

POWEREX[®] Product Change Notification

LD43__50 POW-R-BLOK™ Is Discontinued LDR3__50 To Be Offered as Replacement # : 2021-014 Rev.: 00



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Subject of Change:

Discontinuation of the LD43__50 POW-R-BLOK™s, including:

- LD430850, LD431050, LD431250, LD431450, LD431650, LD431850
Part numbers listed above may be followed with a suffix with the lead code

Introduction of new part type LDR3__50 to be offered as a direct replacement for Powerex LD43__50 dual SCR modules. They are drop in replacements both mechanically and electrically with minor differences noted below.

Description of Change:

Powerex originally introduced the LDR3__50 modules as an alternative for the LD43__50 modules to provide additional options for supply during the transfer of the manufacturing operations for the LD43 from the former Powerex facility located in Morocco to the Powerex manufacturing partner facility located in Poland. Powerex has ended the module manufacturing operations in Poland which has resulted in the discontinuation of the LD43 module products.

The LDR3 is an equivalent replacement, but there will be differences in the mechanical and electrical characteristics. Please review the product data sheet and make determination as to whether this product will be a suitable replacement for use in their application. These differences include, but are not limited, to the following:

- Slightly less overall length dimension (149 mm) for the LDR3 as compared to the 150 mm overall length of the LD43.
- Slightly wider terminals (26 mm on terminals 2 & 3) for the LDR3 as compared to the terminal widths for the LD43 (25.4 mm on terminals 2 & 3)
- A slightly smaller screw depth under the terminals of 17 mm for the LDR3 as compared to the 17.5 mm depth for the LD43

This module was developed with a manufacturing partner with a country of origin of Russia that has a quality management system that is in compliance with ISO 9001. This product is RoHS and REACH compliant and is UL Recognized.

Reason for Change:

A new product is being introduced to provide an alternative product after the discontinuation of the manufacturing operations for the LD43 modules at the former manufacturing locations in Morocco and Poland.

Identification of Change:

This new product will be identified by a new part number LDR3__50 and will be labeled with PRX RU. This module package has slightly different physical characteristics that differentiate it from the original LD43__50 modules.

Time Schedule for Change:

Delivery Begins: Third Quarter of 2017

Supporting Documentation:

Attachment – LDR3__50 Data Sheet

POWEREX[®] Product Change Notification

Quality Management system:

The Powerex partner manufacturing facility has a quality system that is in compliance with ISO 9001. Parts will be qualified at the Powerex Youngwood, PA facility which has a quality system that is in compliance with ISO 9001:2015 and AS9100D

Customer Approval for: PCN # 2021-014 REV 00

- Please check the appropriate box and return this form to Powerex or our manufacturing representative within 30 days.
- According to JEDEC Standard JESD46, a lack of response to this product change notification within 30 days constitutes the customer's acceptance of the change.

We agree with this change and its schedule.

We have objection(s) as noted here:

We request additional information:

Customer:

Signature:

POWEREX[®] Product Change Notification

PCN 2021-014 REV 00

Recommended Replacements for LD43__50 Dual SCR Modules

LD43 Part	Recommended Replacement
LD430850	LDR31650
LD431050	LDR31650
LD431250	LDR31650
LD431450	LDR31650
LD431650	LDR31650
LD431850	LDR31850

POWEREX® Product Change Notification

PCN 2021-014 REV 00

Differences between the LD43__50 modules and LDR3__50 modules include, but are not limited to, the following:

Ratings and Electrical Characteristics:

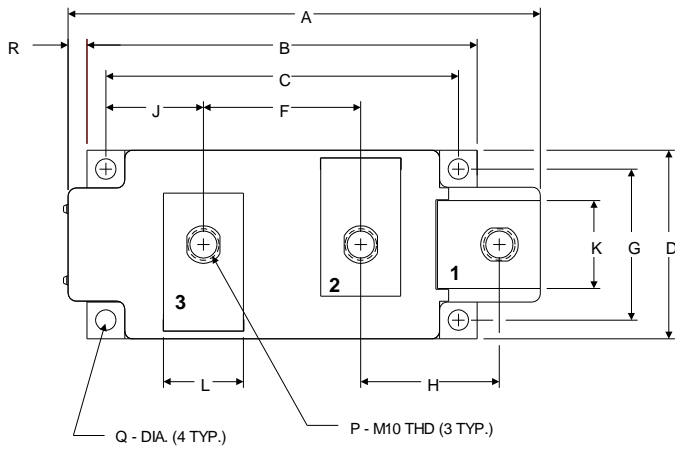
Characteristic	Symbol	LD43__50 Limit	LD43__50 Test Conditions	LDR3__50 Limit	LDR3__50 Test Conditions
Average Forward Current	$I_{T(AV)}$	500 A	180° Conduction, $T_C=86^\circ\text{C}$	500 A	180° Conduction, $T_C=85^\circ\text{C}$
RMS Forward Current	$I_{T(RMS)}$	900 A		785 A	180° Conduction, $T_C=85^\circ\text{C}$
Peak One Cycle Surge Current, Non-Repetitive	I_{TSM}	25,500 A	60 Hz, 0V reappplied, $T_j=125^\circ\text{C}$	17,000 A	60 Hz, 0V reappplied, $T_j= T_{jMAX}$
	I_{TSM}	24,450 A	50 Hz, 0V reappplied, $T_j=125^\circ\text{C}$	15,500 A	50 Hz, 0V reappplied, $T_j= T_{jMAX}$
I^2t for Fusing for One Cycle	I^2t	$2.70 \times 10^6 \text{ A}^2\text{sec}$	60 Hz, 0V reappplied, $T_j=125^\circ\text{C}$	$1.19 \times 10^6 \text{ A}^2\text{sec}$	60 Hz, 0V reappplied, $T_j= T_{jMAX}$
	I^2t	$2.90 \times 10^6 \text{ A}^2\text{sec}$	50 Hz, 0V reappplied, $T_j=125^\circ\text{C}$	$1.20 \times 10^6 \text{ A}^2\text{sec}$	50 Hz, 0V reappplied, $T_j= T_{jMAX}$
Average Forward Gate Power	$P_{G(AV)}$	5 W		4 W	
Maximum Rate-of-Rise of On-State Current, (Repetitive)	di/dt	200 A/ μs	Per JEDEC Standard 397 5.2.2.6	400 A/ μs	$T= T_{jmax}$, $V_D= 0.67 V_{DRM}$, $I_{TM}= 2 I_{TAV}$, Gate Pulse: $I_G= 2 \text{ A}$, $t_{GP}= 50 \mu\text{s}$, $di_G/dt \geq 1 \text{ A}/\mu\text{s}$
Storage Temperature	T_{stg}	-40 to +150 °C		-40 to +125 °C	
Repetitive Peak Forward Leakage Current	I_{DRM}	80 mA max	$V=V_{DRM}$, $T_j=130^\circ\text{C}$	70 mA max	$V=V_{DRM}$, $T_j=130^\circ\text{C}$
Repetitive Peak Reverse Leakage Current	I_{RRM}	80 mA max	$V=V_{RRM}$, $T_j=130^\circ\text{C}$	70 mA max	$V=V_{RRM}$, $T_j=130^\circ\text{C}$
Peak On-State Voltage	V_{TM}	1.30 V max	$T_j=25^\circ\text{C}$, $I_{TM}=1500 \text{ A}$	1.50 V max	$T_j=25^\circ\text{C}$, $I_{TM}=1570 \text{ A}$
Gate Trigger Current	I_{GT}	200 mA max	$T_j=25^\circ\text{C}$, $V_D=12\text{V}$	250 mA max	$T_j=25^\circ\text{C}$, $V_D=12\text{V}$
Gate Trigger Voltage	V_{GT}	3.0 V max	$T_j=25^\circ\text{C}$, $V_D=12\text{V}$	2.50 V max	$T_j=25^\circ\text{C}$, $V_D=12\text{V}$
Peak Forward Gate Current	I_{GTM}	4.0 A max	$T_j=25^\circ\text{C}$	10 mA max	$T_j=130^\circ\text{C}$, $V_D=0.67 V_{DRM}$
Peak Reverse Gate Voltage	V_{GRM}	5 V max.	$T_j=25^\circ\text{C}$	0.25 V max	$T_j=130^\circ\text{C}$, $V_D=0.67 V_{DRM}$
Latching Current	I_L	600 mA	$T_j=25^\circ\text{C}$	1000 mA max	$T_j=25^\circ\text{C}$, $V_D=12\text{V}$
Holding Current	I_H	200 mA	$T_j=25^\circ\text{C}$	300 mA max	$T_j=25^\circ\text{C}$, $V_D=12\text{V}$
Turn-Off Time	t_q	150 μs typical	$I_{TM}=1000\text{A}$, $t_p=1\text{ms}$, $di/dt=10\text{A}/\mu\text{s}$, $dV_R/dt=200\text{V}/\mu\text{s}$, $V_{DR}=80\%V_{DRM}$, $V_R=50\text{V}$, $T_j=130^\circ\text{C}$	250 μs max	$T_j=130^\circ\text{C}$, $dv/dt= 50 \text{ V}/\mu\text{s}$, $I_{TM}= I_{T(AV)}$, $di/dt= 10 \text{ A}/\mu\text{s}$, $V_R= 100 \text{ V}$, $V_D= 0.67 V_{DRM}$
Recovered Charge	Q_{rr}	1250 μC typical	$I_{TM}=1000\text{A}$, $t_p=1\text{ms}$, $di/dt=10\text{A}/\mu\text{s}$, $V_R=50\text{V}$, $T_j=130^\circ\text{C}$	1690 μC max	$T_j=130^\circ\text{C}$, $I_{TM}= 500 \text{ A}$, $di_R/dt= 10 \text{ A}/\mu\text{s}$, $V_R= 100 \text{ V}$
Recovered Charge (50% Chord)	Q_{ra}	960 μC typical		---	
Reverse Recovery Current	I_{rm}	115 A typical		135 A typical	
Reverse Recovery Time	t_{rr}	16 μs typical (50% chord)		25 μs max	

POWEREX[®] Product Change Notification

PCN 2021-014 REV 00

Mechanical differences between the LD43__50 modules and LDR3__50 modules include, but are not limited to, the following:

OUTLINE DRAWING



Dimension	LD43 (mm)	LDR3 (mm)
A	150	149
L	25.4	26
M	17.5	17
R	6	5

