PBL500 Series

AC-DC Power Supplies

XP Power

500 Watts

- 450-500W forced cooled
- 250W convection cooled
- Class II applications
- Medical (BF) safety approvals
- U-channel 4″ x 7″ package
- 5V standby & 12V fan supply
- AC OK, inhibit & remote sense
- Class B conducted & radiated emissions
- 3 year warranty

The Class II PBL500 series of AC-DC switching power supplies, in a package of just 4 x 7 x 1.56 inches, deliver 450-500 watts of continuous power with forced air cooling or 250 watts with convection cooling. The units are constructed on a U-Channel for mechanical support and heat sinking. A cover and fan assembly can be added during manufacturing. They are designed for medical applications including those needing BF rated insulation with an operation altitude up to 5000 meters.

Dimensions:

PBL500 (U-channel):
7.1 x 4.00 x 1.56″ (180.34 x 101.6 x 39.62 mm)

PBL500 (Covered) :
7.1 x 4.00 x 2.64″ (180.34 x 101.6 x 67.05 mm)

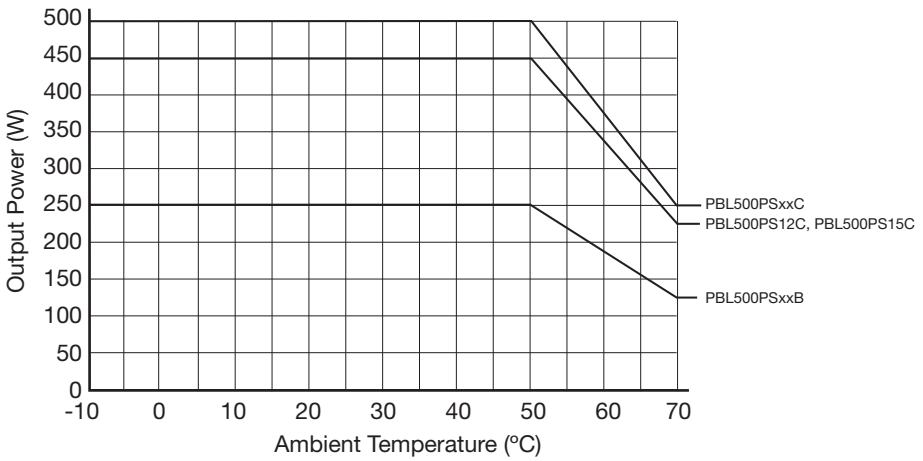
Models & Ratings

Output Voltage V1	Output Current V1		Standby Supply V2	Fan Supply V3	Output Power		Ripple & Noise[3]	Model Number[1]
	Convection	Forced			Convection	Forced[2]		
12 V	20.83 A	37.50 A	5.0 V / 2.0 A	12.0 V / 0.3 A	250 W	450 W	120 mV	PBL500PS12B
15 V	16.67 A	30.00 A					150 mV	PBL500PS15B
18 V	13.89 A	27.78 A				500 W	180 mV	PBL500PS18B
24 V	10.42 A	20.84 A					240 mV	PBL500PS24B
28 V	8.93 A	17.86 A					280 mV	PBL500PS28B
36 V	8.94 A	13.89 A					360 mV	PBL500PS36B
48 V	5.21 A	10.42 A					480 mV	PBL500PS48B
57 V	4.38 A	8.78 A					570 mV	PBL500PS57B

Notes

1. For covered version, replace B in the part number with C, e.g PBL500PS12C. V3 not available on covered version.
2. 250 W without moving air or 450-500 W with 30 CFM forced air provided by the user. 450-500 W for '-C' version
3. Ripple and noise is the maximum peak-to-peak voltage value measured at the output with 20 MHz bandwidth, at rated line voltage and output load, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor.

Temperature Derating Curve



Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	80		264	VAC	Derate to 90% at 85 VAC & 80%at 80 VAC
Input Frequency	47		63	Hz	
Input Current - Full Load		5.2/2.6		A (rms)	115/230 VAC, 60/50 Hz
Inrush Current		30/60		A	115 VAC/230 VAC at 25 °C, cold start

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage (V1)	12		57	VDC	See Models and Ratings table
Tolerance			±2	%	Line and Load Regulation, 0.1% minimum load required to meet specification
Transient Response			4	%	Recovery within 1% in less than 500 µs for a 25% step load change
Ripple & Noise			1	% pk-pk	20 MHz bandwidth, see model table notes
Overvoltage Protection	112		140	%	Latching
Overcurrent Protection	115		140	%	Trip & restart characteristic
Thermal Shutdown					Protected for overtemperature conditions, latching
Temperature Coefficient			±0.04	%/°C	
5 V Standby Supply (V2)		5		V	At 2.0 A
Fan Supply (V3)		12		V	At 300 mA
Patient Leakage Current		50	80	µA	264 VAC, 63 Hz

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
Storage Temperature	-40		+85	°C	
Humidity	5		95	%RH	Non-condensing
Cooling					Integral temperature controlled fan. Fan speed based on temperature of transformer T1, internally monitored. Fan will not rotate until T1 temperature reaches approx. 30 °C and reaches full speed when T1 temperature reaches approx. 60 °C.

General

Characteristic		Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency			90		%	230 VAC, 100% load
Isolation	Input to Output	4000			VAC	2 x MOPP
	Input to Case	4000			VAC	2 x MOPP
	Output to Case	1500			VAC	1 x MOPP
Switching Frequency	PFC	55	65	75	kHz	Fixed
	Main Converter	90		300		Variable
	Standby Converter	80		120		Variable
Hold Up Time		20			ms	At 110 VAC & 500 W
Mean Time Between Failure			100,000		Hrs	MIL-HDBK-217F, Full load at 25 °C GB
Weight			2.23 (1011.5)		lb (g)	PBL500PSxxB
			2.52 (1143.0)			PBL500PSxxC