

150 Watts

- Energy Efficiency Level VI
- European CoC Tier 2
- High Power Density
- Single Outputs from 12 V to 48 V
- <0.15 W Standby Power
- China Compulsory Certification (CCC) Qualified
- -10 °C to 60 °C Operation
- Low Cost



Dimensions:

VES150:

6.66 x 2.79 x 1.56" (169.2 x 70.8 x 39.5 mm)

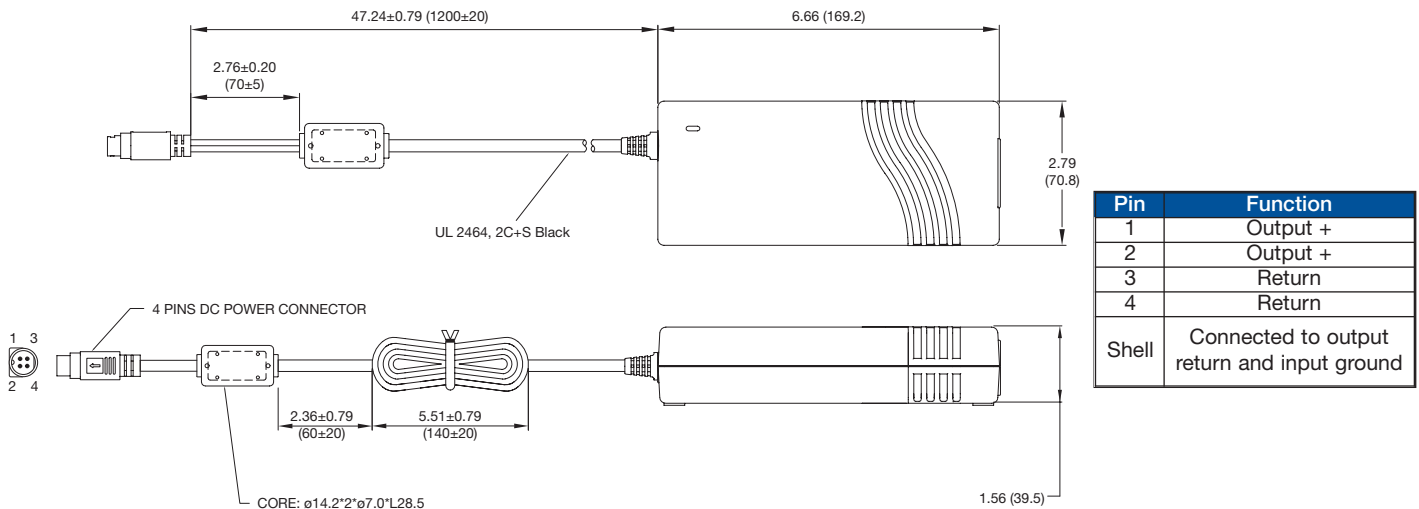
Models & Ratings

| Output Power | Output Voltage | Output Current | Total Regulation | Efficiency ⁽¹⁾ | Model Number |
|--------------|----------------|----------------|------------------|---------------------------|--------------|
| 150 W | 12.0V | 12.50 A | ±5% | 89% | VES150PS12 |
| | 15.0V | 10.0 A | | 89% | VES150PS15 |
| | 19.0V | 7.80 A | | 89% | VES150PS19 |
| | 24.0V | 6.25 A | | 89% | VES150PS24 |
| | 48.0V | 3.12 A | | 89% | VES150PS48 |

Notes

1. Typical average of efficiencies measured at 25%, 50%, 75% and 100% load and 230 VAC input.

Mechanical Details



Notes

- All dimensions shown in inches (mm). Tolerance is 0.02 (0.5) maximum, except output cable length.
- Output connector: Power Mini DIN, mates with Kycon KPJX-4S or equivalent.
- Weight: 1.87 lbs (850 g) approx.
- Output lead guage is 12 AWG for 12V model, 14 AWG for 15V and 19V models, 16 AWG for 24V models and 18 AWG for 48V model.

Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|-----------------------|--------------------------------------|---------|---------|-------|------------------------------|
| Input Voltage | 90 | | 264 | VAC | |
| Input Frequency | 47 | | 63 | Hz | |
| Input Current | | 1.5/0.8 | | A | Measured at 115/230 VAC |
| Inrush Current | | | 120 | A | 230 VAC, cold start at 25 °C |
| Power Factor | | | | | EN61000-3-2 Class A |
| Earth Leakage Current | | | 230 | µA | 264 VAC, 60 Hz |
| No Load Input Power | | | 0.15 | W | |
| Input Protection | T3.15A/250 VAC internal fuse in line | | | | |

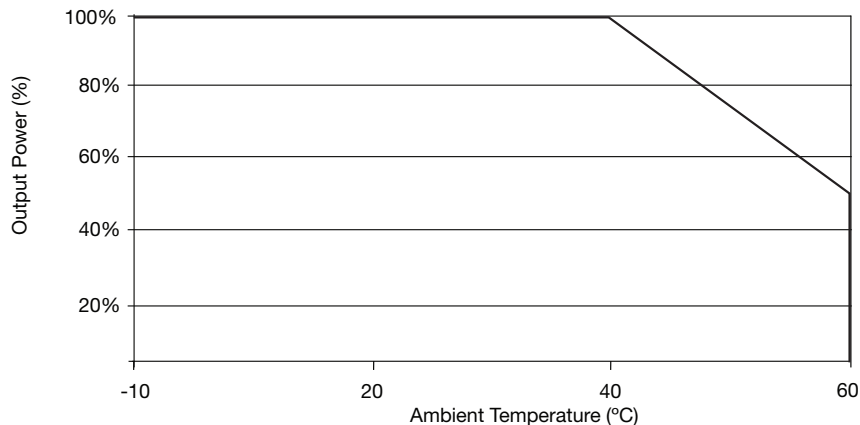
Output

| Characteristic | Min. | Typ. | Max. | Units | Notes & Conditions |
|--------------------------|---|------|---------|----------|--|
| Output Voltage | 12 | | 48 | VDC | See Models and Ratings table |
| Initial Set Accuracy | | | ±2 | % | At 50% load |
| Minimum Load | | | | | No minimum load required |
| Start Up Delay | | | 3 | s | |
| Start Up Rise Time | | | 50 | ms | |
| Hold Up Time | 10 | | | ms | Full load and 115 VAC |
| Line Regulation | | | ±0.5 | % | |
| Total Regulation | | | ±5 | % | |
| Transient Response | | | 5 | % | Maximum deviation, recovering to less than 1% within 500 µs for 50% to 100% step load change |
| Ripple and Noise | | | 240/480 | mV pk-pk | 12-24V / 48V. Measured with 20 MHz Bandwidth and 10 µF electrolytic in parallel with 0.1 µF ceramic capacitor. |
| Overshoot | | | 5 | % | At turn on / turn off |
| Overload Protection | 120 | | 200 | % | |
| Overvoltage Protection | | | 180 | % | Recycle mains to reset |
| Short Circuit Protection | Trip and restart (hiccup), auto resetting | | | | |
| Temperature Coefficient | | 0.04 | | %/°C | |

Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|-----------------------|--|---------|---------|-------|---|
| Operating Temperature | -10 | | +60 | °C | Derate from 100% load at 40 °C to 50% load at 60 °C |
| Cooling | Natural convection | | | | |
| Operating Humidity | 10 | | 90 | %RH | Non-condensing |
| Storage Temperature | -20 | | +95 | °C | |
| Operating Altitude | | | 5000 | m | |
| Shock | IEC68-2-27, 30 g, 30 ms half sine, 3 times in each of 6 axes | | | | |
| Vibration | IEC68-2-6, 10-300 Hz, 2 g 15 mins/sweep, 60 mins for each of 3 axes, non operating | | | | |

Derating Curve

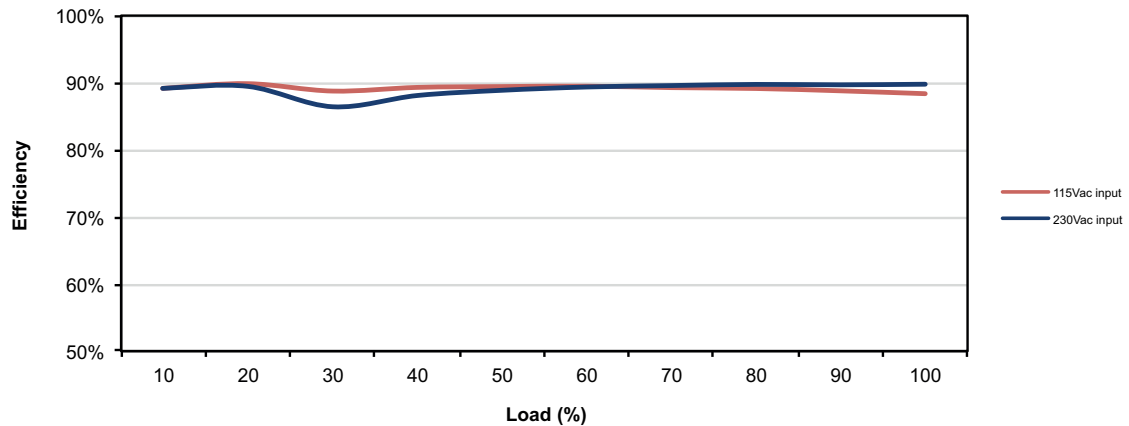


General

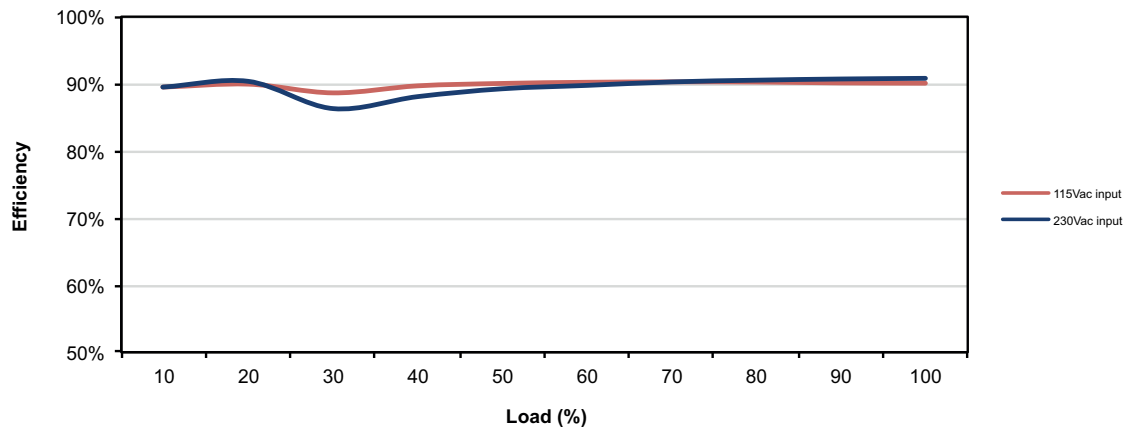
| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---------|------------|---------|-------------------|---|
| Efficiency | | 89 | | % | See Models and Ratings table and curves DoE Level VI, CoC Tier 2, MEPS |
| Isolation: Input to Output Input to Ground Output to Ground | 3000 | | | VAC | |
| | 1500 | | | VAC | |
| | | | | VDC | Output return is connected to input ground |
| Switching Frequency | 25 | | 50 | kHz | Variable. Main converter |
| | 25 | | 60 | | Variable. PFC stage |
| Power Density | | 4.5 | | W/in ³ | |
| Mean Time Between Failure | 100 | | | kHrs | MIL-HDBK-217F at 25 °C GB |
| Weight | | 1.87 (850) | | lb (g) | |

Efficiency Curves

VES150PS12



VES150PS24



EMC: Emissions

| Phenomenon | Standard | Test Level | Notes & Conditions |
|------------------|-------------|------------|----------------------|
| Emissions | EN55032 | Level B | Conducted & Radiated |
| Harmonic Current | EN61000-3-2 | Class A | |
| Voltage Flicker | EN61000-3-3 | | |

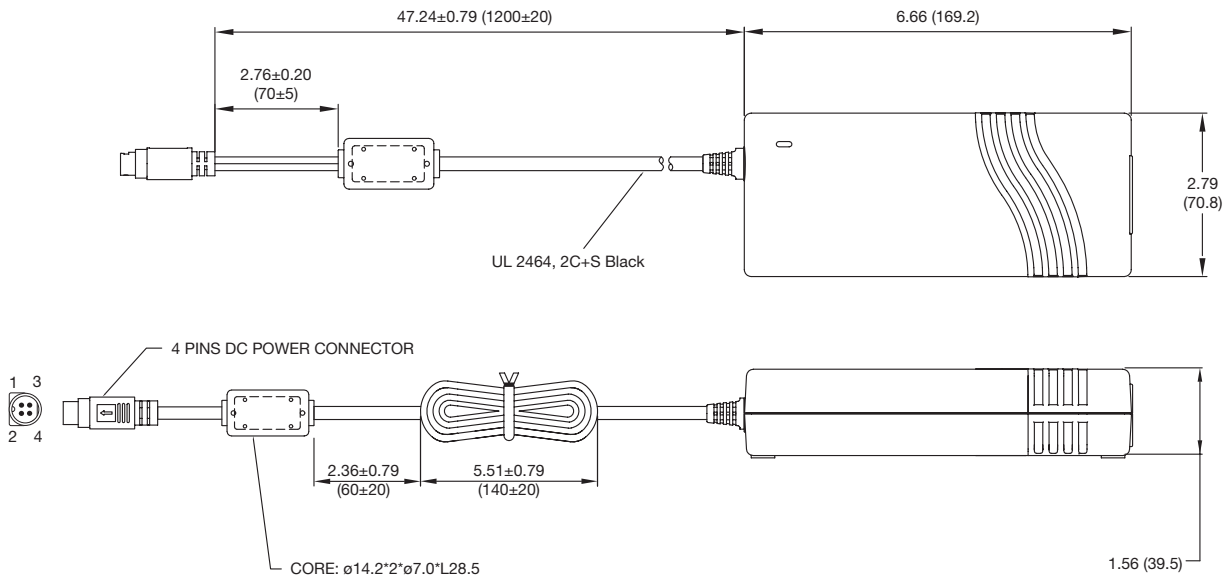
EMC: Immunity

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|------------------------|--------------|--------------------------|----------|--------------------|
| ESD | EN61000-4-2 | ±8 kV Air, ±4 kV contact | A | |
| Radiated | EN61000-4-3 | 3 V/m | A | |
| EFT/Burst | EN61000-4-4 | 2 | A | |
| Surge | EN61000-4-5 | Installation Class 3 | A | |
| Conducted | EN61000-4-6 | 3 V | A | |
| Magnetic Fields | EN61000-4-8 | 3 A/m | A | |
| Dips and Interruptions | EN61000-4-11 | Dip: 30% 500 ms | A/B | High Line/Low Line |
| | | Dip: 60% 200 ms | A/B | High Line/Low Line |
| | | Dip: 100% 5000 ms | B | |
| | | Int: 100% 10 ms | A | |

Safety Approvals

| Safety Agency | Safety Standard | Notes & Conditions |
|---------------|--|--------------------|
| UL | UL60950-1, UL62368-1 | |
| TUV | EN60950-1, EN62368-1 | |
| CB | IEC60950-1, IEC62368-1 | |
| CCC | China Compulsory Certification, GB4943 | |
| RCM | AS/NZS60950.1.2015 + A1 | |
| AU/NZ | AU/NZ 60950.1 | |

Mechanical Details



| Pin | Function |
|-------|---|
| 1 | Output + |
| 2 | Output + |
| 3 | Return |
| 4 | Return |
| Shell | Connected to output return and input ground |

Notes

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- Output lead gauge is 12 AWG for 12 V model, 14 AWG for 15 V and 19 V models, 16 AWG for 24 V models and 18 AWG for 48 V model.



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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.