

## 500 Watt AC-DC Power Module

### Features

- ◆ 4" x 2.4" Brick Foot-print with Metal Case
- ◆ High Power Density
- ◆ High Efficiency
- ◆ Suitable for Conduction Cooling
- ◆ Power Factor Corrected
- ◆ PMBus™
- ◆ Droop Load Share (optional)



### Key Market Segments & Applications



### Specifications

Model		PFH500F-28-R
AC Input Voltage (1)	VAC	85 to 265VAC, 47-63Hz
AC Input Current (typ) (4)	A	5 / 2.5A
Power Factor	-	0.95 minimum (Vin=230VAC, Io > 80%, Tc=25°C, meets EN61000-3-2)
Inrush Current (typ) (4)	A	9A / 18A (peak) (20A max)
Input Turn -on Voltage	VAC	83V (typ)
Input Turn - off Voltage	VAC	79V (typ)
Hold -up (Typ.) (1) (2)	ms	20ms
Output Voltage Set-point	VDC	27.5 - 28.5VDC (Vin=115Vac, Io=0%)
AC Start-Up Delay (2)	s	2.7/1.2 typ (115/230VAC) with Remote ON/OFF=LOW from AC application to 10% of Vo
Remote ON/OFF Start-Up Delay (2)	s	2.5/1.0 typ (115/230VAC) with AC applied from Remote ON/OFF assertion to 10% of Vo
Output Voltage Rise Time (typ)	ms	65ms
Line Regulation (typ)	mV	42mV (0.15%) (Io=50% of Io,max, Vin=Vin,min to Vin, max)
Load Regulation (typ)	mV	28 mV (0.1%) (Vin=115/230 Vac, Io=0 to Io,max, excluding Droop)
Output Ripple (Pk to Pk) (3)	mV	400mV Typ. (500mV max.)
Over Voltage Protection (max)	VDC	35.5V
Over Current Protection (Hiccup) (typ) (5)	A	21.5A
Maximum Output Capacitance	uF	3,000uF
Power Good Signal	mA	Open collector 200mA max. (Active low)
Auxiliary Supply	-	10-14V; 200mA
Remote On/Off	VDC	Low = On, < 0.8VDC (3.3V max input)
Over Temperature Protection	°C	Input line voltage dependent (see derating curves)
Series Operation	-	Yes (maximum of two units)
Parallel Operation (optional)	-	Droop Share
Operating Baseplate Temperature	°C	-40 to 100°C (with derating)
Storage Temperature	°C	-55 to 125°C
Humidity (non condensing)	%	Operating: 20 - 95%RH, Non Operating: 10 - 95%RH
Cooling	-	Conduction
Withstand Voltage (1 min)	VAC	Input to Output 3,000VAC: Input to Case 2,500VAC: Output to Case 1,500VDC
Isolation Resistance	Ω	Output to Case: 100MΩ at 500Vdc, 25C ambient, 70%RH
Vibration (Non Operating)	-	MIL-STD-810G: 514.6 Cat 4, Cat 21; Sine Vibration 23.52 m/s <sup>2</sup> Constant (XYZ Axis)
Shock	-	MIL-STD-810G: 516.6 Procedure I (XYZ Axis)
Safety Certifications	-	UL/cUL60950-1, IEC/EN60950-1, CE Mark
Size (typ)	in. (mm)	4.00 x 2.40 x 0.53 (101.6 x 61.0 x 13.3)
Weight (max)	g	225
Warranty	Years	3

Notes: External components are required. Consult the Instruction Manual for more detailed information.

- 1) Maximum Power will be de-rated at Vin < 100V with 6.7 W/V (400W@85Vin).
- 2) With 2 x 470uF bulk cap, 100% Load, Tc = 25°C.
- 3) Vin=115/230Vac, Io=100%, Tc=25°C. Measured across one 0.1uF, four 10uF ceramic capacitors, and two 220uF electrolytic capacitors located 2 inches away. BW = 20MHz.
- 4) Vin = 115/230Vac, Io = 100%, Tc = 25°C.
- 5) Vo=28V. When Vo is higher than 28V, OCP trip point will be lower to limit Po\_max.

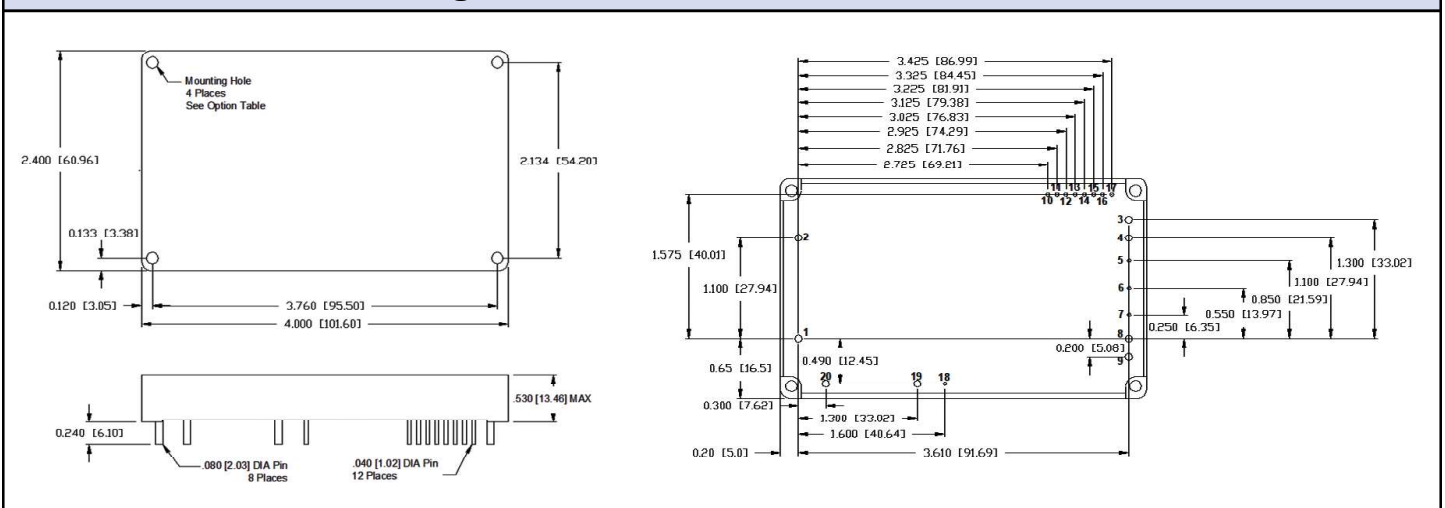
## Specifications

Model	Output Voltage (V)	Adjust. Range (V)	Maximum Current (A)	Maximum Wattage (W)	Efficiency (typ) (%) (4)
PFH500F-28-XXX-R	28	22.4 - 33.6	18	504	90 / 92

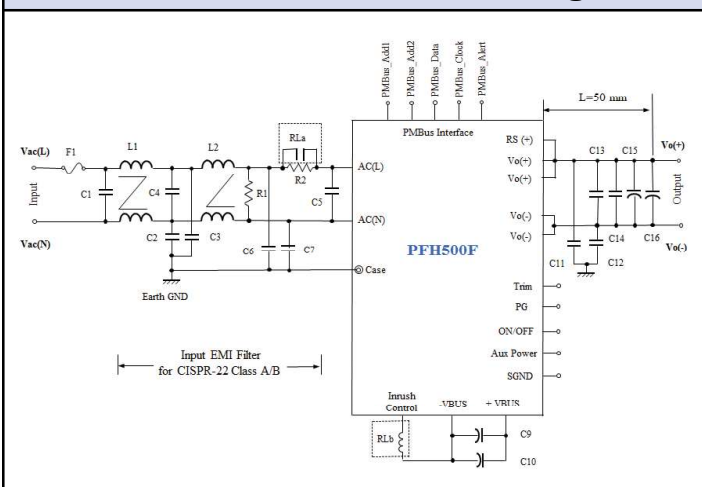
## Model Suffix (“XXX”) Selector

Suffix	Mounting Inserts	Overvoltage Protection	Overcurrent Protection	Overtemperature Protection	Pin Length	Drop Mode Current Share
0D0	3.3mm Ø Non-threaded	Latching	Non-Latching	Non-Latching	0.24” (6.1mm)	Yes
1D0	3mm (M3) Threaded	Latching	Non-Latching	Non-Latching	0.24” (6.1mm)	Yes
000	3.3mm Ø Non-threaded	Latching	Non-Latching	Non-Latching	0.24” (6.1mm)	No
100	3mm (M3) Threaded	Latching	Non-Latching	Non-Latching	0.24” (6.1mm)	No

## PFH500F Outline Drawing



## PFH500F Basic Connection Diagram



## Pinout

PIN	Function	PIN	Function
1	AC Input (Line) or AC (L)	11	Secondary Signal GND or SGND
2	AC Input (Neutral) or AC (N)	12	Aux Power Supply or Aux Power
3	Vout (-)	13	PMBus Clock
4	Vout (-)	14	PMBus Data
5	Remote ON/OFF	15	PMBus Alert
6	Trim	16	PMBus Address 2
7	Remote Sense (+) or RS (+)	17	PMBus Address 1
8	Vout (+)	18	Inrush Control or Inrush CTL
9	Vout (+)	19	- Boost Voltage Bus or -VBUS
10	Power Good or PG	20	+ Boost Voltage Bus or +VBUS

## Evaluation Board

Evaluation Kit Part #	Content
PFH05W-001-EVK-S0	Evaluation Kit Assembly with no module
PFH05W28-100-EVK-S1	Evaluation Kit Assembly with PFH500F-28-100-R module
PFH05W28-1D0-EVK-S1	Evaluation Kit Assembly with PFH500F-28-1D0-R module
PFH05W-S01-EVK-S0	Evaluation Kit Assembly with Surge I/P Filter; no module

## Heatsink Accessory

Part #	Description
HS00110	2.4" x 4" x 1.5" Al with cylindrical pin fins and integrated thermal pad

For Additional Information, please visit [us.tdk-lambda.com/lp/products/pfh-series.htm](http://us.tdk-lambda.com/lp/products/pfh-series.htm)





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