

## DESCRIPTION

This series is a compact 2 x 4 inches, open PCB constructed AC/DC switching power supplies are capable of delivering 150 watts continuous output power at 30 CFM forced air cooling or 100 watts at convection cooling.

## FEATURES

- BF class insulation
- 2 x 4 x 1.3 inch profile
- Meet EN55011/ EN55022 and FCC Class B
- OVP, OCP, OTP protection
- Efficiency 89% typical
- No load power consumption less than 0.5W
- Power Fail Indication (PFI)
- 150W output power at 30 CFM forced air
- Fan driver 12Vdc

## INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	1.7 A (rms) for 115 VAC 0.85 A (rms) for 230 VAC
No load Power Consumption	< 0.5W (without PFI) or < 1 W (with PFI)
Earth leakage current:	275 µA max. @ 264 VAC, 63 Hz

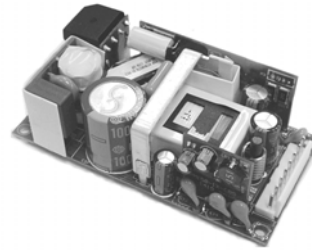
## OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Total output power:	See rating chart.
Ripple and Noise	1% peak to peak maximum
Protection:	
Over voltage:	Latch off
Over current:	Auto recovery
Over Temperature	Latch off
Temperature coefficient:	All outputs ±0.04% /°C maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 us after a 25% step load change
Fan power:	12 V at 1.0 A maximum (isolated)

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0°C to +70°C
Storage temperature:	-20°C to +85°C
Relative humidity:	5% to 95% non-condensing
Derating:	Derate from 100% at +50°C linearly to 50% at +70°C, applicable to convection and forced-air cooling conditions

## FSP150M-K24 SERIES



RoHS



## SAFETY STANDARD APPROVAL



(Proceeding)



(Proceeding)

## GENERAL SPECIFICATIONS

Switching frequency:	133 KHz (typical)
Power factor:	0.98 typical
Efficiency:	Refer to rating table
Hold-up time:	10 ms minimum at 120 VAC
Line regulation:	±0.5% maximum at full load
Inrush current:	55 A @ 115 VAC or 110 A @ 230 VAC, at 25°C cold start
Withstand voltage:	4000 VAC from input to output (2 MOPP) 1500 VAC from input to ground (1 MOPP) 1500 VAC from output to ground
MTBF:	250,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F
EMC Performance	
EN55011/ EN55022:	Class B conducted, class B radiated
FCC:	Class B conducted, class B radiated
VCCI:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class A and D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, ±8 KV air and ±4 KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, ±1 KV
EN61000-4-5:	Surge, ±1 KV diff., ±2 KV com
EN61000-4-6:	Conducted immunity, 3 Vrms
EN61000-4-8:	Magnetic field immunity, 1 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms, >95% reduction for 10 ms

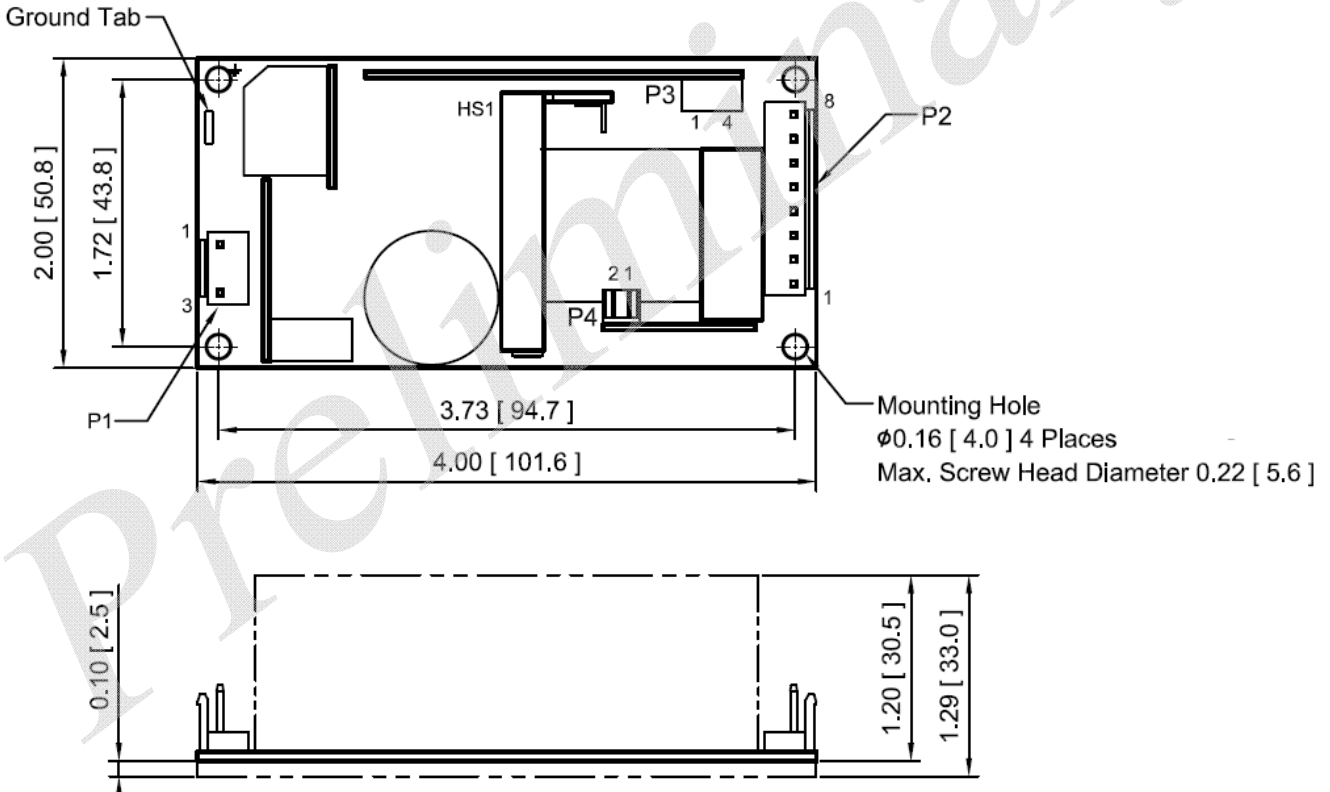
## OUTPUT VOLTAGE/CURRENT RATING CHART

Model	Output							Efficiency (typical)		
	V1	Min. load	Max. Current (convection)	Max. Current (7.5 CFM)	Peak <sup>(1)</sup> Current	Tol.	Ripple & Noise <sup>(3)</sup>	Max. Power <sup>(2)</sup>	Max. Power (convection) 115/230 Vac	Max. Power (7.5 CFM) 115/230 Vac
FSP150M-K24-12	12 V	0 A	8.3 A	12.5 A	14.0 A	±2%	120 mV	100 W /150 W	87 /89%	86 /88%
FSP150M-K24-15	15 V	0 A	6.7 A	10.0 A	11.0 A	±2%	150 mV	100 W /150 W	87 /89%	86 /88%
FSP150M-K24-18	18 V	0 A	5.56 A	8.34 A	9.2 A	±2%	180 mV	100 W /150 W	87 /89%	86 /88%
FSP150M-K24-24	24 V	0 A	4.2 A	6.3 A	7.0 A	±2%	240 mV	100 W /150 W	87 /89%	86 /88%
FSP150M-K24-30	30 V	0 A	3.34 A	5.0 A	5.6 A	±2%	300 mV	100 W /150 W	87 /89%	86 /88%
FSP150M-K24-36	36 V	0 A	2.78 A	4.17 A	4.6 A	±2%	360 mV	100 W /150 W	87 /89%	86 /88%
FSP150M-K24-48	48 V	0 A	2.1 A	3.1 A	3.5 A	±2%	480 mV	100 W /150 W	87 /89%	86 /88%

**NOTES:**

1. Peak output current with 10% duty cycle maximum for less than 15 seconds, average power not to exceed maximum power rating.
2. The first value of max. power is at convection cooling. The second value is with 7.5 CFM forced air provided by user.
3. Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

## MECHANICAL SPECIFICATIONS



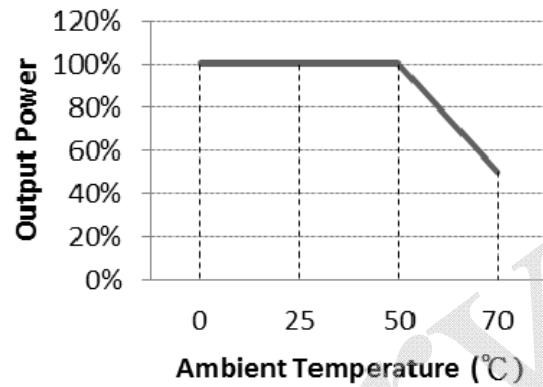
**NOTES:**

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1: JST header P/N V3P-VH-B, mating with JST housing P/N VHR-3N or equivalent.
4. Output connector P2: JST header P/N V8P-VH-B, mating with JST housing P/N VHR-8N or equivalent.
5. Connector P3: JST header B4B-PH-K-S (LF) (SN), mating with JST housing PHR-4 or equivalent.
6. FAN connector P4: JST header B2B-PH-K-S (LF) (SN), mating with JST housing PHR-2 or equivalent.
7. Ground tab is 0.25 [6.35] × 0.032 [0.8] fast-on connector.

## INTERFACE SIGNALS

**PFD:** Output signal, this signal appears at least 1ms prior to V1 output dropping 5% below its nominal value. This signal also provides a minimum delay of 100 ms after V1 is within regulation.  
 TTL logic high for normal operation and TTL logic low upon loss of input power.

## OUTPUT POWER DERATING CURVE



## CONNECTOR PIN CHART

Connector	Ground Tab	P1			P2								P3				P4	
Pin No.		1	2	3	1	2	3	4	5	6	7	8	1	2	3	4	1	2
Polarity	Ground	Neutral	---	Live	Common Return				+V1				Common Return	PFD	-Sense	+Sense	+12V Fan	Fan Return (Isolated)

**Weight:** 200 grams (0.44 lbs.) approx.