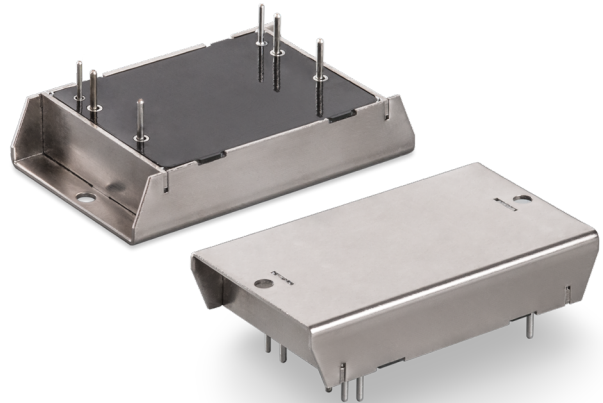


VFB Series

Electromagnetic interference filters
with throughput current from 2 to 40 A



1. Description

VFB filters are designed to reduce electromagnetic interference in power supply units input and output. Filters throughput current reaches up to 40 A. VFB filters are packaged in low-profile metal cases. The ultra-wide operating temperature range allows to use these filters in different environments. Both PCB and wiring mounting are available due to plug-in terminals. Optimized for VDR series of VOLTBRICKS DC/DC converters.

1.1. Engineered in accordance with

- MIL-STD-461F CE102

1.2. Features

- Service life 10 years
- For 9...36, 18...75 and 17...36 VDC input ranges
- Noise rejection up to 40 dB for 0,1...10 MHz frequency range
- Case operating temperature range –60...+125 °C
- Low-profile design 10,25, 11,2 and 13 mm

1.3. Additional information

1.3.1. Description on the manufacturer's website

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



1.3.2. Sales

+65 6950 0011

sales@voltbricks.com

1.3.3. Technical support

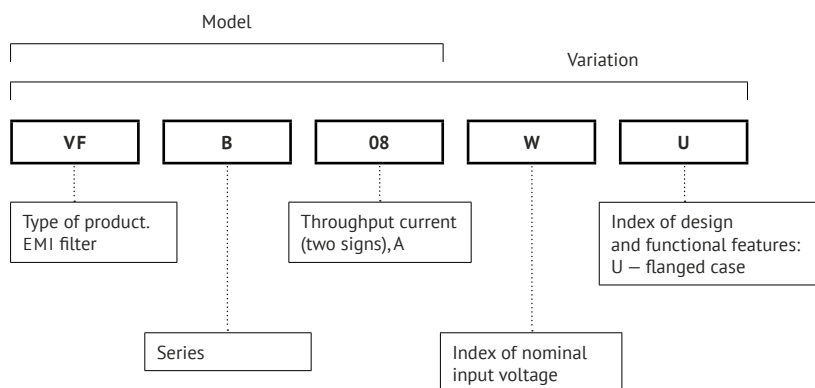
support@voltbricks.com

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3. Part number

For more information please contact our Global Operations Team: +65 6950 0011



3.1. Product range and VDR converters compliance

Series	Throughput current, A	Index of nominal input voltage	Index of design and functional features	Related DC/DC converter
VFB	2	W	U	VDR15, VDR25 with «W» input
	4	B	U	VDR15, VDR25 with «B» input
		W	U	VDR40, VDR50 with «W» input
	8	B	U	VDR40, VDR50 with «B» input
	9	W	U	VDR75, VDR100, VDR120, VDR160 with «W» input
	18	B	U	VDR75, VDR100, VDR120, VDR160 with «B» input
	40	V	U	VDR400, VDR500 with «V» input

4. Specifications

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

4.1. General specifications

Parameter	Conditions	Value
Case temperature	operating and storage	-60...+125 °C
Ambient temperature	operating and storage	-60...+120 °C
Isolation voltage	+input/case, -input/case, +output/case, -output/case	500 VAC
Isolation resistance @ 500 VDC	+input/case, -input/case, +output/case, -output/case	20 MOhm min
MTBF	$U_{IN}=U_{IN,NOM}$, $I_{OUT}=0,7 \times I_{MAX}$	1 739 000 hrs
Warranty		5 years

4.2. Input voltage specifications

Index of nominal input voltage	B	W	V
Nominal input voltage, VDC	12	28	28
Input voltage range, VDC	9...36	18...75	17...36
Transient deviation (1 s), VDC	9...40	17...84	17...40

4.3. Output specifications

Parameter	Conditions	Value
Maximum throughput current	VFB02	2 A
	VFB04	4 A
	VFB08	8 A
	VFB09	9 A
	VFB18	18 A
	VFB40	40 A
Insertion loss	from 0,15 to 0,3 MHz	≥20 dB
	from 0,3 to 1 MHz	≥25 dB
	from 1 to 10 MHz	≥40 dB
	from 10 to 30 MHz	≥35 dB
Voltage loss	for all types	≤3% $U_{IN,NOM}$
	for VFB04WU, VFB18BU, VFB40VU	≤5% $U_{IN,NOM}$

4.4. Protections

These parameters are stated just for your information and not applicable for long term operating, output overcurrent, out-of-range case temperature.

Parameter	Conditions	Value
Vibration proof		10...2000 Hz, 200 (20) m/s ² (g), 0,3 mm
Dust proof		yes
Salt fog resistant		yes
Moisture proof	98% at $T_{AMB} = 35$ °C	yes

4.5. Physical specifications

Mounting on metal plate is required for shielding. Plate should have all-around galvanic connection.

Parameter	Conditions	Value
Case material		copper
Coating		electroless nickel
Potting		epoxy
Pin material		bronze
Soldering temperature		260 °C @ 5 s
Dimensions (without pins)	VFB02, VFB04, VFB08	50×30,2×10,25 mm
	VFB09, VFB18	67,5×40,2×11,2 mm
	VFB40	107×67,5×13 mm
Weight	VFB02, VFB04, VFB08	0,05 kg
	VFB09, VFB18	0,1 kg
	VFB40	0,26 kg

5. Service functions

5.1. DC/DC converter and EMI filter connection diagram

VDR – DC/DC converter.

VFB – EMI filter.

C4, C6, C7, C8 – ceramic capacitor 2200...4700 pF.

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

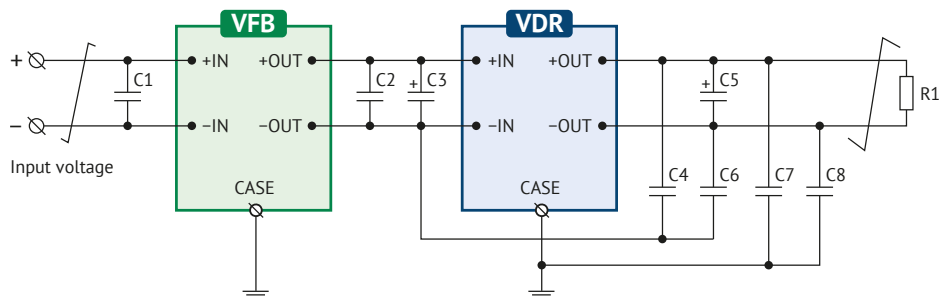


Figure 1. Connection diagram.

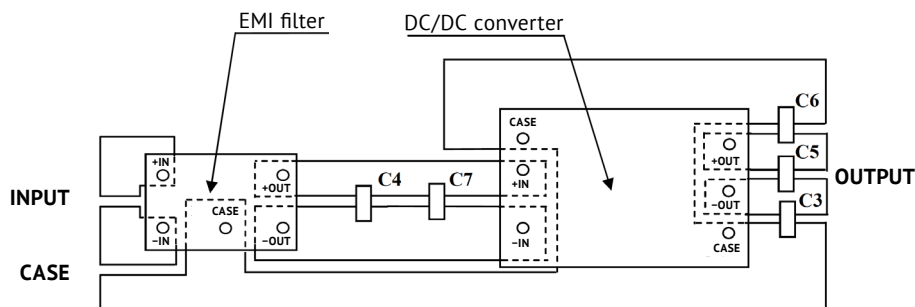


Figure 2. Example of PCB layout.

6. Outline dimensions

Pin #	1	2	3	4	5,6
Function	-IN	+IN	-OUT	+OUT	CASE

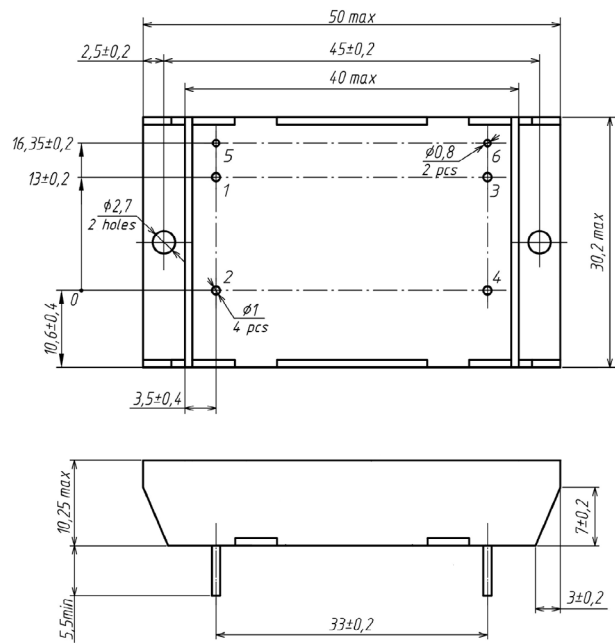


Figure 3. VFB02, VFB04, VFB08 version.

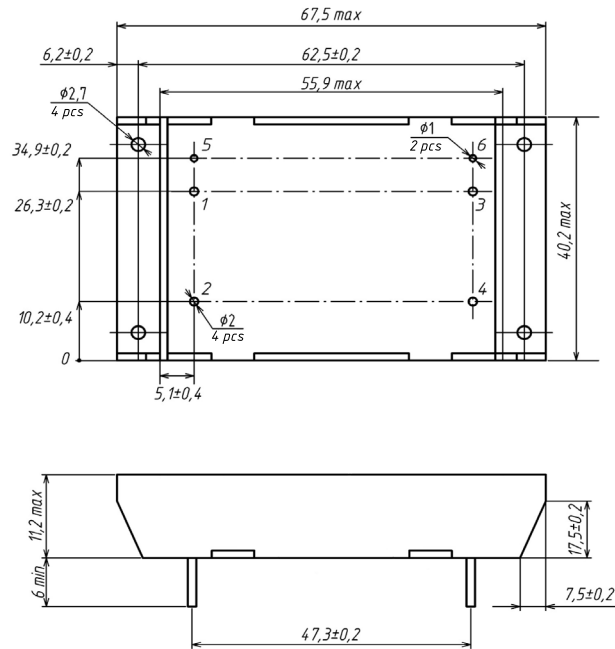


Figure 4. VFB09, VFB18 version.

Pin #	1, 2	3, 4	7, 8	10, 11	5, 6, 9
Function	+IN	-IN	+OUT	-OUT	CASE

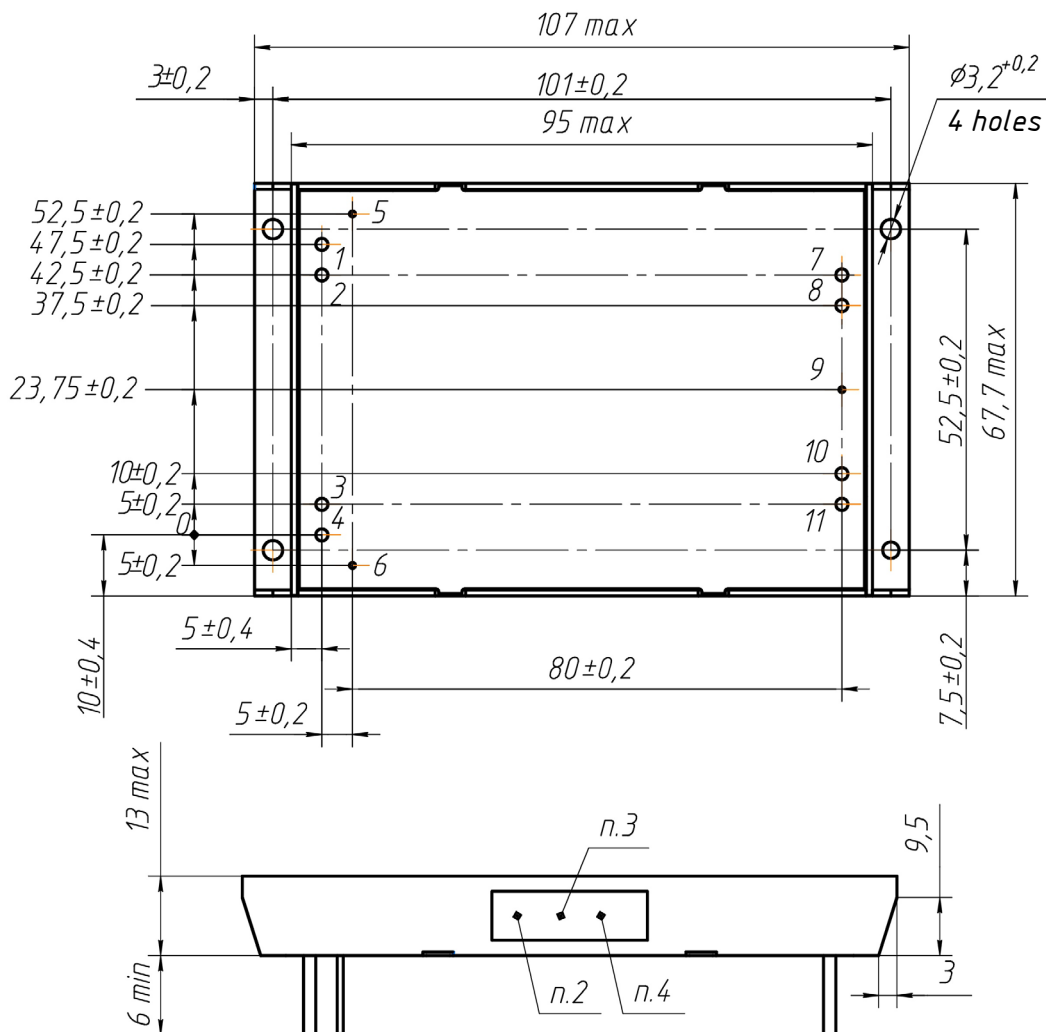


Figure 5. VFB40 version.

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Manufacturer of reliable DC/DC converters and power
supply systems

This datasheet is valid for the following units: VFB02WU, VFB04BU, VFB04WU, VFB08BU, VFB09WU, VFB18BU, VFB40VU.