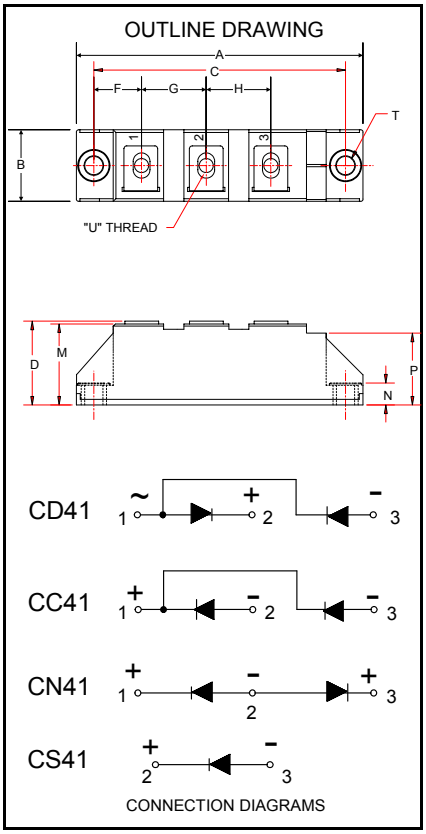
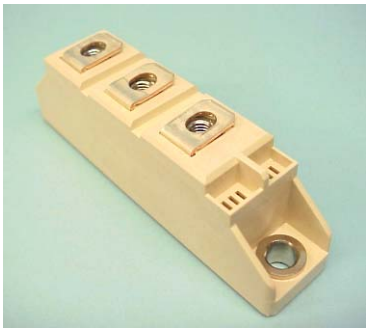
CD41__99B, CS41__99B
CN41__99B, CC41__99B

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

POW-R-BLOK™
Dual & Single Diode Isolated Module
100 Amperes / Up to 1800 Volts





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Dual & Single Diode Isolated
POW-R-BLOK™ Module
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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 (Al_2O_3) 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 CC41 CN41 CS41	08 12 14 16 18	99 (100 A)	B

Revision Date: 02/17/2005

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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 (t < 5 msec)		V_{RSM}	V_{RRM} + 100	V
RMS Forward Current	DC Conduction, T_C=90°C	$I_{F(RMS)}$	157	A
Average Forward Current	180° Conduction, T_C=100°C	$I_{F(AV)}$	100	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, T_J = 150°C	I_{FSM}	1,780	A
	60 Hz, No V_{RRM} reapplied, T_J = 150°C	I_{FSM}	2,110	A
	50 Hz, 100% V_{RRM} reapplied, T_J = 150°C	I_{FSM}	1,700	A
	50 Hz, No V_{RRM} reapplied, T_J = 150°C	I_{FSM}	2,020	A
I^2t for Fusing for One Cycle	8.3 ms, 100% V_{RRM} reapplied, T_J = 150°C	I^2t	13,190	A^2 sec
	8.3 ms, No V_{RRM} reapplied, T_J = 150°C	I^2t	18,650	A^2 sec
	10 ms, 100% V_{RRM} reapplied, T_J = 150°C	I^2t	14,450	A^2 sec
	10 ms, No V_{RRM} reapplied, T_J = 150°C	I^2t	20,430	A^2 sec
Operating Temperature		T_J	-40 to +150	°C
Storage Temperature		T_{stg}	-40 to +150	°C
Max. Mounting Torque, M6 Mounting Screw on Terminals			25 3	in. – Lb. Nm
Max. Mounting Torque, Module to Heatsink			44 5	in. – Lb. Nm
Module Weight, Typical			95 3.35	g Oz
V Isolation @ 25C Circuit To Base, All Terminals Shorted Together	50-60 Hz, 1 second	V_{rms}	3500	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 1800V, T_J=150°C		10	mA
Peak On-State Voltage	V_{FM}	T_J=25°C, I_{FM}=300A, 180° Conduction		1.35	V
Threshold Voltage, Low-level	$V_{(FO)1}$	T_J = 150°C, I = 16.7% x $\pi I_{F(AV)}$ to $\pi I_{F(AV)}$		0.85	V
Slope Resistance, Low-level	r_{T1}			1.3	mΩ

Thermal Characteristics

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

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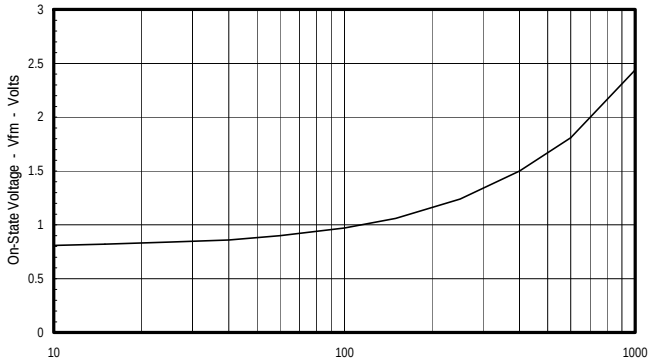
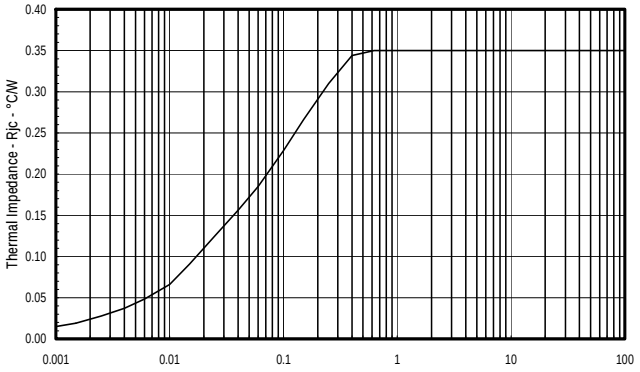
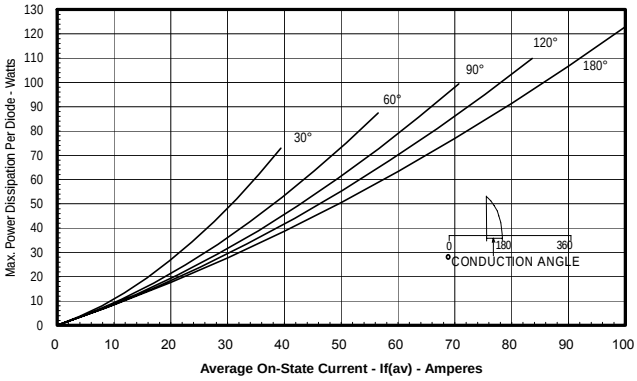
Maximum On-State Forward Voltage Drop
(Tj = 150 °C)



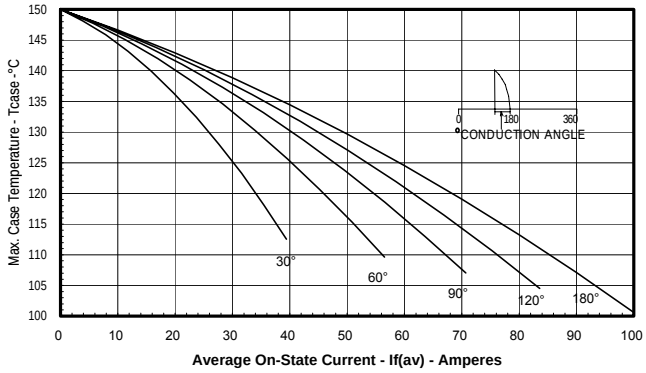
Maximum Transient Thermal Impedance
(Junction to Case)



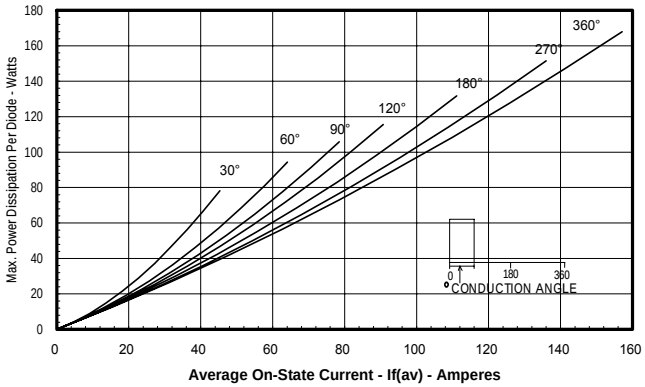
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



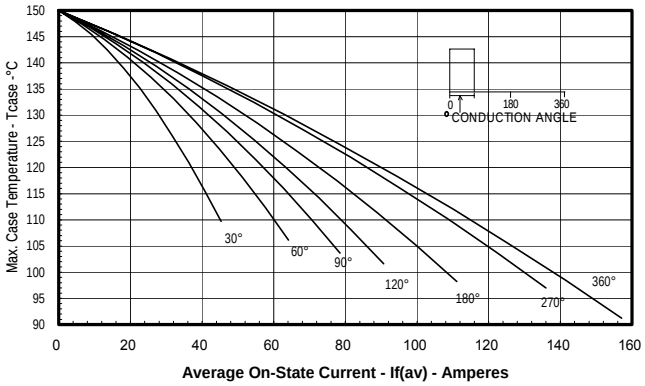
Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)



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