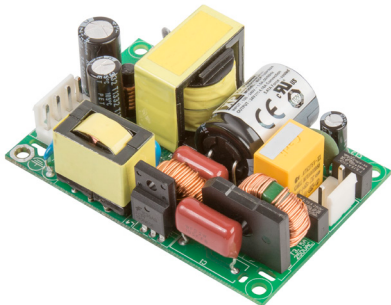


The ECP130 series is designed to minimize the no load power consumption and maximize efficiency to facilitate equipment design to meet the latest environmental legislation.

Approved for medical (2 x MOPP), industrial electronics and ITE applications. The power supply contains two fuses and a low leakage current as required for medical applications, it is safety approved to operate in a 70°C ambient.

The low profile and safety approvals covering ITE and medical standards along with conducted emissions to EN55011/32 level B allow the versatile ECP130 series to be used in a vast range of applications.



Features

- ▶ 130W fan cooled 100W convection cooled
- ▶ 76.2 x 50.8mm (3" x 2") footprint, 28.0mm 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
- ▶ -20°C to +70°C operating temperature
- ▶ Full load to +50°C
- ▶ 3 year warranty

Applications

  
Instrumentation

  
Robotics

  
IoT

  
Process control

Dimensions

76.2 x 50.8 x 28.0mm (3.00" x 2.00" x 1.10")

Documentation

Click the link or scan the code

→ [xppower.com](http://xppower.com)



Models & ratings

| Model number <sup>(1)</sup> | Output current    |                       | Output voltage | Efficiency <sup>(2)</sup> |
|-----------------------------|-------------------|-----------------------|----------------|---------------------------|
|                             | Convection-cooled | Forced Cooled (10CFM) |                |                           |
| ECP130PS12                  | 8.33 A            | 10.83A                | 12.0VDC        | 93%                       |
| ECP130PS15                  | 6.66 A            | 8.66A                 | 15.0VDC        | 93%                       |
| ECP130PS18                  | 5.55 A            | 7.22A                 | 18.0VDC        | 93%                       |
| ECP130PS24                  | 4.16 A            | 5.41A                 | 24.0VDC        | 93%                       |
| ECP130PS28                  | 3.57 A            | 4.64A                 | 28.0VDC        | 93%                       |
| ECP130PS36                  | 2.77 A            | 3.61A                 | 36.0VDC        | 93%                       |
| ECP130PS48                  | 2.08 A            | 2.70A                 | 48.0VDC        | 93%                       |

Notes:

1. Add suffix '-S' for input and output screw terminals e.g. ECP130PS24-S

2. Typical efficiency measured at full load and 230VAC input.

## Input

| Characteristic            | Minimum                                                | Typical  | Maximum | Units | Notes & conditions                                 |
|---------------------------|--------------------------------------------------------|----------|---------|-------|----------------------------------------------------|
| Input Voltage - Operating | 80                                                     | 115/230  | 264     | VAC   | Derate output from 100% at 90 VAC to 85% at 85 VAC |
| Input Frequency           | 47                                                     | 50/60    | 63      | Hz    | Agency approval, 47-63 Hz                          |
| Power Factor              | 0.8                                                    |          |         |       | 230 VAC, 100% load EN61000-3-2 class A             |
| Input Current - Full Load |                                                        | 1.3/0.65 |         | A     | 115/230 VAC                                        |
| Inrush Current            |                                                        | 120      |         | A     | 230 VAC cold start, 25°C                           |
| Earth Leakage Current     |                                                        | 20/40    | 50      | μA    | 115/230 VAC/50 Hz (Typ), 264 VAC/60 Hz (Max)       |
| No load Input Power       |                                                        |          | 0.5     | W     |                                                    |
| Input Protection          | F3.15 A/250V Internal fuse fitted in line and neutral. |          |         |       |                                                    |

## Output

| Characteristic            | Minimum                  | Typical | Maximum | Units   | Notes & conditions                                                                                                                           |
|---------------------------|--------------------------|---------|---------|---------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage            | 12                       |         | 48      | VDC     | See models and ratings table                                                                                                                 |
| Initial Set Accuracy      |                          |         | ±1      | %       | 50% load, 115/230VAC                                                                                                                         |
| Output Voltage Adjustment |                          |         |         | %       | None                                                                                                                                         |
| Minimum Load              | No minimum load required |         |         |         |                                                                                                                                              |
| Start Up Delay            |                          |         | 2       | s       | 115/230 VAC full load.                                                                                                                       |
| Hold Up Time              | 10                       | 15/11   |         | ms      | Min at full load, 115VAC. Typical at 100W/ 130W                                                                                              |
| Drift                     |                          |         | ±0.02   | %       | After 20 min warm up                                                                                                                         |
| Line Regulation           |                          |         | ±0.5    | %       | 90-264 VAC                                                                                                                                   |
| Load Regulation           |                          |         | ±0.5    | %       | 0-100% load.                                                                                                                                 |
| Transient Response        |                          |         | 4       | %       | Recovery within 1% in less than 500μs for a 50-75% and 75-50% load step                                                                      |
| Over/Undershoot           |                          |         | 7       | %       | Full load                                                                                                                                    |
| Ripple & Noise            |                          |         | 1       | % pk-pk | <2% from no load to 10% load, <1% above 10% load. 20MHz bandwidth and 10 μF electrolytic capacitor in parallel with 0.1μF ceramic capacitor. |
| Overvoltage Protection    | 110                      |         | 140     | %       | Vnom, recycle input to reset                                                                                                                 |
| Overload Protection       | 110                      |         | 170     | % I nom |                                                                                                                                              |
| Short Circuit Protection  |                          |         |         |         | Trip & Restart                                                                                                                               |
| Temperature Coefficient   |                          |         | 0.02    | %/°C    |                                                                                                                                              |

## General

| Characteristic                                                    | Minimum | Typical    | Maximum     | Units         | Notes & conditions        |
|-------------------------------------------------------------------|---------|------------|-------------|---------------|---------------------------|
| Efficiency                                                        |         | 95         |             | %             | 230 VAC (see fig. 1 & 2)  |
| Isolation: Input to output<br>Input to ground<br>Output to ground | 4000    |            |             | VAC           | 2 x MOPP                  |
|                                                                   | 1500    |            |             | VAC           | 1 x MOPP                  |
|                                                                   | 500     |            |             | VDC           | 1 x MOPP                  |
| Switching frequency                                               | 40      |            | 130         | kHz           | PFC                       |
|                                                                   | 50      |            | 135         |               | Main converter            |
| Power density                                                     |         |            | 1.2 (19.7)  | W/cm³ (W/in³) | Fan cooled                |
|                                                                   |         |            | 0.92 (15.1) |               | Convection cooled         |
| MTBF                                                              |         | 680        |             | khls          | MIL-HDBK-217F at 25°C, GB |
| Weight                                                            |         | 115 (0.25) |             | g (lbs)       |                           |

## Environmental

| Characteristic        | Minimum                                                                                                        | Typical | Maximum | Units | Notes & conditions        |
|-----------------------|----------------------------------------------------------------------------------------------------------------|---------|---------|-------|---------------------------|
| Operating temperature | -30                                                                                                            |         | +70     | °C    | See derating curve, fig.3 |
| Storage temperature   | -40                                                                                                            |         | +85     | °C    |                           |
| Cooling               | 10                                                                                                             |         |         | CFM   | Forced-cooled >100W       |
| Humidity              | 5                                                                                                              |         | 95      | %RH   | Non-condensing            |
| Operating altitude    |                                                                                                                |         | 5000    | m     |                           |
| Shock                 | ±3 x 30g shocks in each plane, total 18 shocks. 30g = 11ms (+/- 0.5msecs), half sine. Conforms to EN60068-2-27 |         |         |       |                           |
| Vibration             | Single axis 10-500 Hz at 2g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6          |         |         |       |                           |

## Emissions - EMC

| Phenomenon       | Standard    | Test level | Notes & conditions                                                                                                                |
|------------------|-------------|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Conducted        | EN55011/32  | Class B    |                                                                                                                                   |
| Radiated         | EN55011/32  | Class A    | Class B with additional KINGCORE K5B RC<br>20 x 30 x 5 - MB ferrite on input cable. L & N require 2 turns and earth cable 1 turn. |
| Harmonic current | EN61000-3-2 | Class A    |                                                                                                                                   |
| Voltage flicker  | EN61000-3-3 |            |                                                                                                                                   |

## Immunity - EMC

| Phenomenon             | Standard              | Test Level               | Criteria | Notes & conditions           |
|------------------------|-----------------------|--------------------------|----------|------------------------------|
| Medical device EMC     | IEC60601-1-2          | 3                        | as below |                              |
| Low voltage PSU EMC    | EN61204-3             | 3                        | as below |                              |
| ESD                    | EN61000-4-2           | 3                        | A        |                              |
| Radiated               | EN61000-4-3           |                          | A        |                              |
| EFT                    | EN61000-4-4           | 3                        | A        |                              |
| Surge                  | EN61000-4-5           | 30% for 10ms             | A        |                              |
| Conducted              | EN61000-4-6           | Conducted                | A        |                              |
| Magnetic fields        | EN61000-4-8           | Magnetic Fields          | A        |                              |
| Dips and interruptions | EN55035 (100 VAC)     | Dip >95% (0 VAC), 8.3ms  | A        |                              |
|                        |                       | Dip 30% (70 VAC), 416ms  | A        |                              |
|                        |                       | Dip >95% (0 VAC), 4160ms | B        |                              |
|                        | EN55035 (240 VAC)     | Dip >95% (0 VAC), 10.0ms | A        |                              |
|                        |                       | Dip 30% (168 VAC), 500ms | A        |                              |
|                        |                       | Dip >95% (0 VAC), 5000ms | B        |                              |
|                        | EN60601-1-2 (100 VAC) | Dip 100% (0 VAC), 10.0ms | A        |                              |
|                        |                       | Dip 100% (0 VAC), 20ms   | A        |                              |
|                        |                       | Dip 60% (40 VAC), 100ms  | B        | Performance criteria A <25 W |
|                        |                       | Dip 30% (70 VAC), 500ms  | A        |                              |
|                        |                       | Dip 100% (0 VAC), 5000ms | B        |                              |
|                        | EN60601-1-2 (240 VAC) | Dip 100% (0 VAC), 10.0ms | A        |                              |
|                        |                       | Dip 100% (0 VAC), 20ms   | A        |                              |
|                        |                       | Dip 60% (96 VAC), 100ms  | A        |                              |
|                        |                       | Dip 30% (168 VAC), 500ms | A        |                              |
|                        |                       | Dip 100% (0 VAC), 5000ms | B        |                              |

Safety approvals

| Certification | Standard                                      | Notes & Cnditions      |
|---------------|-----------------------------------------------|------------------------|
| CB            | IEC62368-1                                    | Information technology |
|               | IEC60601-1 Ed 3.1 Including Risk Management   | Medical                |
| UL            | CSA 22.2 No.62368-1-11 Ed 2, UL62368-1        | Information technology |
|               | ANSI/AAMI ES60601-1: & CSA C22.2 No.6061-1:08 | Medical                |
| EN            | EN62368-1                                     | Information technology |
|               | EN60601-1                                     | Medical                |
| CE            | Meets all applicable directives               |                        |
| UKCA          | Meets all applicable legislation              |                        |

| Isolation            | Standard                               | Notes & Cnditions |
|----------------------|----------------------------------------|-------------------|
| Primary to Secondary | 2 x MOPP (Means of Patient Protection) | IEC60601-1 Ed 3.1 |
| Primary to Earth     | 1 x MOPP (Means of Patient Protection) |                   |
| Secondary to Earth   | 1 x MOPP (Means of Patient Protection) |                   |

Application notes

Thermal considerations

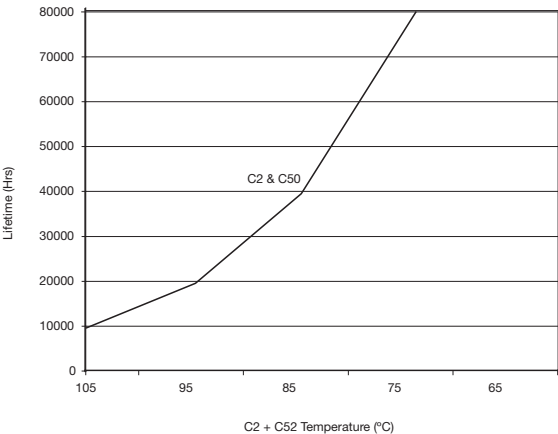
In order to ensure safe operation of the PSU in the end-use equipment, the temperature of the components listed in the table below must not be exceeded. Temperature should be monitored using K type thermocouples placed on the hottest part of the component (out of direct air flow). See mechanical details for component locations.

| Temperature measurements (at maximum ambient) |                      |
|-----------------------------------------------|----------------------|
| Component                                     | Max temperature (°C) |
| TR1 Coil                                      | 120°C                |
| L4 Coil                                       | 120°C                |
| C2                                            | 105°C                |
| C50                                           | 105°C                |

Service life

The estimated service life of the ECP225-A is determined by the cooling arrangements and load conditions experienced in the end application. Due to the uncertain nature of the end application this estimated service life is based on the actual measured temperature of a key capacitor with in the product when installed by the end application. The graph below expresses the estimated lifetime of a given component temperature and assumes continuous operation at this temperature.

Estimate service life vs component temperature



Efficiency vs load

Figure 1, ECP130PS12, 12 V at 130 W

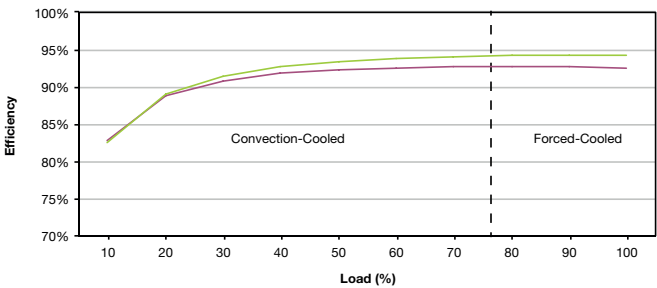
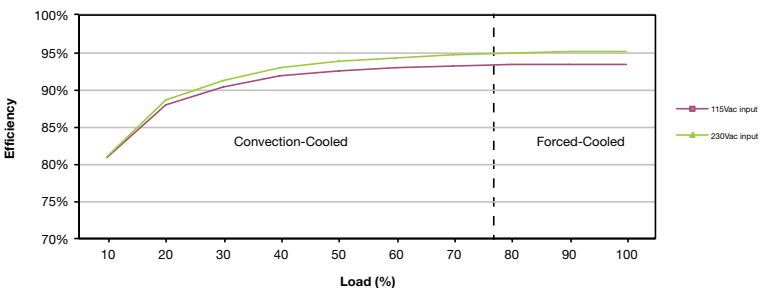
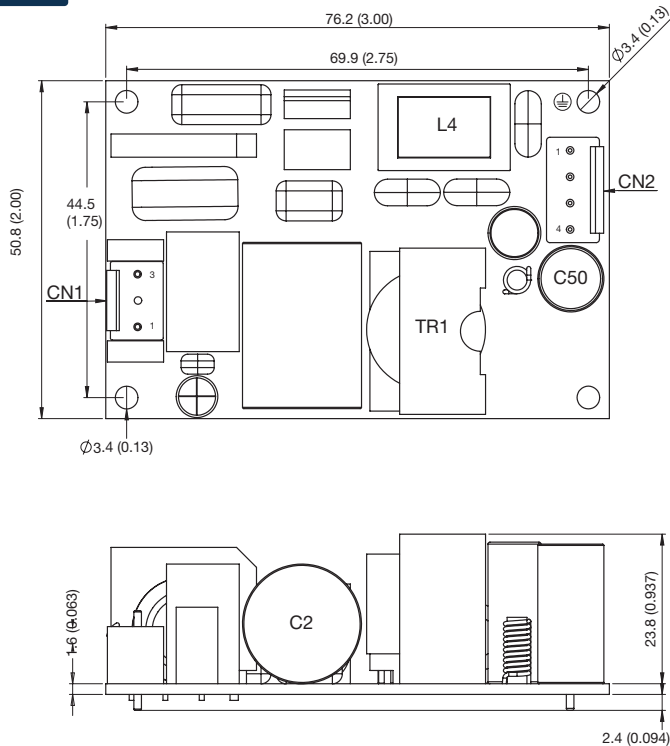


Figure 2, ECP130PS24, 24 V at 130 W



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 hole marked with  
⊕ must be connected to safety earth

| CN2 - Output Connector |       |
|------------------------|-------|
| Pin 1                  | +Vout |
| Pin 2                  | +Vout |
| Pin 3                  | Com   |
| Pin 4                  | Com   |

Mates with JST housing  
VHR-4N and JST Series  
SVH-21T-P1.1 crimp terminals

Notes:

1. All dimensions in mm (inches). Tolerance .xx = 0.50 (±0.02); .xxx = 0.25 (±0.01)
2. Weight: 115g (0.025lbs)