ECP225 series

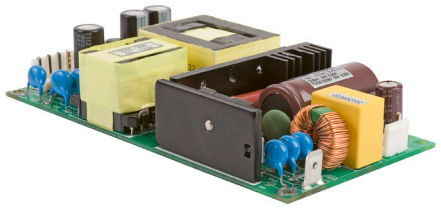
XP Power

225W Fan cooled **150W** Convection cooled

AC-DC power supplies

The ECP225 series has been designed to minimise the no load power consumption and maximise efficiency in order to facilitate equipment design to meet the latest environmental legislation. Approved for medical (2 x MOPP), ITE and industrial electronics applications, this range of single output AC-DC power supplies are packaged in an ultra-low profile 25.4mm height with a foot print of just 127.0 x 63.5mm (5.0" x 2.5"). The power supply contains two fuses and low leakage currents as required by medical applications and is safety approved to operate in a +70°C ambient, a 12VDC 500mA fan supply is included in the design.

The low profile and safety approvals covering ITE and medical standards along with conducted emissions meeting EN55011/32 level B allow the versatile ECP225 series to be used in a vast range of applications.



Features

- 225W fan cooled 150W convection cooled
- 127.0 x 63.5mm (5" x 2.5") footprint, 25.4mm profile
- Regulated single outputs 12 to 48VDC
- Input range 85 to 264VAC
- High efficiency – up to 95%
- Medical (2 x MOPP) & ITE approvals
- 4.0kVAC input to output isolation
- <0.5W no load input power
- 12V/0.5A fan supply
- -20°C to +70°C operating temperature
- Full load to +50°C
- 3 year warranty

Applications

Instrumentation

Robotics

IoT

Process control

Dimensions

127.0 x 63.5 x 25.4mm (5.00" x 2.50" x 1.00")

Documentation

Click the link or scan the code

→ xppower.com

Models & ratings

Model number[3]	Output current		Standby voltage		Fan output[3,4]	Ripple and Noise pk-pk[1]	Efficiency[2]
	Convection-cooled	Fan Cooled (4.72l/s)	Convection-cooled	Fan Cooled (4.72l/s)			
ECP225PS12	12.50A	18.75A	5V/1.0A	5V/2.0A	12V/0.5A	120mV	93%
ECP225PS15	10.00A	15.00A				150mV	93%
ECP225PS24	6.25A	9.38A				240mV	94%
ECP225PS28	5.36A	8.04A				280mV	94%
ECP225PS48	3.10A	4.69A				480mV	94%

Notes:

1. Measured with 20MHz bandwidth and 10µF electrolytic capacitor in parallel with 0.1µF ceramic capacitor
2. Minimum average efficiencies measured at 25%, 50%, 75% & 100% of 225 W load and 230VAC input.
3. 3" x 5" Footprint available for OEM quantities, add suffix '-3X5'to part eg.ECP225PS24-3X5.
4. 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.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage - operating	80		264	VAC	Derate output from 100% at 90VAC to 90% at 85VAC
Input frequency	47		63	Hz	
Power factor		>0.95			At full load
Input current		2.2/1.1		A	115/230VAC
Inrush current		120		A	230VAC cold start, +25°C
Earth leakage current		<230		µA	60Hz
No load input power		<0.5		W	
Input protection	Internal T3.15A/250VAC fitted in line and neutral				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models and ratings table				
Output voltage trim		±5		%	
Initial set accuracy		±1		%	50% load
Minimum load	No minimum load required				
Start up delay			2	s	115/230VAC full load.
Start up rise time		55		ms	
Hold Up Time	10			ms	At full load
		20			115VAC at 150W
		13			225W
Line regulation			±0.5	%	
Load regulation			±0.5	%	
Transient response			4	%	Deviation, recovering to less than 1% within 500µs for 25% step load
Ripple & noise			1	% pk-pk	20MHz bandwidth and 10µF electrolytic capacitator in parallel with 0.1µF ceramic capacitator.
Overvoltage protection	110		140	%	Nominal voltage on main output, recycle mains to reset.
Overload Protection	110		170	%	
Short Circuit Protection	Trip & restart				
Temperature Coefficient			0.02	%/°C	
Thermal protection	Measured internally, Auto Resetting				
Fan supply		12		V	At 500mA

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models and ratings table				
Isolation: Input to output		4000		VAC	
Input to ground		1500		VAC	
Output to ground		1500		VAC	
Protection level	Primary to Secondary: 2 x MOPP, Primary to Earth: 1 x MOPP, Secondary to Earth: 1 x MOPP				
Power density			0.73 (12.0)	W/cm^3 (W/in^3)	Convection cooled
			1.09 (18.0)		Fan cooled
MTBF		300		khrs	MIL-HDBK-217F, Notice 2 +25°C GB
Weight		230 (0.51)		g (lbs)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-20		+70	°C	Derate from 100% load at +50°C to 50% load at +70°C
Storage temperature	-40		+85	°C	
Cooling		150		W	Convection cooled
		225			Fan cooled with 4.72l/s
Humidity	5		90	%RH	Non-condensing
Operating altitude		5000		m	
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				

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55011/32	Level A	
Radiated	EN55011/32	Level B	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.
Harmonic current	EN61000-3-2	Class A	Meet Class C for loads above >145W
Voltage flicker	EN61000-3-3		

Immunity - EMC

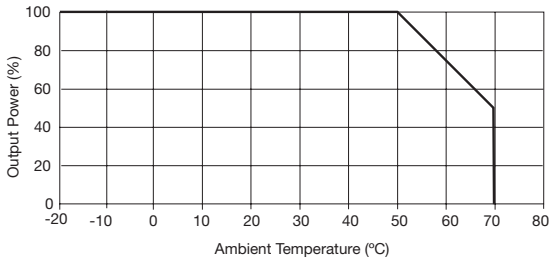
Phenomenon	Standard	Test Level	Criteria	Notes & conditions
ESD	EN61000-4-2		A	±8kV contact
Radiated	EN61000-4-3		A	±4kV air
EFT	EN61000-4-4	3	A	
Surge	EN61000-4-5	Installation class 3	A	
Conducted	EN61000-4-6	3V	A	
Magnetic Fields	EN61000-4-8	Magnetic Fields	A	
Dips and interruptions	EN55035	100%, 10ms	A	For high line
		30%, 500ms	A	
		100%, 5000ms	B	
	EN60601-1-2	30%, 500ms	A	For high line (Performance criteria A, B, A, B for low line at full load)
		60%, 100ms	A	
		100%, 10ms	A	
		100%, 5000ms	B	

Safety approvals

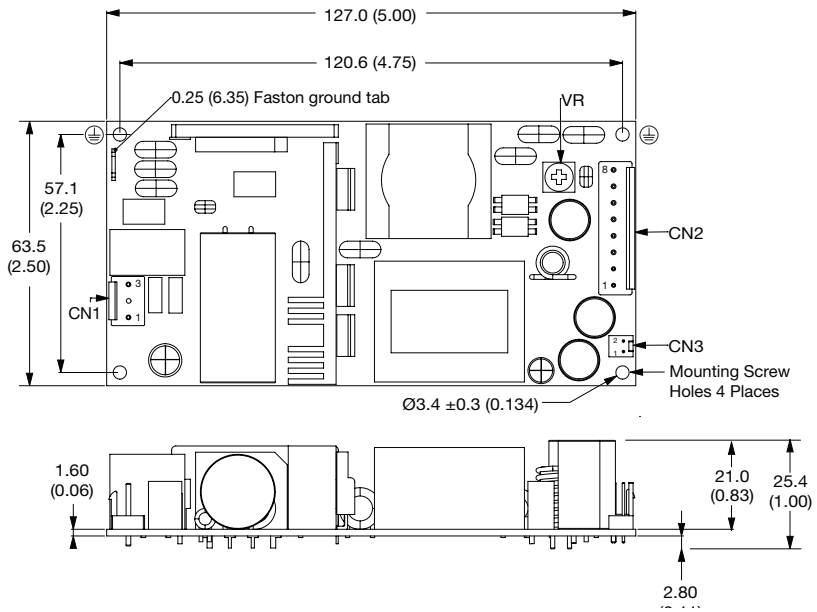
Certification	Standard	Notes & Ccnditions
CB	IEC62368-1	Information technology
	IEC60601-1	Medical
UL	UL62368-1	Information technology
EN	EN62368-1	Information Technology
Others	ES 60601-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Application notes

Derating curve



Mechanical details



CN1 - Output 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

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 - Output Connector	
Pin 1	Fan -
Pin 2	Fan +

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

Mounting hole marked with ⏚ must be connected to safety earth for class I applications

Notes:

1. All dimensions in mm (inches). Tolerance .xx = 0.50 (±0.02); .xxx = 0.25 (±0.01)
2. Weight:230g (0.51lbs)