

5/10 Watts

ECE Series



GREEN XP POWER

- Ultra Compact Size
- Single Outputs from 3.3 to 48 V
- Encapsulated PCB Mount
- <0.3 W No Load Input Power
- Peak Load Capability
- No External Components Required
- 3 Year Warranty

Specification

Input

| | |
|-----------------------|---|
| Input Voltage | • 85-264 VAC (120-370 VDC) derate load from 100% at 90 VAC to 90% at 85 VAC |
| Input Frequency | • 47-63 Hz |
| Input Current | • ECE05: 0.1 A rms at 230 VAC ECE10: 0.2 A rms at 230 VAC |
| Inrush Current | • ECE05: 5 A at 115 VAC, 10 A at 230 VAC, ECE10: 10 A at 115 VAC, 20 A at 230 VAC cold start at 25 °C |
| Power Factor | • EN61000-3-2 Class A |
| Earth Leakage Current | • Class II construction no earth |
| No Load Input Power | • <0.3 W |
| Input Protection | • Internal T1 A/250 VAC fuse |

Output

| | |
|--------------------------|---|
| Output Voltage | • See tables |
| Initial Set Accuracy | • $\pm 1\%$ |
| Minimum Load | • No minimum load required |
| Start Up Delay | • 2 s max |
| Start Up Rise Time | • 25 ms max |
| Hold Up Time | • 8 ms/40 ms typical at full load and 115/230 VAC |
| Line Regulation | • $\pm 0.5\%$ max |
| Load Regulation | • $\pm 1\%$ max |
| Transient Response | • 4% max deviation, recovery to within 1% in 500 μ s for a 25% load change |
| Ripple & Noise | • 3.3-5 V versions: 60 mV pk-pk, all other models 1% pk-pk max 20 MHz bandwidth |
| Overvoltage Protection | • 125-190%, 195-216% ECE10US03 |
| Overload Protection | • 125-190% |
| Short Circuit Protection | • Trip and restart (hiccup mode) |
| Temperature Coefficient | • 0.05%/°C |

General

| | |
|---------------------|---|
| Efficiency | • See tables |
| Isolation | • 4000 VAC Input to Output |
| Switching Frequency | • 130 kHz typical |
| Power Density | • ECE05: 8.3 W/In ³ ECE10: 11.1 W/In ³ |
| MTBF | • >450 kHrs to MIL-HDBK-217F at 25 °C, GB |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | • -25 °C to +70 °C, derate linearly from 100% at +50 °C to 50% at +70 °C |
| Cooling | • Convection-cooled |
| Operating Humidity | • 95% RH, non-condensing |
| Storage Temperature | • -40 °C to +85 °C |
| Operating Altitude | • 3048 m, 10,000 ft |
| Vibration | • 2 g, 10 Hz to 500 Hz, 10 mins/cycle, 60 mins each of 3 axes. |

EMC & Safety

| | |
|----------------------|---|
| Emissions | • EN55032, level B conducted & radiated* |
| Harmonic Currents | • EN61000-3-2, EN61000-3-3 |
| ESD Immunity | • EN61000-4-2, level 3 Perf Criteria A |
| Radiated Immunity | • EN61000-4-3, 10 V/m 80% mod 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, 10 Vrms Perf Criteria A |
| Magnetic Fields | • EN61000-4-8, 10 A/m Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11, 30% for 10 ms, 60% for 100 ms, 100% for 5000 ms Perf Criteria A, B, B |
| Safety Approvals | • IEC60950-1:2005 Ed 2 / IEC62368-1:2014 UL 62368-1 & CAN/CSA C22.2 No. 62368-1-14, EN62368-1:2014/A11:2017 |

Notes

* If output is connected to GND, please contact applications engineering for further information.

Models and Ratings

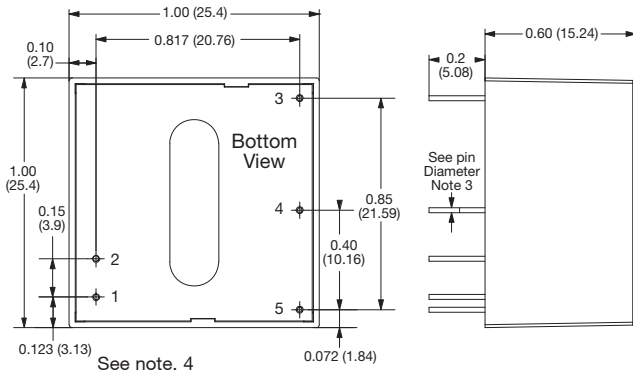
| Output Power | Output Voltage | Output Current | | Efficiency ⁽³⁾ | Model Number ⁽²⁾ |
|--------------|----------------|----------------|---------------------|---------------------------|-----------------------------|
| | | Nominal | Peak ⁽¹⁾ | | |
| 5.0 W | 3.3 VDC | 1.51 A | 1.81 A | 74% | ECE05US03 |
| 5.0 W | 5.0 VDC | 1.00 A | 1.20 A | 80% | ECE05US05 |
| 5.0 W | 9.0 VDC | 0.55 A | 0.66 A | 82% | ECE05US09 |
| 5.0 W | 12.0 VDC | 0.41 A | 0.49 A | 82% | ECE05US12 |
| 5.0 W | 15.0 VDC | 0.33 A | 0.40 A | 84% | ECE05US15 |
| 5.0 W | 24.0 VDC | 0.21 A | 0.25 A | 83% | ECE05US24 |
| 5.0 W | 48.0 VDC | 0.10 A | 0.12 A | 85% | ECE05US48 |
| 8.6 W | 3.3 VDC | 2.60 A | 3.12 A | 77% | ECE10US03 |
| 10.0 W | 5.0 VDC | 2.00 A | 2.40 A | 80% | ECE10US05 |
| 10.0 W | 9.0 VDC | 1.11 A | 1.33 A | 82% | ECE10US09 |
| 10.0 W | 12.0 VDC | 0.83 A | 1.00 A | 83% | ECE10US12 |
| 10.0 W | 15.0 VDC | 0.66 A | 0.79 A | 82% | ECE10US15 |
| 10.0 W | 24.0 VDC | 0.41 A | 0.49 A | 83% | ECE10US24 |
| 10.0 W | 48.0 VDC | 0.21 A | 0.25 A | 83% | ECE10US48 |

Notes

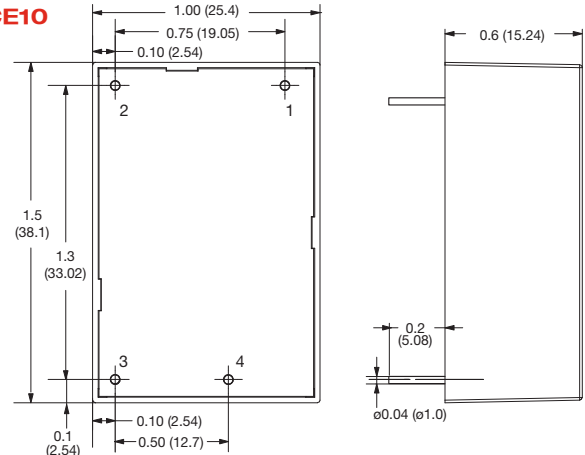
1. Peak load lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal power.
2. Add suffix-P to model number to denote open frame version. Available for OEM quantities.
3. Efficiencies measured at 100% load with 115 VAC input.

Mechanical Details

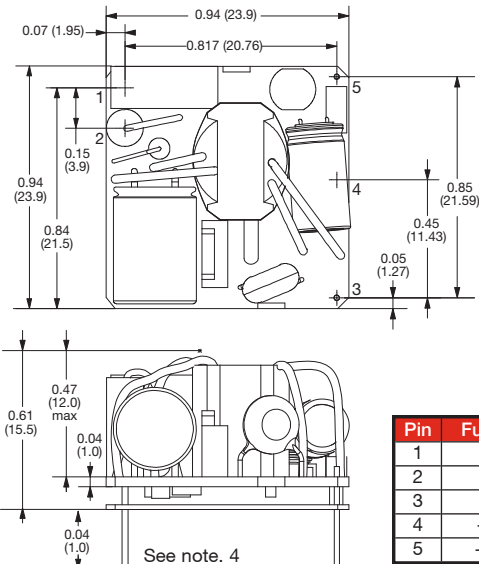
ECE05



ECE10

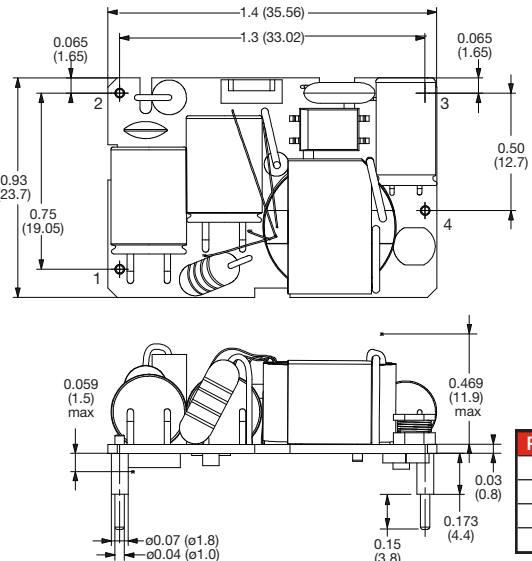


ECE05-P



| Pin | Function |
|-----|----------|
| 1 | ACN |
| 2 | ACL |
| 3 | NC |
| 4 | -Vout |
| 5 | +Vout |

ECE10-P



| Pin | Function |
|-----|----------|
| 1 | ACN |
| 2 | ACL |
| 3 | -Vout |
| 4 | +Vout |

Notes

1. All dimensions in inches (mm).
2. Weight: ECE05: 0.035 lbs (16 g) ECE05-P: 0.022 lbs (10 g) ECE10: 0.053 lbs (24 g) ECE10-P: 0.031 lbs (14 g)
3. Pin 1, 2 Size is 0.024" (0.6mm) DIA 0.002" (0.05mm) Pin 3, 4, 5 Size is 0.02" (0.5mm) DIA 0.002" (0.05mm) Tolerances: x.xx = ± 0.02 (x.x = ± 0.5), x.xxx = ± 0.01 (x.xx = ± 0.25)
4. ECE05: The solder pads for pins 1 & 2 should have a maximum diameter of 1.3mm to ensure that the creepage requirements of IEC60950 are met.