Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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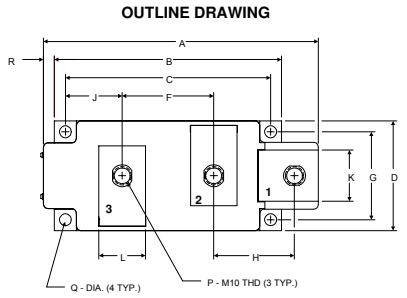
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (724) 925-7272

POW-R-BLOK™
Dual SCR Isolated Module
430 Amperes / 1800-2200 Volts



LD43__43
Dual SCR
POW-R-BLOK™ Module
430 Amperes / 1800-2200 Volts

LD43 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.

Description:
Powerex Dual SCR Modules are designed for use in applications requiring phase control 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

Ordering Information:
Select the complete eight-digit module part number from the table below.
Example: LD431843 is a 1800 Volt, 430 Ampere Dual SCR Isolated *POW-R-BLOK™* Module

Type	Voltage Volts (x100)	Current Amperes (x10)
LD43	18	43
	20	
	22	

Revision Date: 11/1/2001

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POW-R-BLOK™
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Absolute Maximum Ratings

Characteristics	Conditions	Symbol		Units
Repetitive Peak Forward and Reverse Blocking Voltage		V_{DRM} & V_{RRM}	up to 2200	V
Non-Repetitive Peak Blocking Voltage (t < 5 msec)		V_{RSM}	V_{RRM} + 100	V
RMS Forward Current	T_C=70°C	$I_{T(RMS)}$	800	A
Average Forward Current	180° Conduction, T_C=80°C	$I_{T(AV)}$	430	A
	180° Conduction, T_C=70°C	$I_{T(AV)}$	510	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, T_j=25°C	I_{TSM}	14,000	A
	60 Hz, No V_{RRM} reapplied, T_j=25°C	I_{TSM}	16,000	A
	60 Hz, 100% V_{RRM} reapplied, T_j=125°C	I_{TSM}	12,000	A
	60 Hz, No V_{RRM} reapplied, T_j=125°C	I_{TSM}	14,000	A
	50 Hz, 100% V_{RRM} reapplied, T_j=25°C	I_{TSM}	12,000	A
	50 Hz, No V_{RRM} reapplied, T_j=25°C	I_{TSM}	14,000	A
	50 Hz, 100% V_{RRM} reapplied, T_j=125°C	I_{TSM}	10,000	A
	50 Hz, No V_{RRM} reapplied, T_j=125°C	I_{TSM}	12,000	A
Peak Three Cycle Surge Current, Non-Repetitive	60 Hz, 100%V_{RRM} reapplied, T_j=125°C	I_{TSM}	8,600	A
Peak Ten Cycle Surge Current, Non-Repetitive	60 Hz, 100%V_{RRM} reapplied,T_j=125°C	I_{TSM}	7,500	A
I^2t for Fusing for One Cycle	8.3 milliseconds, T_j=25°C	I^2t	1.07×10^6	A^2 sec
	8.3 milliseconds, T_j=125°C	I^2t	0.82×10^6	A^2 sec
	10 milliseconds, T_j=25°C	I^2t	0.98×10^6	A^2 sec
	10 milliseconds, T_j=125°C	I^2t	0.72×10^6	A^2 sec
Maximum Rate-of-Rise of On-State Current, (Repetitive)	Per JEDEC Standard 397 5.2.2.6	di/dt	200	A/µs
Operating Temperature		T_J	-40 to +125	°C
Storage Temperature		T_{stg}	-40 to +150	°C
Max. Mounting Torque, M6 Mounting Screw			55	in. – Lb.
			6	Nm
Max. Mounting Torque, M10 Terminal Screw			110	in. – Lb.
			12	Nm
Module Weight, Typical			1500	g
			3.30	lb
V Isolation @ 25C		V_{rms}	3000	V

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POW-R-BLOK™
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Electrical Characteristics, T_J=25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Max.	Units
Repetitive Peak Forward Leakage Current	I_{DRM}	Up to 2200V, T_J=125°C		80	mA
Repetitive Peak Reverse Leakage Current	I_{RRM}	Up to 2200V, T_J=125°C		80	mA
Peak On-State Voltage	V_{TM}	I_{TM}=1500A		1.77	V
Threshold Voltage, Low-level	$V_{(TO)1}$	T_J = 125°C, I = 15%$I_{T(AV)}$ to π$I_{T(AV)}$		0.88	V
Slope Resistance, Low-level	r_{T1}	$V_{TM} = V_{(TO)1} + r_{T1}$ I		0.66	mΩ
Threshold Voltage, High-level	$V_{(TO)2}$	T_J = 125°C, I = π$I_{T(AV)}$ to I_{TSM}		1.34	V
Slope Resistance, High-level	r_{T2}	$V_{TM} = V_{(TO)2} + r_{T2}$ I		0.32	mΩ
V_{TM} Coefficients, Full Range		T_J = 125°C, I = 10A to 6kA	A =	0.766	
			B =	-1.046E-02	
		V_{TM} = A+ B Ln I +C I + D Sqrt I	C =	1.805E-04	
			D =	2.00E-02	
Minimum dV/dt	dV/dt	Exponential to V_{DRM} T_j=125°C, Gate Open	1000 Typ.		V/µs
Gate Trigger Current	I_{GT}	T_j=25°C, V_D=12V		200	mA
Gate Trigger Voltage	V_{GT}	T_j=25°C, V_D=12V		3.0	Volts
Non-Triggering Gate Voltage	V_{GDM}	T_j=125°C, V_D= ½ V_{DRM}		0.25	Volts
Peak Forward Gate Current	I_{GTM}			4.0	Amp
Peak Reverse Gate Voltage	V_{GRM}			5	Volts

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 = 0.106		
		+ 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

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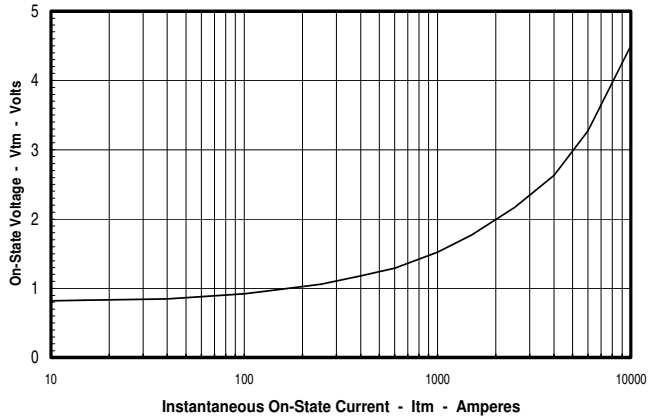
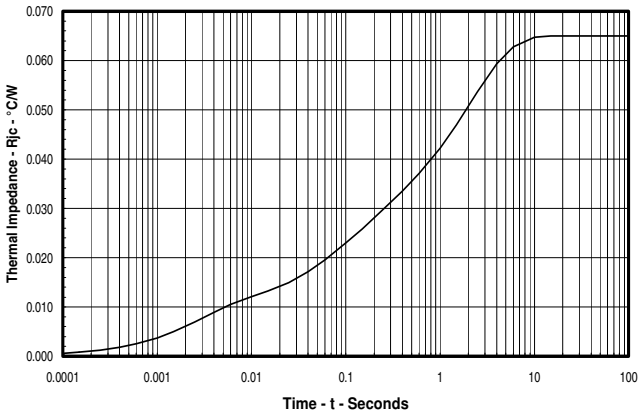
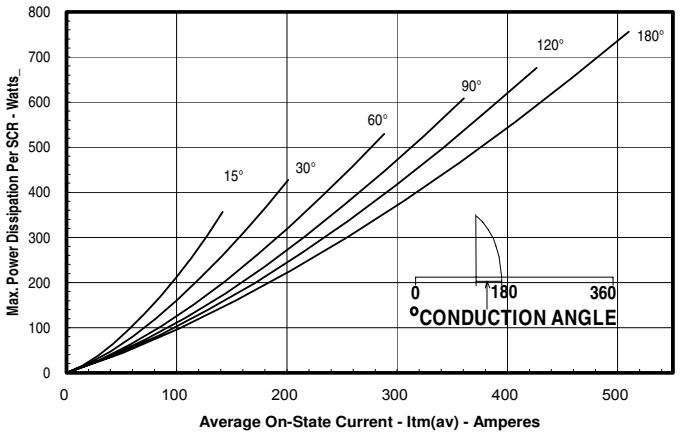
Maximum On-State Forward Voltage Drop
(Tj = 125 °C)



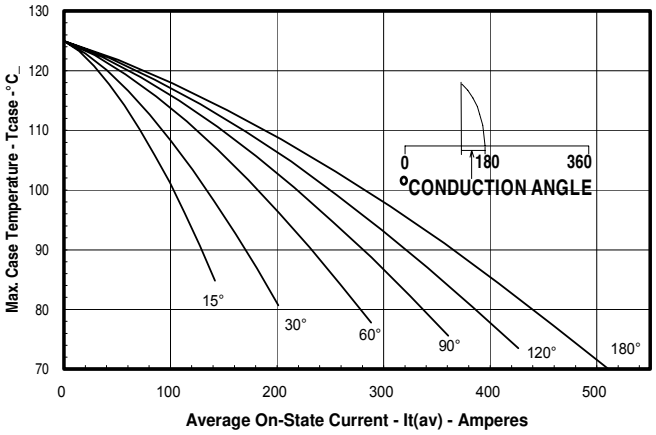
Maximum Transient Thermal Impedance
(Junction to Case)



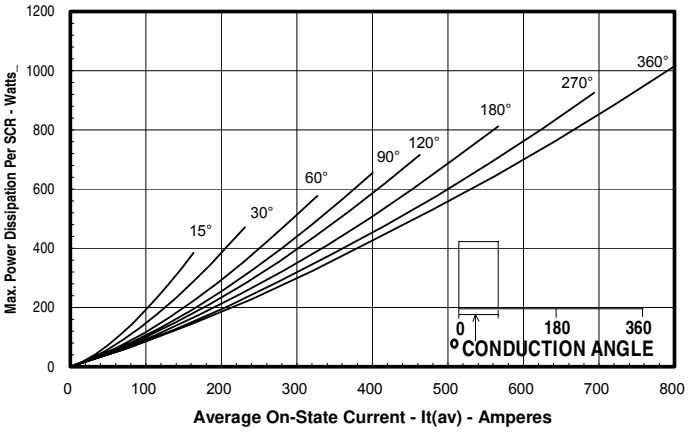
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



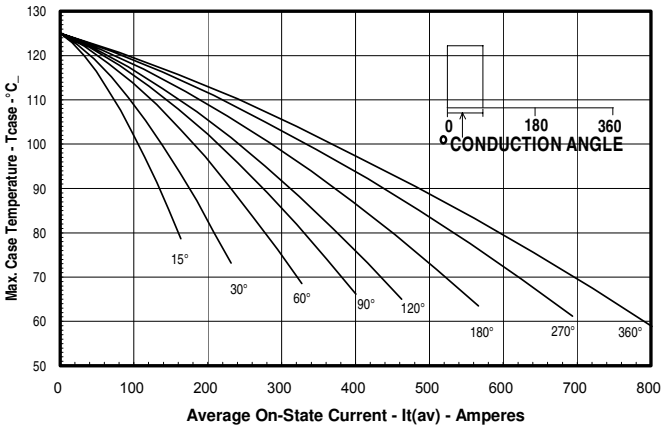
Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)



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