

DC/DC Converters

MDR100



Features

- Up to 5 year warranty
- Case operating temperature $-60...+125^{\circ}\text{C}$
- Output current up to 20 A
- Low-profile design (10,25 mm) with cylindrical pin outs
- 24 VDC (index "W") inputs compliant with MIL-STD-704F
- Copper case with mounting flanges
- Magnetic feedback without optocouplers
- Short circuit protection, overvoltage, thermal protection
- Remote on/off
- Output voltage adjustment
- Switching frequency 350 kHz
- Switching frequency synchronization
- Typical efficiency 87% ($U_{\text{out.}}=24\text{ VDC}$)
- Polymer potting sealing

Description

Ultra-compact isolated DC/DC converters of MDR100 Series have been particularly designed for industrial and special purpose applications. These compact units ($57,5 \times 33,2 \times 10,25\text{ mm}$) have output power up to 100 W and wide operating temperature range $-60...+125^{\circ}\text{C}$. These modules can be switched on/off by a signal, have full protection complex against overcurrent, short circuit and overtemperature and can be connected in parallel or series. Without optocouplers in the converter's circuit it can safely operate in conditions of ionizing radiation and high temperature. Polymer potting sealing protects modules from different factors: vibration, dirt, moisture and salt fog. These modules undergo special thermal and limit test including burn-in test with extreme on/off modes.

Compliance

Designed to meet MIL-STD-810G

Designed to meet MIL-STD-461E (CE102)

Designed to meet MIL-STD-704F

DC/DC Converters

MDR100

Ordering information

MDR i 100 – 1 W 12
 ① ② ③ ④ ⑤ ⑥

- ① - DC/DC converter MDR Family
- ② - Application index
 i – from –40 to +85°C; 3 year warranty
 m – from –60 to +125°C; 5 year warranty
- ③ - Rated output power, W
- ④ - Quantity of output channels (1)
- ⑤ - Index of nominal input voltage
 B – 12 VDC (9...36 VDC)
 W – 24 VDC (18...75 VDC)
- ⑥ - Nominal output voltage (two signs), VDC

Models with output power 75 W

Model	Input voltage range	Rated output power	Output voltage / rated output current
MDRx75-1B3,3	9...36 VDC	75 W	3,3 VDC / 15 A
MDRx75-1B05	9...36 VDC	75 W	5 VDC / 15 A
MDRx75-1B09	9...36 VDC	75 W	9 VDC / 8,3 A
MDRx75-1B12	9...36 VDC	75 W	12 VDC / 6,25 A
MDRx75-1B15	9...36 VDC	75 W	15 VDC / 5 A
MDRx75-1B24	9...36 VDC	75 W	24 VDC / 3,1 A
MDRx75-1B27	9...36 VDC	75 W	27 VDC / 2,7 A
MDRx75-1B48	9...36 VDC	75 W	48 VDC / 1,5 A
MDRx75-1W3,3	18...75(84) VDC	75 W	3,3 VDC / 15 A
MDRx75-1W05	18...75(84) VDC	75 W	5 VDC / 15 A
MDRx75-1W09	18...75(84) VDC	75 W	9 VDC / 8,3 A
MDRx75-1W12	18...75(84) VDC	75 W	12 VDC / 6,25 A
MDRx75-1W15	18...75(84) VDC	75 W	15 VDC / 5 A
MDRx75-1W24	18...75(84) VDC	75 W	24 VDC / 3,1 A
MDRx75-1W27	18...75(84) VDC	75 W	27 VDC / 2,7 A
MDRx75-1W48	18...75(84) VDC	75 W	48 VDC / 1,5 A

Models with output voltage from 3 to 70 VDC and maximum output current up to 20 A could be produced by special order.



DC/DC Converters

MDR100

Models with output power 100 W

Model	Input voltage range	Rated output power	Output voltage / rated output current
MDRx100-1B3,3	9...36 VDC	100 W	3,3 VDC / 20 A
MDRx100-1B05	9...36 VDC	100 W	5 VDC / 20 A
MDRx100-1B09	9...36 VDC	100 W	9 VDC / 11,1 A
MDRx100-1B12	9...36 VDC	100 W	12 VDC / 8,3 A
MDRx100-1B15	9...36 VDC	100 W	15 VDC / 6,6 A
MDRx100-1B24	9...36 VDC	100 W	24 VDC / 4,1 A
MDRx100-1B27	9...36 VDC	100 W	27 VDC / 3,7 A
MDRx100-1B48	9...36 VDC	100 W	48 VDC / 2 A
MDRx100-1W3,3	18...75(84) VDC	100 W	3,3 VDC / 20 A
MDRx100-1W05	18...75(84) VDC	100 W	5 VDC / 20 A
MDRx100-1W09	18...75(84) VDC	100 W	9 VDC / 11,1 A
MDRx100-1W12	18...75(84) VDC	100 W	12 VDC / 8,3 A
MDRx100-1W15	18...75(84) VDC	100 W	15 VDC / 6,6 A
MDRx100-1W24	18...75(84) VDC	100 W	24 VDC / 4,1 A
MDRx100-1W27	18...75(84) VDC	100 W	27 VDC / 3,7 A
MDRx100-1W48	18...75(84) VDC	100 W	48 VDC / 2 A

Models with output voltage from 3 to 70 VDC and maximum output current up to 20 A could be produced by special order.

AEDON

DC/DC Converters

MDR100

Specifications*

Input specifications	
Input voltage range / transient deviation, 1 s	B 9...36 VDC / 9...40 VDC W 18...75 VDC / 17...84 VDC
Output specifications	
Output voltage adjustment	±5% Uout.
Total regulation (Inom 10–100%)	max ±6%
Ripple and noise (p-p)	<2% Uout. nom
Overcurrent protection level**	<1,5 Pmax
Short circuit protection**	Auto repair
Remote on/off	Off.: connection of pins "ON" and "–IN", I≤5 mA
General specifications	
Case temperature***	operating "i" –40...+85°C operating "m" –60...+125°C storage –60...+125°C power derating (natural convection) diagram (dashed, dash-dotted curve) without power derating with heatsink diagram (solid curve)
Typical efficiency	88% Uout.=5 VDC 87% Uout.=24 VDC
Switching frequency	350 kHz
Isolation voltage	in./out., in./case, out./case 500 VDC Isolation resistance @ 500 VDC 20 MOhm min
Environmental	designed to meet MIL-STD-810G
EMC Standards	designed to meet MIL-STD-461E (CE102)
Humidity	98% / +35°C
Thermal resistance case-ambient	8,7°C/W
Typical MTBF	2000 kHrs
Cooling	convictional with heatsink or forced fan
Weight	max 65 g

It is important to note that the information herein is not full. More detailed information (specific requirements, basic connection circuits, rules of operations etc.) can be found on our web-site: www.aedon.ru

* All specifications valid at normal climatic conditions (ambient temp. +15...+35°C; relative humidity 45...80%; air pressure 8,6*10⁴...10,6*10⁴ Pa), Uin.nom., Iout.nom., unless otherwise stated.

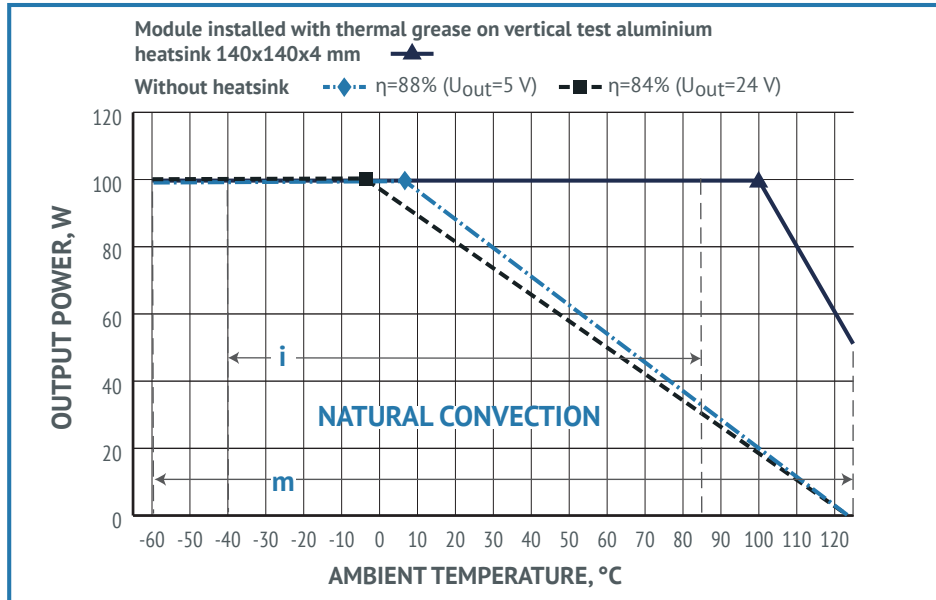
** Parameters are stated for the information purposes and could not be used at long term work, exciding maximum output current, at work outside of a range of operating temperatures.

*** Thermal protection level between +118...+125°C.

DC/DC Converters

MDR100

Power derating vs ambient temperature MDR100



Decreasing parts of the curves correspond to the maximum case temperature (+125°C). Output power must not exceed the values limited by curve for a given ambient temperature.

Pin out

Single-channel modules with flanges

