

DATASHEET

VFD Series

EMI filters



1. Product details

The VFD series of EMI filters are designed to reduce electromagnetic interference in power supplies modules. The VFD is a passive modular LC filter with throughput current up to 7 A. The filter is housed in metallic industry-standard 1/16 brick low profile case with polymer potting that provides a reliable protection against harsh environmental conditions such as vibration, moisture and salt mist. The wide operating temperature range (-40...+105 °C) allows to use these filters in different environments. Both PCB and wiring mounting are available. Designed for VDRI and complies with MIL-STD-461F CE102.

Designed to meet

- MIL-STD-461

1.1. Features

- Designed to meet MIL-STD-461F CE102
- Up to 7A output current
- 9-36 and 18-75 VDC input ranges
- Noise rejection up to 60 dB at 0,15-30 MHz
- Case operating temperature range -40...+105 °C
- 1/16 Brick package

1.2. Additional information

1.2.1. Product details on the manufacturer's website

<https://voltbricks.com/product/vfd>



1.2.2. Order registration

+65 6950 0011; sales@voltbricks.com

1.2.3. Technical support

support@voltbricks.com

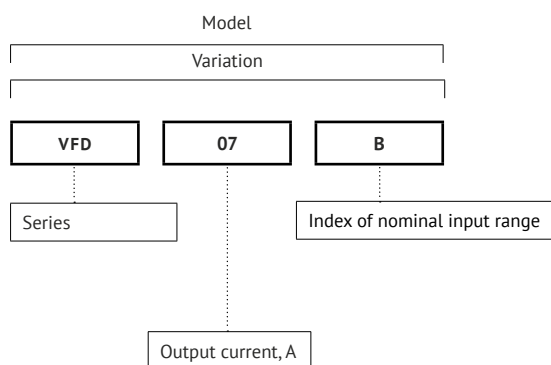
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3. Part number

For more information please contact Global operations team:

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4. Product range

Series	Output current, A	Index of nominal input range	Dimensions ^[1] , mm	Weight, kg
VFD	7	B	33,4×30,8×10,3	0,025
		W	33,4×30,8×10,3	0,025

[1] Excluding pin's length.

5. Filter specification

All specifications are valid for normal climatic conditions (ambient temp. 15...35°C; relative humidity 45...80%; air pressure $8,6 \times 10^{-4} \dots 10,6 \times 10^4 \text{ Pa}$), $U_{IN,NOM}$, $I_{OUT,NOM}$, unless otherwise stated. It is important to note that the information herein is not full.

5.1. General specifications

Parameter	Conditions	Value
Insertion loss	from 0,15 to 0,3 MHz	≥55 dB
	from 0,3 to 1 MHz	≥60 dB
	from 1 to 10 MHz	≥55 dB
	from 10 to 30 MHz	≥55 dB
Maximum throughput current		7 A
Voltage loss		≤6% $U_{IN,NOM}$
Isolation voltage	+input/case, -input/case, +output/case, -output/case	1500 VDC
Isolation resistance @ 500 VDC	+input/case, -input/case, +output/case, -output/case	1 GOhm min at normal climatic conditions 10 MOhm min at at increased humidity 100 MOhm min higher/lower operating temperature
Case temperature	Operating and storage	-40...+105 °C
Ambient temperature	Under recommended case temperature	-40...+85 °C
Thermal impedance		19,8 °C/W
Vibration proof	Frequency range Acceleration amplitude Vibration amplitude	10...2000 Hz, 200 (20) m/s ² (g), 0,3 mm
Single impact	Peak shock acceleration Duration of action	1000 (100) m/s ² (g), 0,5-2 m/s
MTBF	$U_{IN}=U_{IN,NOM}$, $I_{OUT}=0,7 \times I_{MAX}$, $T_{CASE} \leq 0,7 \times T_{CASE,MAX}$	2 370 000 h
	$U_{IN}=U_{IN,NOM}$, $I_{OUT}=0,5 \times I_{MAX}$, $T_{CASE} \leq 0,5 \times T_{CASE,MAX}$	3 950 000 h
Warranty		5 years

5.2. Output specifications

Index of nominal input voltage	B	W
Nominal input voltage, VDC	24	48
Input voltage range, VDC	9...36	18...75
Transient deviation (1s), VDC	8...40	16...80

*Allowed to apply voltage from 0 to minimum number of relevant input range without exceeding max current.

5.3. Physical specifications

Parameter	Conditions	Value
Case material	-	aluminium
Coating	-	microarc oxidation coating
Potting material	-	silicone
Pins material	-	fluoride bronze with SnPb coating
Soldering temperature	-	260 °C @ 5 s

6. Connection diagram

6.1. DC/DC converter and EMI filter connection diagram/ PCB layout example

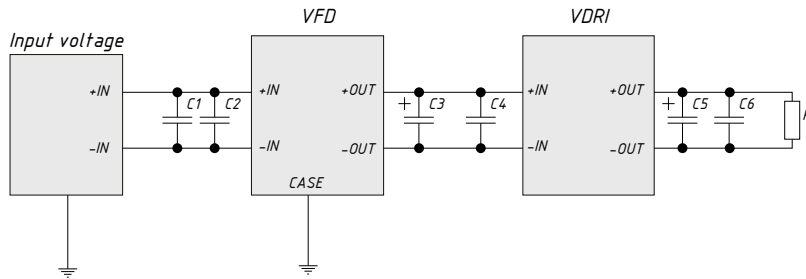


Figure. 1. Connection diagram for B and W input ranges

C1, C2, C3, C4, C5, C6 – according to DC/DC converter requirements.

Values are given in VDRI DC/DC converter datasheet

C7 – capacitor pF K10-47-1000...4700 pF.

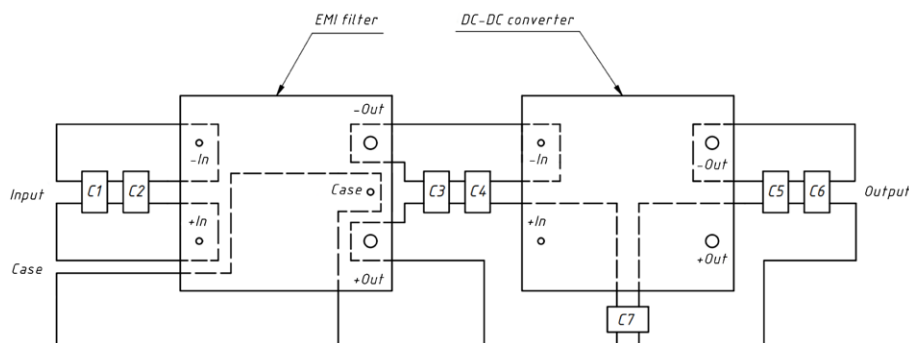


Figure. 2. Example of PCB layout.

7. Outline dimensions

Pin	1	3	4	6	8
Function	+IN	-IN	-OUT	CASE	+OUT

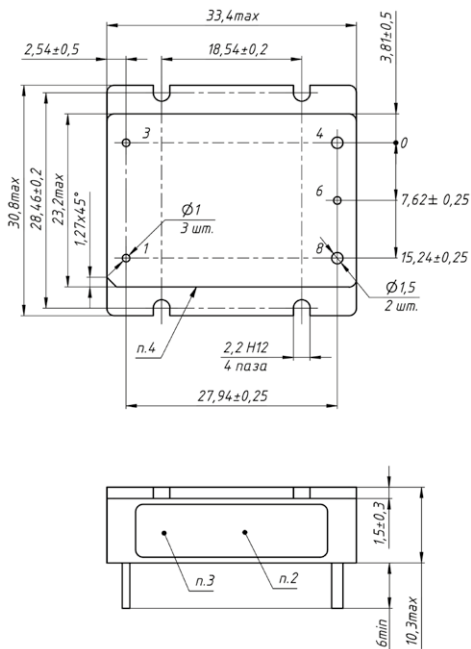


Figure. 3. VFD07x version

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Manufacturer of reliable DC/DC converters and power
supply systems

This datasheet is valid for the following units: VFD07B, VFD07W.