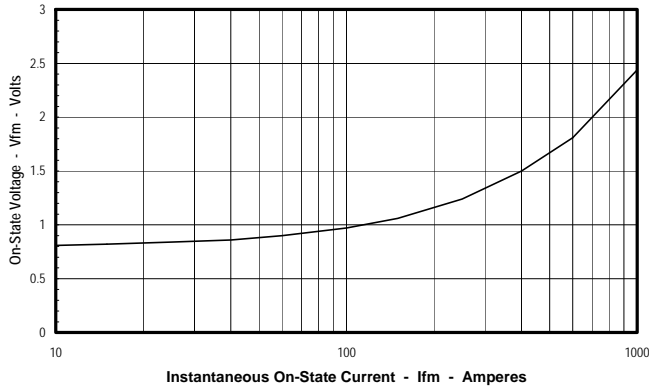
Electrical Characteristics, $T_J=25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Reverse Leakage Current	I_{RRM}	Up to 1800V, $T_J=150^\circ\text{C}$		10	mA
Peak On-State Voltage	V_{FM}	$T_J=25^\circ\text{C}$, $I_{FM}=300\text{A}$, 180° Conduction		1.35	V
Threshold Voltage, Low-level	$V_{(FO)1}$	$T_J = 150^\circ\text{C}$, $I = 16.7\% \times \pi I_{F(AV)}$ to $\pi I_{F(AV)}$		0.85	V
Slope Resistance, Low-level	r_{T1}			1.3	m Ω

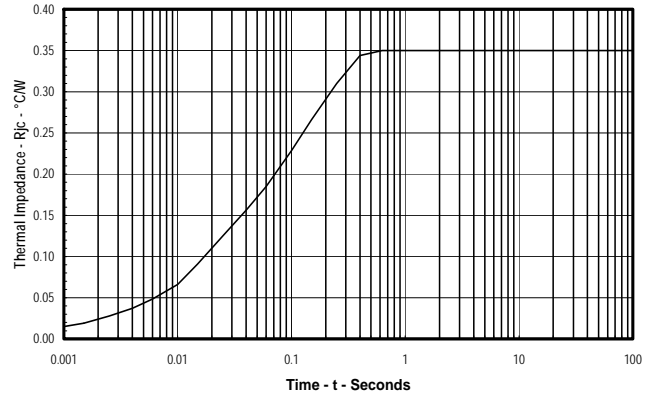
Thermal Characteristics

Characteristics	Symbol		Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta J-C}$	Per Module, both conducting	0.175	$^\circ\text{C/W}$
		Per Junction, both conducting	0.35	$^\circ\text{C/W}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta C-S}$	Per Module	0.1	$^\circ\text{C/W}$

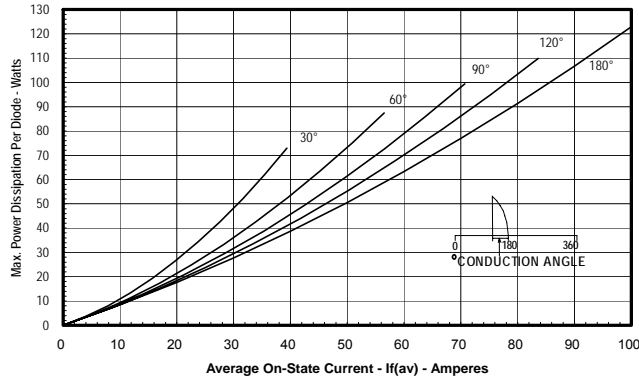
Maximum On-State Forward Voltage Drop
($T_j = 150^\circ\text{C}$)



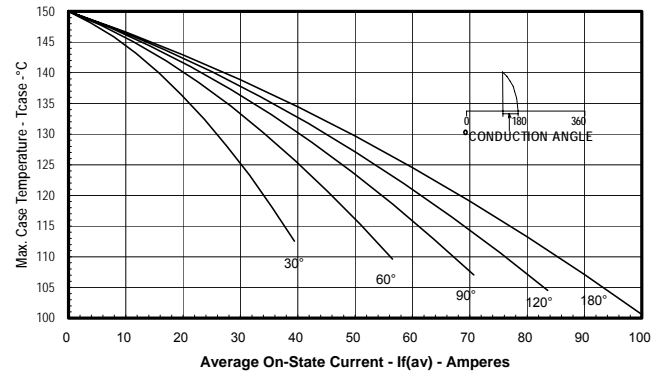
Maximum Transient Thermal Impedance
(Junction to Case)



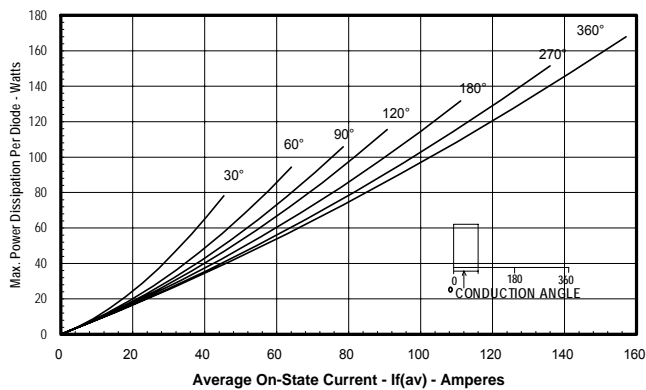
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)

