Product Change Notification

LD42__50 POW-R-BLOK™ Is Discontinued
LDR2__50 To Be Offered as Replacement
: 2021-011 Rev.: 01

Date: 2021 / DEC / 29

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Subject of Change:

Discontinuation of the LD42__50 POW-R-BLOK™s, including:

- LD420850, LD421050, LD421250, LD421450, LD421650, LD421850
  Part numbers listed above may be followed by a suffix with the lead code.

Introduction of new part type LDR2__50 to be offered as a direct replacement for Powerex LD42__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 LDR2__50 modules as an alternative for the LD42_50 modules to provide increase options for supply during the transfer of the manufacturing operations for the LD42 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 LD42 module products.

The LDR2 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 LDR2 as compared to the 150 mm overall length of the LD42.
- Slightly wider terminals (26 mm on terminals 2 & 3) for the LDR2 as compared to the terminal widths for the LD42 (25.4 mm on terminals 2 & 3)
- A slightly smaller screw depth under the terminals of 17 mm for the LDR2 as compared to the 17.5 mm depth for the LD42

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 the parts are 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 LD42 modules at the former manufacturing locations in Morocco and Poland.

Identification of Change:

This new product will be identified by a new part number LDR2__50 and will be labeled with PRX RU.
This module package has slightly different physical characteristics that differentiate it from the original LD42__50 modules.

Time Schedule for Change:

Delivery Begins: Fourth Quarter of 2018

Supporting Documentation:

Attachment – LDR2__50 Data Sheet

Continued on following page

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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 and AS9100.

Customer Approval for: PCN # 2021-011 REV 01

- 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:**

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Recommended Replacements for LD42__50 Dual SCR Modules

LD42 Part	Recommended Replacement
LD420850	LDR21650
LD421050	LDR21650
LD421250	LDR21650
LD421450	LDR21650
LD421650	LDR21650
LD421850	LDR21850

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Differences between the LD42__50 modules and LDR2__50 modules include, but are not limited to, the following:

Ratings and Electrical Characteristics:

Characteristic	Symbol	LD42__50 Limit	LD42__50 Test Conditions	LDR2__50 Limit	LDR2__50 Test Conditions
Average Forward Current	IT(AV)	500 A	180° Conduction, T_C=86°C	500 A	180° Conduction, T_C=85°C
RMS Forward Current	IT(RMS)	900 A	180° Conduction, T_C=86°C	785 A	180° Conduction, T_C=85°C
Peak One Cycle Surge Current, Non-Repetitive	ITSM	25,500 A	60 Hz, 0V reapplied, T_j=125°C	17,000 A	60 Hz, 0V reapplied, T_j= $T_{j\,MAX}$
	ITSM	24,450 A	50 Hz, 0V reapplied, T_j=125°C	15,500 A	50 Hz, 0V reapplied, T_j= $T_{j\,MAX}$
I2t for Fusing for One Cycle	I^2t	2.70 x 10^6 A^2sec	60 Hz, 0V reapplied, T_j=125°C	1.19 x 10^6 A^2sec	60 Hz, 0V reapplied, T_j= $T_{j\,MAX}$
	I^2t	2.90 x 10^6 A^2sec	50 Hz, 0V reapplied, T_j=125°C	1.20 x 10^6 A^2sec	50 Hz, 0V reapplied, T_j= $T_{j\,MAX}$
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= $T_{j\,max}$, V_D= 0.67 V_{DRM}, I_{TM}= 2 I_{TAV}, Gate Pulse: I_G= 2 A, t_{GP}= 50 µs, di_G/dt>= 1 A/µs
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°C	70 mA max	V=V_{DRM}, T_j=130°C
Repetitive Peak Reverse Leakage Current	I_{RRM}	80 mA max	V=V_{RRM}, T_j=130°C	70 mA max	V=V_{RRM}, T_j=130°C
Peak On-State Voltage	V_{TM}	1.30 V max	T_j=25°C, I_{TM}=1500 A	1.50 V max	T_j=25°C, I_{TM}=1570 A
Gate Trigger Current	I_{GT}	200 mA max	T_j=25°C, V_D=12V	250 mA max	T_j=25°C, V_D=12V
Gate Trigger Voltage	V_{GT}	3.0 V max	T_j=25°C, V_D=12V	2.50 V max	T_j=25°C, V_D=12V
Peak Forward Gate Current	I_{GTM}	4.0 A max	T_j=25°C	10 mA max	T_j=130°C, V_D=0.67 V_{DRM}
Peak Reverse Gate Voltage	V_{GRM}	5 V max.	T_j=25°C	0.25 V max	T_j=130°C, V_D=0.67 V_{DRM}
Latching Current	I_L	600 mA	T_j=25°C	1000 mA max	T_j=25°C, V_D=12V
Holding Current	I_H	200 mA	T_j=25°C	300 mA max	T_j=25°C, V_D=12V
Turn-Off Time	t_q	150 µs typical	I_{TM}=1000A, t_p=1ms, dI/dt=10A/µs, dV_R/dt=200V/µs, V_{DR}=80%V_{DRM}, V_R=50V, T_j=130ºC	250 µs max	T_j=130°C, dv/dt= 50 V/µs, I_{TM}= $I_{T(AV)}$, di/dt= 10 A/µs, V_R= 100 V, V_D= 0.67 V_{DRM}
Recovered Charge	Q_{rr}	1250 µC typical	I_{TM}=1000A, t_p=1ms, dI/dt=10A/µs, V_R=50V, T_j=130ºC	1690 µC max	T_j=130°C, I_{TM}= 500 A, di_R/dt= 10 A/µs, V_R= 100 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	

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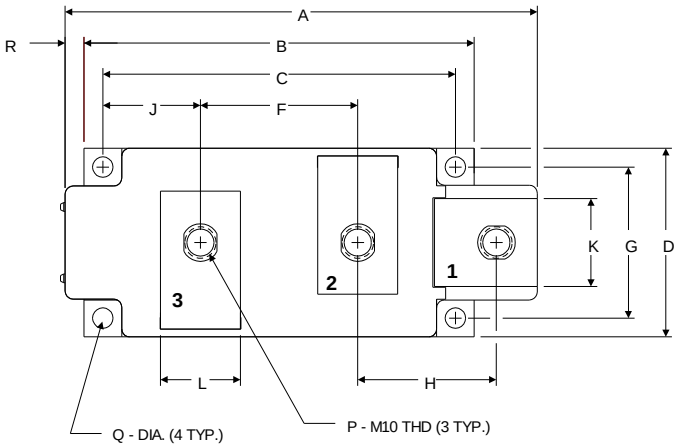
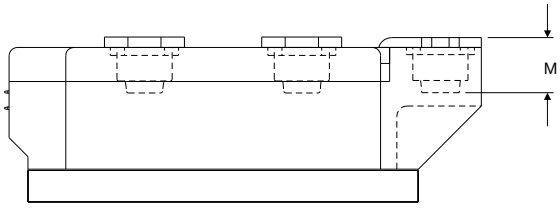
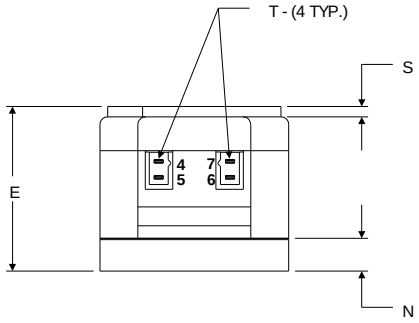
Mechanical differences between the LD42__50 modules and LDR2__50 modules include, but are not limited to, the following:

OUTLINE DRAWING







Dimension	LD42 (mm)	LDR2 (mm)
A	150	149
L	25.4	26
M	17.5	17
R	6	5