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VFB150 Series

XP Power

150W FAN COOLED 100W CONVECTION COOLED

AC-DC POWER SUPPLIES



The VFB150 is a series of open frame AC-DC single output power supplies with 100W convection and 150W fan cooled ratings.

This range of cost-competitive, high efficiency, single output AC-DC power supplies are packaged in an industry standard 5.0" x 3.0" footprint making them suitable for industrial, information technology and domestic applications.

With world-wide industrial safety approvals, compliance with class B for conducted and radiated emissions, the VFB150 benefits system designers with easy integration into a wide range of applications.

Applications

Industrial Electronics | Instrumentation | Security | Technology

Dimensions

76.2 x 127.0 x 39.0mm (3.00" x 5.00" x 1.53")

Features

- Single outputs from 12V to 48VDC
- 90 to 264VAC input range
- 100W convection, 150W fan cooled rating
- High efficiency – up to 91%
- 3kVAC input to output isolation
- 12VDC 0.3A fan supply
- 0.15W no load input power
- Overcurrent, overvoltage and short-circuit protection
- Operating temperature range: -10°C to +70°C
- 3 year warranty

Models & Ratings

Model Number	Output Power[1]	Output Voltage	Output Current		Efficiency[2]
			Fan Cooled	Convection Cooled	
VFB150PS12	150W	12.0V	12.5A	8.3A	88%
VFB150PS15		15.0V	10.0A	6.7A	89%
VFB150PS24		24.0V	6.25A	4.17A	91%
VFB150PS48		48.0V	3.13A	2.08A	90%

Notes:

1. Fan cooled rating.
2. Typical efficiency measured at 230VAC and 150W load.

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Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	90		264	VAC	
Input Frequency	47		63	Hz	
Input Current - Full Load		2.3/1.5		A rms	At 115/230VAC
No Load Input Power			0.15	W	
Inrush Current			80	A	At 230VAC, cold start 25°C
Earth Leakage Current			500	µA	At 264VAC, 60Hz
Input Protection	Internal T3.15A/300VAC fuse fitted in line				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	12		48	VDC	
Initial Set Accuracy			1	%	
Minimum Load	No minimum load required				
Start Up Delay			2	s	
Start Up Rise Time			35	ms	Full load, 115VAC
Hold Up Time	8	14		ms	Full load and 115/230VAC
Line Regulation			1	%	90-264VAC
Load Regulation			3	%	
Transient Response			4	%	Deviation, recovery within 1% in less than 500µs for a 25% load change
Ripple and Noise			200	mV pk-pk	For 12V & 15V versions, measured with 20MHz bandwidth and 47µF electrolytic in parallel with 0.1µF ceramic
			1.0	% pk-pk	For 24V & 48V versions, measured with 20MHz bandwidth and 47µF electrolytic in parallel with 0.1µF ceramic
Overload Protection	110		180	% Inom	
Overvoltage Protection	110		140	% Vnom	
Short Circuit Protection	Trip and restart (hiccup), auto resetting				
Temperature Coefficient			0.05	%/°C	

General

Characteristic		Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency			89		%	See Models & Ratings table
Isolation	Input to Output	3000			VAC	
	Input to Ground	1500				
	Output to Ground	1500				
Switching Frequency		25		80	kHz	Mains converter, variable
		40		230		PFC, variable
Power Density			6.5		W/in^3	
Mean Time Between Failure			250		khrs	MIL-HDBK-217F, +25°C GB
Weight			340 (0.75)		g (lb)	

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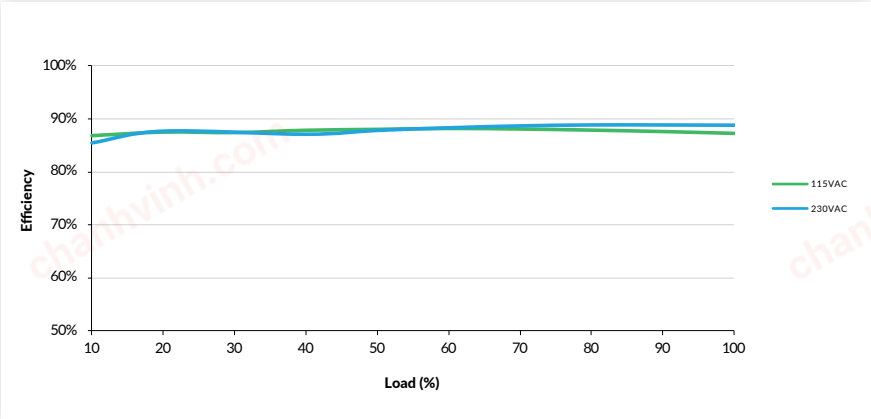
Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-10		+70	°C	Derate linearly from 100% load at 50°C to 50% load at 70°C.
Cooling	Convection cooled/fan cooled with 25.4m³/h				
Operating Humidity			95	%RH	Non-condensing
Operating Altitude			5000	m	
Shock	IEC68-2-27, 30g, 11ms half sine, 3 times in each of 6 axes				
Vibration	IEC68-2-6, 10-500Hz, 2g 10 mins/sweep, 60 mins for each of 3 axes				

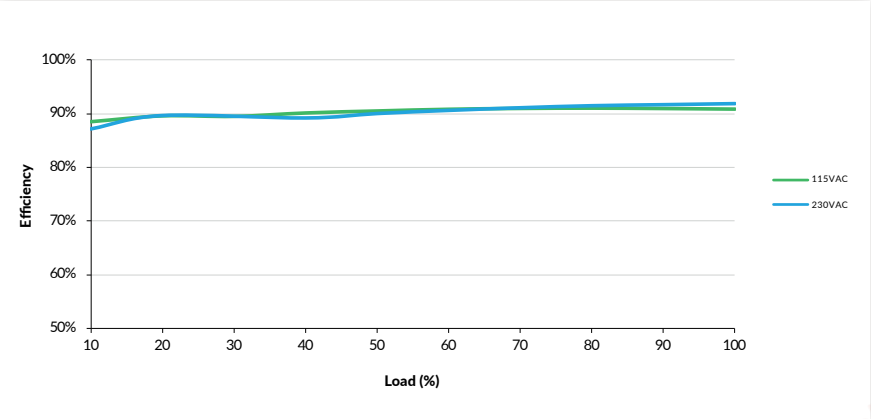
Efficiency Curves

Efficiency vs. Load

VFB150PS12



VFB150PS24



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EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class B	
Radiated			
Harmonic Currents	EN61000-3-2	Class A	
Voltage Flicker	EN61000-3-3		

EMC: Immunity

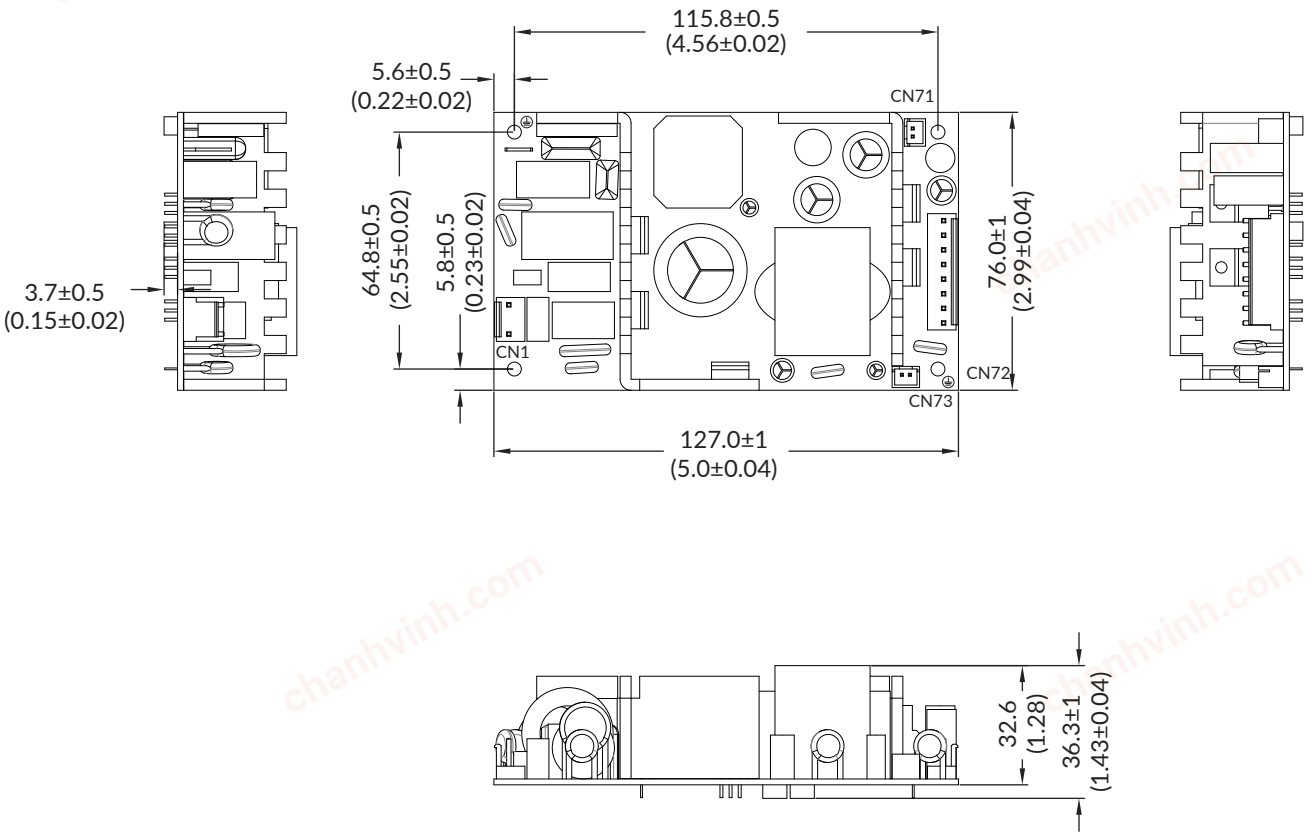
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
	EN55035	As below	As below	
ESD Immunity	EN61000-4-2	±6kV contact, ±8kV air discharge	A	
Radiated Immunity	EN61000-4-3	3V/m	A	
EFT/Burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	Installation class 3	A	
Conducted	EN61000-4-6	3Vrms	A	
Magnetic Field	EN61000-4-8	1A/m	A	
Dips and Interruptions	EN61000-4-11 (115VAC)	70% U_T for 500ms	A	
		<5% U_T for 10ms	A	
		<5% U_T for 5000ms	B	
	EN61000-4-11 (230VAC)	70% U_T for 100ms	A	
		<5% U_T (0VAC) for 10ms	A	
		<5% U_T (0VAC) for 5000ms	B	

Safety Approvals

Safety Agency	Standard	Notes & Conditions
UL	UL62368-1	ITE
TUV	EN62368-1	
CB	IEC62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

VFB150 Series

Mechanical Details



CN1 - Input Connector	
Pin	Function
1	N
2	
3	L

Mates with JST housing VHR-3N and JST series SVH crimp terminals.

CN72 - Output Connector			
Pin	Function	Pin	Function
1	+Vout	5	-Vout
2	+Vout	6	-Vout
3	+Vout	7	-Vout
4	+Vout	8	-Vout

Mates with JST housing VHR-8N and JST series SVH crimp terminals.

CN71 - Sense Connector	
Pin	Function
1	Sense+
2	Sense-

Mates with JST PHR-2 housing and SPH-002T-PO.5S crimps.

CN73 - Fan Connector	
Pin	Function
1	Fan+
2	Fan-

Mates with JST XHP-2 housing and SXH-002T-PO.6 crimps.

Notes:

1. Dimensions in mm (inches).
2. Weight: 340g (0.75lbs).
3. Tolerances: x.xx = ± 0.5 (x.x = ± 0.02), x.xxx = ± 0.25 (x.xx = ± 0.01).
4. Mounting holes marked with ⏚ must be connected to safety earth.