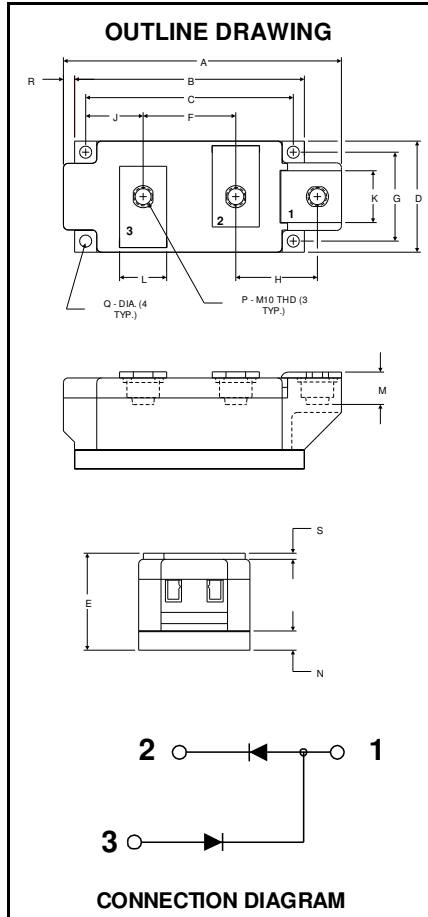


Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
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POW-R-BLOK[™] Dual Diode Isolated Module 600 Amperes / Up to 2600 Volts



LD41__60 Dual Diode POW-R-BLOK[™] Module 600 Amperes / 800-2600 Volts

LD41 Outline Dimensions

Dimension	Inches	Millimeters
A	5.91	150.0
B	4.88	124.0
C	4.41	112.0
D	2.36	60.0
E	2.05	52.0
F	1.97	50.0
G	1.89	48.0
H	1.73	44.0
J	1.22	31.0
K	1.10	28.0
L	1.00	25.4
M	0.69	17.5
N	0.39	10.0
P	M10 Metric	M10
Q	0.26 Dia.	6.5 Dia.
R	0.24	6.0
S	0.12	3.0
T	.110 x .032	2.5 x 0.8

Note: Dimensions are for reference only.

Ordering Information:

Select the complete eight-digit module part number from the table below.

Example: LD412460 is a 2400V, 600 Ampere Dual Diode Isolated POW-R-BLOK[™] Module.

Type	Voltage Volts (x100)	Current Amperes (x10)
LD41	08 10 12 to 26	60

Description:

Powerex 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. POW-R-BLOK[™] has been tested and recognized by the Underwriters Laboratories.

Features:

- Electrically Isolated Heatsinking
- Aluminum Nitride Isolator
- Compression Bonded Elements
- Metal Baseplate
- Low Thermal Impedance for Improved Current Capability
- UL Recognized

Benefits:

- No Additional Insulation Components Required
- Easy Installation
- No Clamping Components Required
- Reduce Engineering Time

Applications:

- Bridge Circuits
- AC & DC Motor Drives
- Battery Supplies
- Power Supplies
- Large IGBT Circuit Front Ends

Absolute Maximum Ratings

Characteristics	Conditions	Symbol	Units	
Repetitive Peak Reverse Blocking Voltage		V_{RRM}	up to 2600	V
Non-Repetitive Peak Reverse Blocking Voltage ($t < 5$ msec)		V_{RSM}	$V_{RRM} + 100$	V
RMS Forward Current		$I_{F(RMS)}$	950	A
Average Forward Current	180° Conduction, $T_C=106^{\circ}C$	$I_{F(AV)}$	600	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied	I_{FSM}	21000	A
	50 Hz, 100% V_{RRM} reapplied	I_{FSM}	19000	A
Peak Three Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied	I_{FSM}	15,500	A
Peak Ten Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied	I_{FSM}	13,000	A
I^2t for Fusing for One Cycle	8.3 milliseconds	I^2t	1,840,000	$A^2 \text{ sec}$
	10 milliseconds	I^2t	1,810,000	$A^2 \text{ sec}$
Operating Temperature		T_J	-40 to +150	$^{\circ}C$
Storage Temperature		T_{stg}	-40 to +150	$^{\circ}C$
Max. Mounting Torque, M6 Mounting Screw			55 6	in. – Lb. Nm
Max. Mounting Torque, M10 Terminal Screw			110 12	in. – Lb. Nm
Module Weight, Typical			1500 3.30	g lb
V Isolation @ 25C		V_{rms}	3000	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.

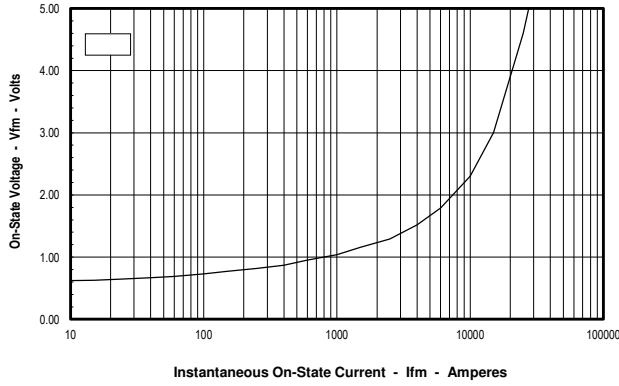
Electrical Characteristics, T_J=25 °C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Reverse Leakage Current	I _{RRM}	Up to 2600V, T _J =150 °C		40	mA
Peak On-State Voltage	V _{FM}	T _J =25 °C, I _{FM} =1500A		1.18	V
Threshold Voltage, Low-level	V _{(TO)1}	T _J = 150 °C, I = 15%I _{F(AV)} to 11I _{F(AV)}		0.747	V
Slope Resistance, Low-level	r _{T1}			0.243	mΩ
Threshold Voltage, High-level	V _{(TO)2}	T _J = 150 °C, I = 11I _{F(AV)} to I _{FSM}		0.914	V
Slope Resistance, High-level	r _{T2}			0.145	mΩ
V _{TM} Coefficients, Full Range		T _J = 150 °C, I = 15%I _{F(AV)} to I _{FSM}	A =	5.05E-01	
		V _{TM} = A+ B Ln I +C I + D Sqrt I	B =	3.44E-02	
			C =	8.13E-05	
			D =	6.57E-03	

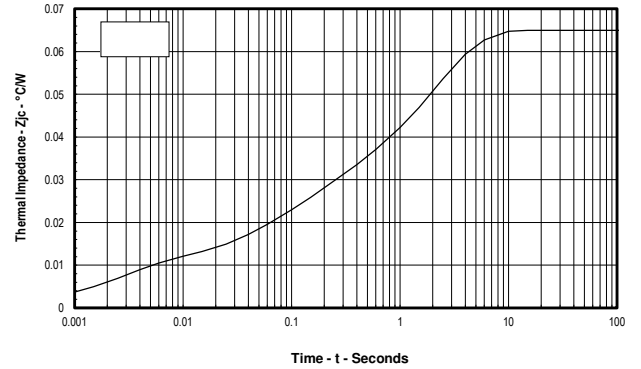
Thermal Characteristics

Characteristics	Symbol		Max.	Units
Thermal Resistance, Junction to Case	R _{ΘJ-C}	Per Module, both conducting	0.0325	°C/W
		Per Junction, both conducting	0.0650	°C/W
Thermal Impedance Coefficients	Z _{ΘJ-C}	Z _{ΘJ-C} = K ₁ (1-exp(-t/τ ₁))	K ₁ = 8.03E-04	τ ₁ = 3.39E-04
		+ K ₂ (1-exp(-t/τ ₂))	K ₂ = 1.03E-02	τ ₂ = 3.15E-03
		+ K ₃ (1-exp(-t/τ ₃))	K ₃ = 1.64E-02	τ ₃ = 1.06E-01
		+ K ₄ (1-exp(-t/τ ₄))	K ₄ = 3.75E-02	τ ₄ = 2.066
Thermal Resistance, Case to Sink Lubricated	R _{ΘC-S}	Per Module	0.01	°C/W

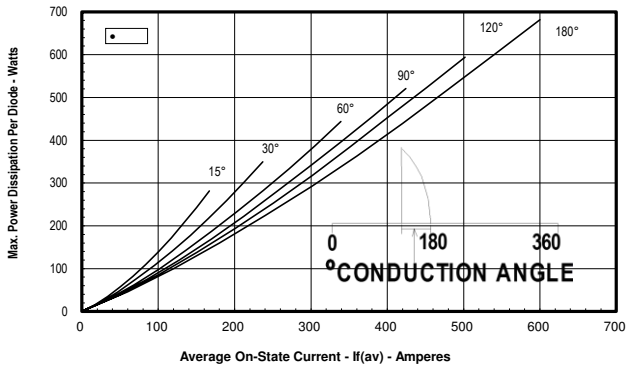
Maximum On-State Forward Voltage Drop
($T_j = 150\text{ }^\circ\text{C}$)



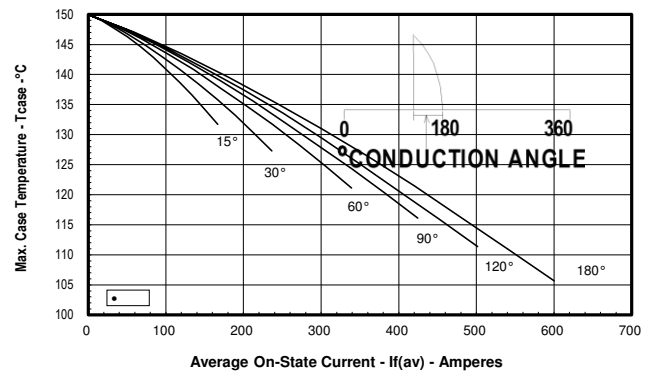
Maximum Transient Thermal Impedance
(Junction to Case)



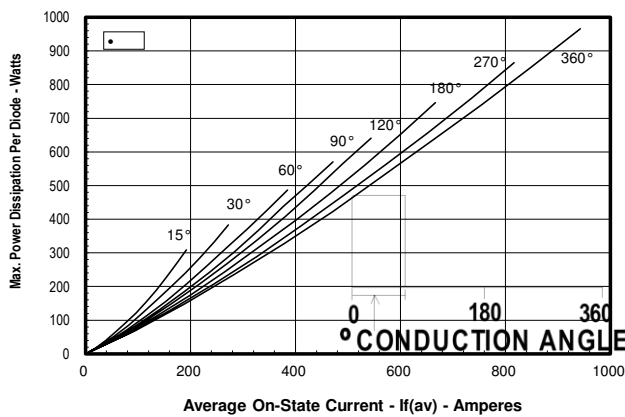
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



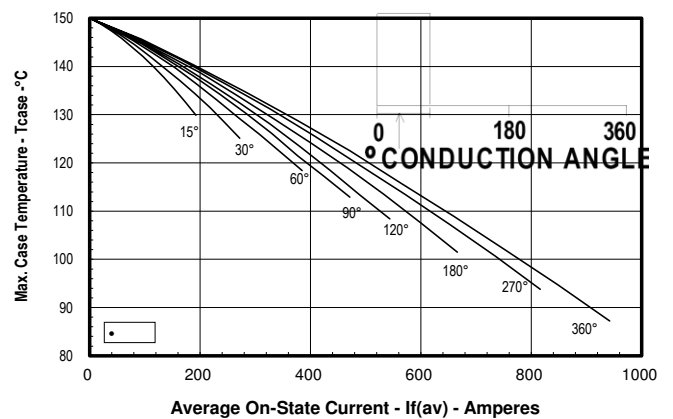
Maximum Allowable Case Temperature
(Sinusoidal Waveform)



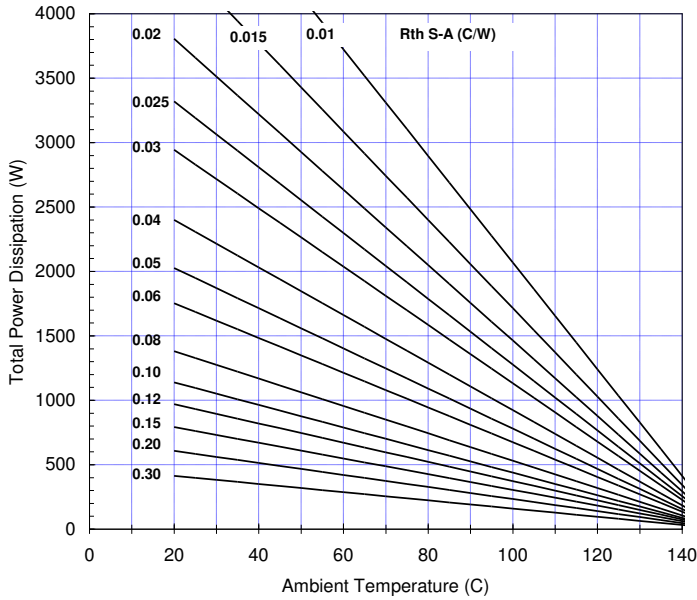
Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)



Powerex LD41--60 Pow-R-Blok 6-Pulse Bridge



Resistance of Heatsink as a Parameter.

Total Power Dissipation vs Maximum Rated Output Current

