

VEH Series



- Energy Efficiency Level V
- CEC 2008 & EISA 2007 Compliant
- High Power Density
- Single Outputs from 12 V to 24 V
- No Load Input Power <0.5 W
- Optional Output Connector
- Low Cost

Specification

Input

| | |
|-----------------------|---|
| Input Voltage | • 90-264 VAC |
| Input Frequency | • 47-63 Hz |
| Input Current | • 1.5 A max at 90 VAC |
| Inrush Current | • 110 A max at 230 VAC, cold start at 25 °C |
| Earth Leakage Current | • <1 mA at 230 VAC/50 Hz |
| Power Factor | • >0.95 at 230 VAC and full load |
| No Load Input Power | • <0.5 W |
| Input Protection | • Internal T2.0A/250 V fuse in line |

Output

| | |
|--------------------------|---|
| Output Voltage | • See table |
| Initial Set Accuracy | • ±5% at 50% load |
| Minimum Load | • No minimum load requirement |
| Hold Up Time | • 10 ms min at 115 VAC, full load |
| Start Up Delay | • 3 s max |
| Start Up Rise Time | • 8 ms typical |
| Transient Response | • 4% maximum deviation, recovering to less than 1% within 500 µs for a 50% step load change |
| Line Regulation | • ±0.5% max |
| Load Regulation | • ±5% max |
| Ripple & Noise | • 1% pk-pk max, 20 MHz bandwidth (see note 1) |
| Oversoltage Protection | • See table |
| Overload Protection | • 120 -180% |
| Short Circuit Protection | • Continuous (hiccup/trip & restart mode with auto recovery) |
| Temperature Coefficient | • ±0.04%/°C |

General

| | |
|---------------------|---|
| Efficiency | • See table |
| Energy Efficiency | • Level V |
| Isolation | • 3000 VAC Input to Output, 1500 VAC Input to Ground, PS12: 500 VDC Output to Ground, PS19/24: Negative output is connected to Ground |
| Switching Frequency | • PFC: 25-125 kHz, PWM: 60 kHz typical |
| MTBF | • >160 kHrs to Bell Core iss. 6 |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | • 0 °C to +60 °C derate linearly from 100% load at +40 °C to 50% load at +60 °C, |
| Storage Temperature | • -10 °C to +85 °C |
| Operating Humidity | • 5% to 90% RH non-condensing |
| Storage Humidity | • 5% to 95% RH non-condensing |
| Shock | • 6 Random drops from 0.7 m with no damage, 50 g for 20 ms in each of 3 axes |
| Vibration | • 2 g variable frequency from 20 Hz to 30 Hz |

EMC & Safety

| | |
|----------------------|--|
| Emissions | • EN55022, level B conducted & radiated |
| Harmonic Currents | • EN61000-3-2 class A, EN61000-3-2 class C >60% load |
| Voltage Flicker | • EN61000-3-3 |
| ESD Immunity | • EN61000-4-2, level 3 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, level 2 Perf Criteria A |
| Magnetic Field | • EN61000-4-8, 3 A/m Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B |
| Safety Approvals | • EN60950-1:2001, UL/cUL60950-1 |

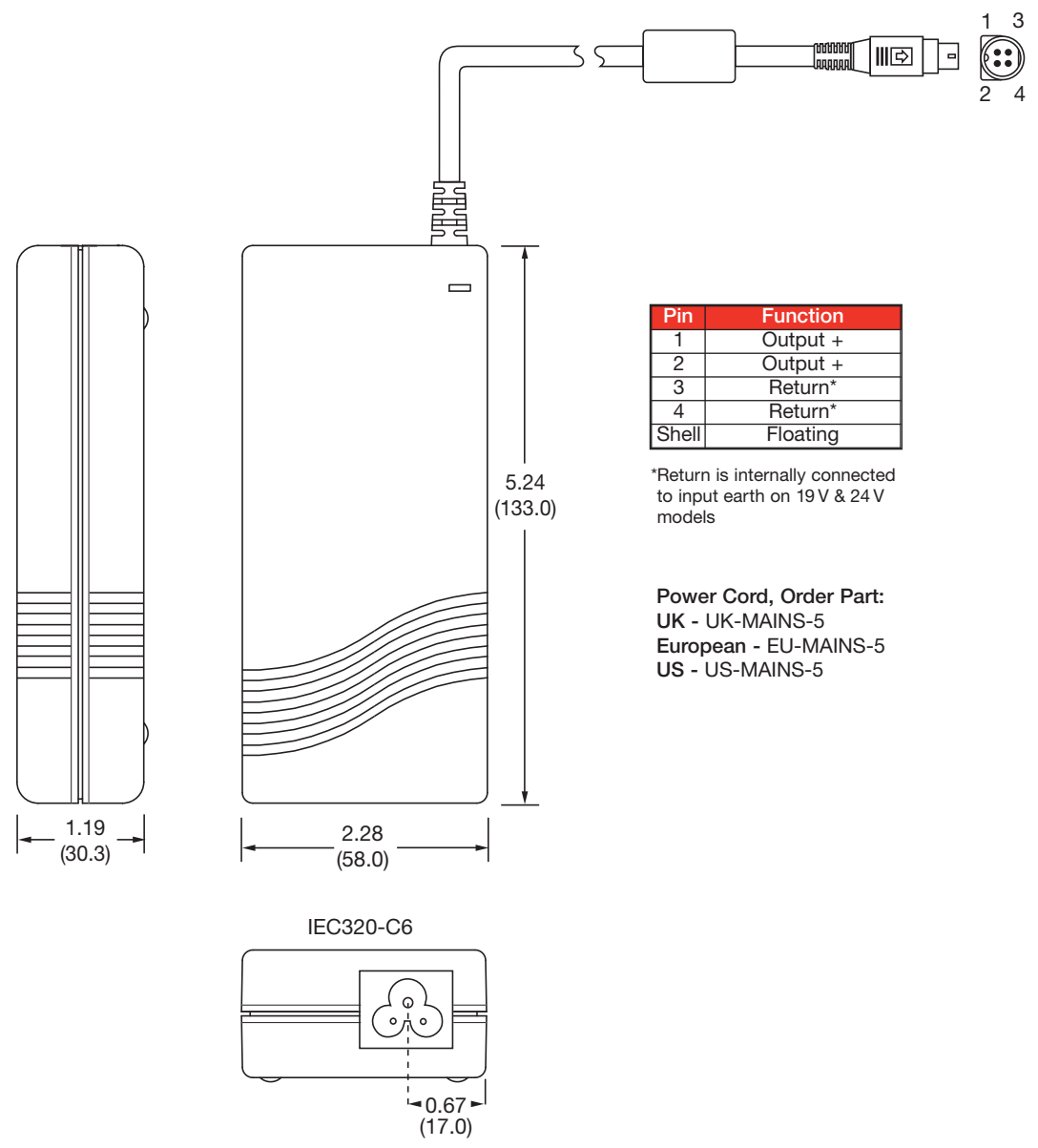
Models and Ratings

| Output Power | Output Voltage | Output Current | OVP Setting ⁽²⁾ | Effeciency ⁽³⁾ | Model Number ⁽⁴⁾ |
|--------------|----------------|----------------|----------------------------|---------------------------|-----------------------------|
| 90 W | 12.0V | 7.50 A | 16.0V | 88% | VEH90PS12†^ |
| 90 W | 19.0V | 4.74 A | 25.0V | 88% | VEH90PS19†^ |
| 90 W | 24.0V | 3.75 A | 32.0V | 89% | VEH90PS24†^ |

Notes

1. Measured at the output connector with a 0.1 μF ceramic capacitor and a 10 μF electrolytic capacitor.
2. Typical values.
3. Average of efficiencies measured at 25%, 50%, 75% and 100% load and 230 VAC input.
4. For optional barrel jack connector, 2.5 mm inner positive, 5.5 mm outer negative, 11 mm length add suffix '-B' e.g. VEH90PS24-B

Mechanical Details



Notes

1. All dimensions shown in inches (mm). Tolerance is 0.02 (0.5) maximum, except output cable length.
2. Weight 0.82 lbs (370 g) approx.
3. Cable length is 48"±2"(1220 ±50 mm) approx.
4. Output connector (Power Mini Din) mates with Kycon KPJX-4S or equivalent.