

Compact Metal Plate Power Resistor



The ULDCR11 belongs to Vishay's ultra load dump crowbar resistor series. This ruggedized product family is especially designed to absorb and withstand short pulses of enormous loads and is therefore an excellent choice for energy dumping applications in the fields of industry or alternative energy.

FEATURES

- 608 kJ pulse load capability
- Typical temperature rise below 300 K for single pulse at specified pulse current
- Extremely robust and compact design
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

APPLICATIONS

- Industrial
- Alternative energy
- Load dump resistor in wind turbines
- Discharge resistor for bulk capacitors

TECHNICAL SPECIFICATIONS

DESCRIPTION	ULDCR11
Resistance	0.09 Ω
Resistance tolerance	$\pm 10 \%$
Temperature coefficient	+1030 ppm/K
Pulse energy E_p ⁽¹⁾⁽²⁾	608 kJ
Pulse current I_p ⁽¹⁾⁽²⁾	1300 A
Inductance	< 10 μ H

Notes

- (1) Rectangular pulse $t_i = 4$ s, recovery time between 2 pulses $t_r > 40$ min at operation in unforced convection at 40 °C ambient temperature
 (2) Short time overload $t_i = 0.5$ s, $I_p = 5100$ A, energy $E_p = 1.2$ MJ, temperature rise below 350 K

APPLICATION INFORMATION

The impact of the pulse current I_p for the duration t_i generates a typical temperature rise against the local ambient temperature in the active material of the resistor. As long as the given pulse energy E_p is not exceeded, the temperature rise stays below 300 K. In case of natural convection at 40 °C ambient temperature the ULDCR11 needs more than 40 min to cool down back to the ambient temperature level. Operation in forced convection shortens the advisable minimum cooling time until the next pulse load.

The example of the short time overload proofs the tremendous robustness against current induced forces. The ULDCR11 withstands a pulse current I_p of 5100 A for 0.5 s. The related rise of the temperature do not exceed 350 K. The recovery time prolongs compared to the specified standard conditions.

The resistors do not feature a limited lifetime when operated at the specified parameters. Overheating will not automatically destroy the resistor. Repetitive or permanent exceedance of the load values may cause a change of the crystal structure, the oxidation behavior and the temperature coefficient of the resistive material though.

PART NUMBER AND PRODUCT DESCRIPTION																	
Part Number: ULDCR11900FKA0LX00																	
U	L	D	C	R	1	1	9	0	0	F	K	A	0	L	X	0	0
TYPE	RESISTANCE	TOLERANCE	TCR	HOUSING	PACKAGING CODE	SPECIAL											
ULDCR11	3 digit value 1 digit multiplier MULTIPLIER F = *10 ⁻⁴	K = ± 10 %	A = +1030 ppm/K	0 = IP00	LX = loose pack, without quantity	00 = standard 2 digit code = customized version											
Product Description: ULDCR11 R09 10 % +1030 IP00 LX																	
ULDCR11	R09	10 %	+1030	IP00	LX												
TYPE	RESISTANCE	TOLERANCE	TCR	HOUSING	PACKAGING CODE												

Note

- The product can be ordered using either the PART NUMBER or the PRODUCT DESCRIPTION

ELECTRICAL CONNECTION

Two M10 - bolt screws serve as electrical connections. Their dimensions and positions are shown in the corresponding drawing on the next page.

ASSEMBLY

The mounting positions of the resistor are horizontally regular as well as horizontally or vertically hanging.

Therefore the ULDCR11 is equipped with six fiberglass reinforced polyester polyglas mass standoff insulators.

The cylindrical, 30 mm high insulators feature a M10 - thread of 9 mm tap depth. The table below contains the relevant electrical and mechanical parameters.

The positions of the standoff insulators are shown in the technical drawing on the next page.

PACKAGING

Each resistor is packed in a cardboard box. Single samples are delivered as individual packets. Bigger lot sizes will additionally be fixed on euro-pallets.

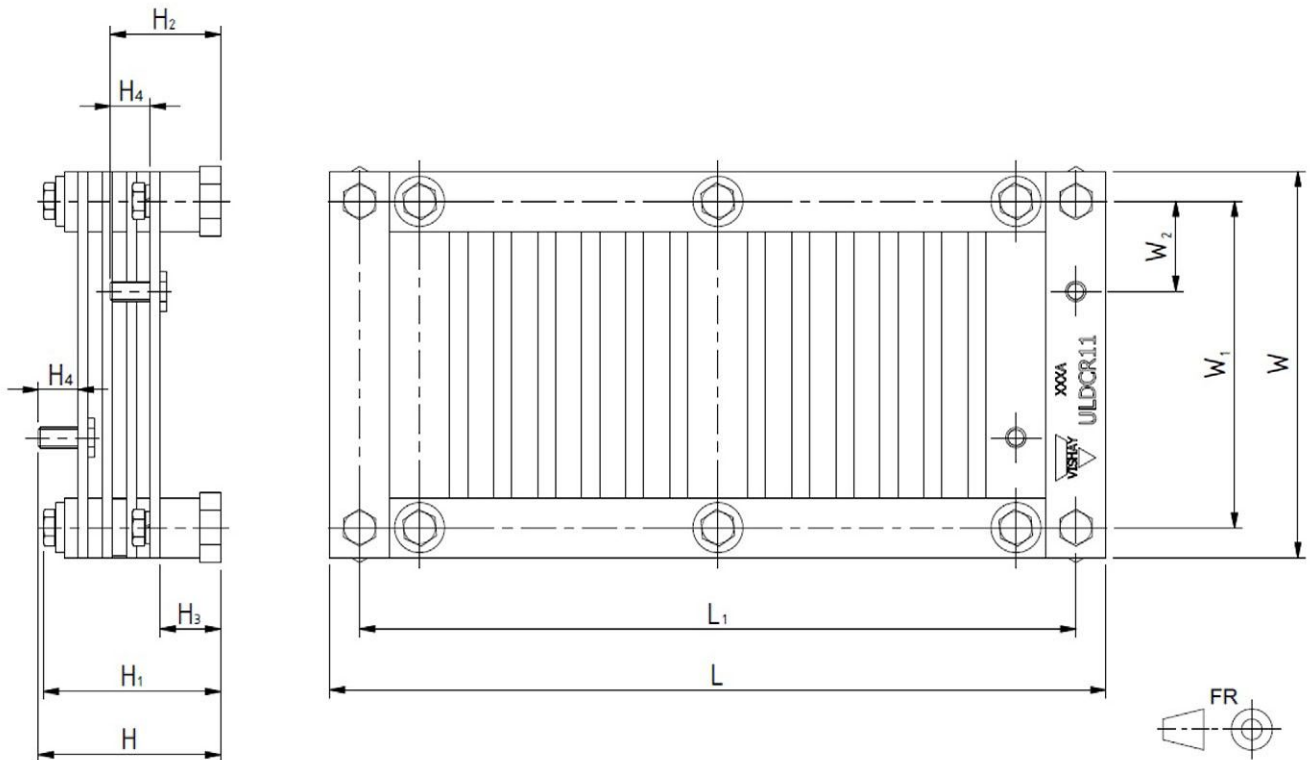
STANDOFF INSULATORS								
HEIGHT (mm)	DIAMETER (mm)	WRENCH SIZE (mm)	THREAD	TAP DEPTH (mm)	MAX. STUD TORQUE (Nm)	LEAKAGE STRENGTH ⁽¹⁾ (kV)	BREAKDOWN VOLTAGE ⁽¹⁾ (kV)	FIRE BEHAVIOUR
30	30	30	M10	9	43	8	20	UL 94 V-0

Note

- ⁽¹⁾ The test of insulating materials were executed according the terms of VDE 0303-21 03/1999/DIN EN 60243-1 03/1999

RELATED PRODUCTS

- For a comprehensive overview of all available ULDCR designs refer to the selector guide (www.vishay.com/doc?48002)
- For stainless steel power resistors, refer to the VSGR series (www.vishay.com/doc?21032)

DIMENSIONS


MODEL	L (mm)	L ₁ (mm)	W (mm)	W ₁ (mm)	W ₂ (mm)	H (mm)	H ₁ (mm)	H ₂ (mm)	H ₃ (mm)	H ₄ (mm)	MASS (kg)
ULDCR11	388 ± 2	358 ± 1.5	193 ± 2	163 ± 1.5	45 ± 0.5	91 ± 2	88 ± 1.5	55 ± 1.5	30 ± 0.5	20 ± 1	10 ± 0.5

Note

- The inscription XXXA denotes the place of the serial number of the ULDCR11



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.