

225 Watts

ECP Series

GREEN  POWER

Specification

Input

Input Voltage • 85-264 VAC, Derate from 100% at 90 VAC to 90% at 85 VAC

Input Frequency • 47-63 Hz

Input Current • 2.2 A typical at 115 VAC, 1.1 A typical at 230 VAC

Inrush Current • 120 A max at 230 VAC, cold start at 25 °C

Power Factor • >0.95 at full load

Earth Leakage Current • <230 µA at 264 VAC, 60 Hz

No Load Input Power • <0.5 W

Input Protection • Internal T3.15A/250VAC fitted in line and neutral

Output

Output Voltage • See tables

Output Voltage Trim • ±5%

Initial Set Accuracy • ±1% at 50 % load

Minimum Load • No minimum load requirement

Start Up Delay • 2 s max

Start Up Rise Time • 55 ms typical

Hold Up Time • 10 ms minimum at full load and 115 VAC 20 ms typical at 150 W, 13 ms typical at 225 W

Line Regulation • ±0.5% max

Load Regulation • ±0.5% max

Transient Response • 4% maximum deviation, recovering to less than 1% within 500 µs for 25% step load

Ripple & Noise • 1% max pk-pk, 20 MHz bandwidth, (see note 2)

Overvoltage Protection • 110% - 140% of nominal voltage on main output. Recycle mains to reset.

Overload Protection • 110-170%

Short Circuit Protection • Trip and restart (hiccup)

Thermal Protection • Measured internally. Auto resetting.

Temperature Coefficient • 0.02%/ $^{\circ}$ C

Fan Supply • 12 V at 500 mA

- Low 1" Profile with 2.5" x 5" Footprint
- 150/225 W Convection/ Forced-cooled
- High Efficiency – up to 95%
- Medical & ITE Approvals
- Built-in Fan Supply
- <0.5 W No Load Input Power
- 3 Year Warranty

General

Efficiency • See table

Isolation • 4000 VAC Input to Output 1500 VAC Input to Ground 1500 VAC Output to Ground

Protection Level • Primary to Secondary: 2 MOPP Primary to Earth: 1 MOPP Secondary to Earth: 1 MOPP

Power Density • 12/18 W/in³ convection/forced-cooled,

Switching Frequency • PFC: 70-130 KHz, PWM: 50-80 KHz

MTBF • >300 kHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature • -20 °C to +70 °C derate from 100% load at 50 °C to 50% load at 70 °C

Cooling • Convection cooled: 150 W Forced cooled: 225 W with 10 CFM

Operating Humidity • 5% to 90% RH, non condensing

Operating Altitude • 5000 m

Storage Temperature • -40 °C to +85 °C

Shock • IEC68-2-27, 30 g, 11 ms half sine, 3 times in each of 6 axes

Vibration • IEC68-2-6, 10-500 Hz, 2 g 10 mins / sweep. 60 mins for each of 3 axes

EMC & Safety

Emissions • EN55022/11, Level B conducted & Level A radiated, Level B radiated with external core, see note 5.

Harmonic Currents • EN61000-3-2 Class A EN61000-3-2 Class C for load >145 W

Voltage Flicker • EN61000-3-3

ESD Immunity • EN61000-4-2, ±8 kV air, ±4 kV contact, Perf Criteria A

Radiated Immunity • EN61000-4-3, 3 V/m, Perf Criteria A

EFT/Burst • EN61000-4-4, level 3, Perf Criteria A

Surge • EN61000-4-5, installation class 3, Perf Criteria A

Conducted Immunity • EN61000-4-6, 3 V, Perf Criteria A

Dips & Interruptions • EN55024, 100% 10 ms, 30%, 500 ms, 100%, 5000 ms Perf Criteria A, A, B for high line, A, B, B for low line at full load, EN60601-1-2, 30% 500 ms, 60% 100 ms, 100% 10 ms, 100% 5000 ms, Perf Criteria A, A, A, B for high line, A, B, A, B for low line at full load

Safety Approvals • UL60950-1, IEC60950-1, EN60950-1, ANSI/AAMI ES 60601-1, IEC60601-1, EN60601-1

Models and Ratings

Output Voltage	Output Current		Ripple and Noise pk-pk ⁽²⁾	Fan Output	Efficiency ⁽³⁾	Model Number ⁽⁴⁾
	Convection-cooled	Forced-cooled ⁽¹⁾				
12.0 V	12.50 A	18.75 A	120 mV	12 V/0.5 A	93%	ECP225PS12
15.0 V	10.00 A	15.00 A	150 mV	12 V/0.5 A	93%	ECP225PS15
24.0 V	6.25 A	9.38 A	240 mV	12 V/0.5 A	94%	ECP225PS24
28.0 V	5.36 A	8.04 A	280 mV	12 V/0.5 A	94%	ECP225PS28
48.0 V	3.10 A	4.69 A	480 mV	12 V/0.5 A	94%	ECP225PS48

Notes

- Requires 10 CFM.
- Measured with 20 MHz bandwidth and 10 μ F electrolytic capacitor in parallel with 0.1 μ F ceramic capacitor
- Minimum average efficiencies measured at 25%, 50%, 75% & 100% of 225 W load and 230 VAC input.
- 3" x 5" Footprint available for OEM quantities, add suffix '-3X5' to part eg. ECP225PS24-3X5.
- To meet Level B radiated, a torroid is required on output load leads. Use King Core type K5B RC 25*12*15 for all models except 28V which requires type K5B T 16.5*13*8.2.

Mechanical Details

CN1 - Input Connector	
Pin 1	Neutral
Pin 2	Not Fitted
Pin 3	Line

Mates with JST housing
VHR-3N and JST Series
SVH-21T-P1.1 crimp terminals

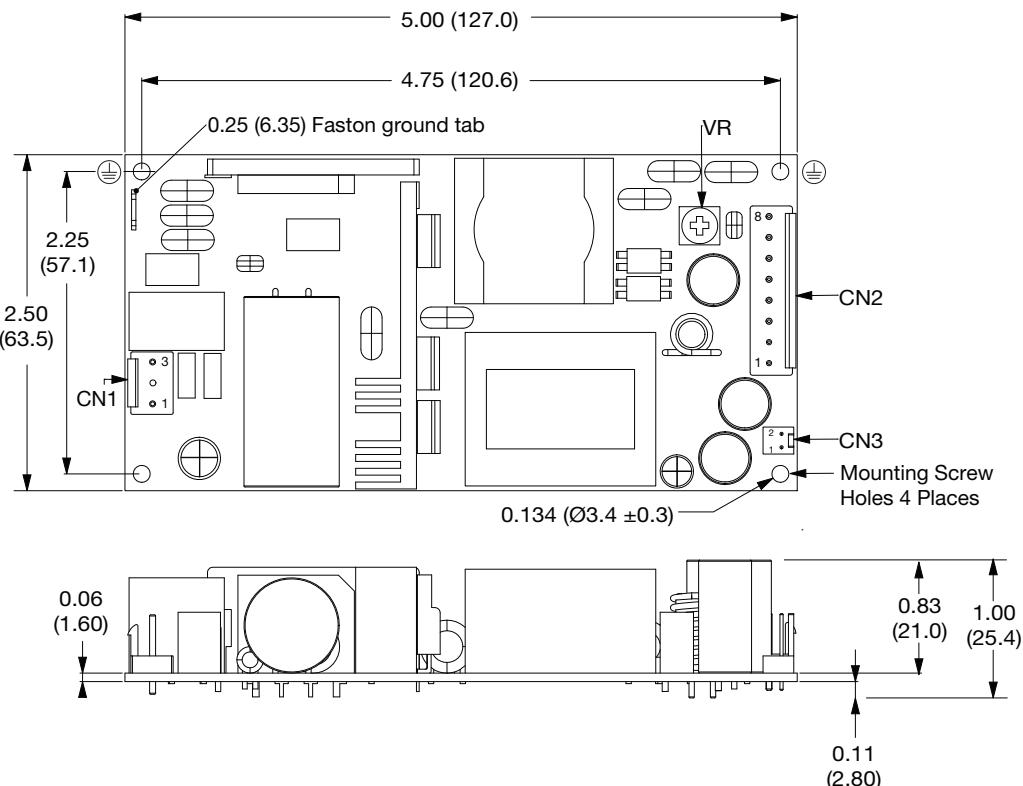
Mounting holes marked with must be connected to safety earth

CN2 - Output Connector	
Pin 1	-Vout
Pin 2	-Vout
Pin 3	-Vout
Pin 4	-Vout
Pin 5	+Vout
Pin 6	+Vout
Pin 7	+Vout
Pin 8	+Vout

Mates with JST housing
VHR-8N and JST Series
SVH-21T-P1.1 crimp terminals

CN3 - Fan Connector	
Pin 1	Fan -
Pin 2	Fan +

Mates with Molex housing
22-01-1022 and 2759 crimp terminals



Notes

- All dimensions shown in inches (mm).
Tolerance: ± 0.02 (0.5)
- Weight: 0.51 lbs (230 g) approx.
- Non earthed mounting hole on secondary side requires insulated mounting to maintain 1 MOPP secondary to ground.

Derating Curve

