# 65 Watts
# VEF Series





- Energy Efficiency Level V
- CEC 2008 / EISA 2007 / ErP Compliant
- China Compulsory Certfication (CCC) Qualified
- Single Outputs from 12 V to 24 V
- Optional Inlet Connectors
- No Load Input Power <0.3 W
- High Power Density

## Specification

### Input

| | |
|---|---|
| Input Voltage | • 90-264 VAC |
| Input Frequency | • 47-63 Hz |
| Input Current | • 1.7 A max |
| Inrush Current | • 70 A max at 230 VAC, cold start at 25 °C |
| Earth Leakage Current | • <0.7 mA at 240 VAC/50 Hz |
| Power Factor | • EN61000-3-2, class A |
| No Load Input Power | • <0.3 W |
| Input Protection | • Internal T4.0A/250 V fuse in line |

### Output

| | |
|---|---|
| Output Voltage | • See table |
| Initial Set Accuracy | • ±5% at 50% load |
| Minimum Load | • No minimum load required |
| Hold Up Time | • 8 ms min at 115 VAC, full load |
| Start Up Delay | • 3 s max |
| Start Up Rise Time | • 8 ms typical |
| Transient Response | • 4% maxiumum 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 | • 240 mv pk-pk max, 20 MHz bandwidth (see note 1) |
| Overvoltage Protection | • See table |
| Overload Protection | • 110 -170% |
| 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. Negative Output is connected to Ground. |
| Switching Frequency | • 65 kHz ±10 kHz |
| MTBF | • >700 kHrs to Bell Core iss. 6 |

### Environmental

| | |
|---|---|
| Operating Temperature | • -10 ˚C to +60 ˚C derate linearly from 100% load at +40 ˚C to 50% load at +60 ˚C |
| Storage Temperature | • -20 ˚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 |
| 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 B |
| Conducted Immunity | • EN61000-4-6, level 2 Perf Criteria A |
| Magnetic Field | • EN61000-4-8, 3 A/m Perf Criteria A |
| Dips & Interruptions | • EN55024, 100% 10 ms, 30% 500 ms, 100% 5000 ms Perf Criteria A, B, B |
| Safety Approvals | • IEC60950-1, EN60950-1, UL/cUL60950-1, China Compulsory Certification (CCC) qualified, Approved as Limited Power Source |

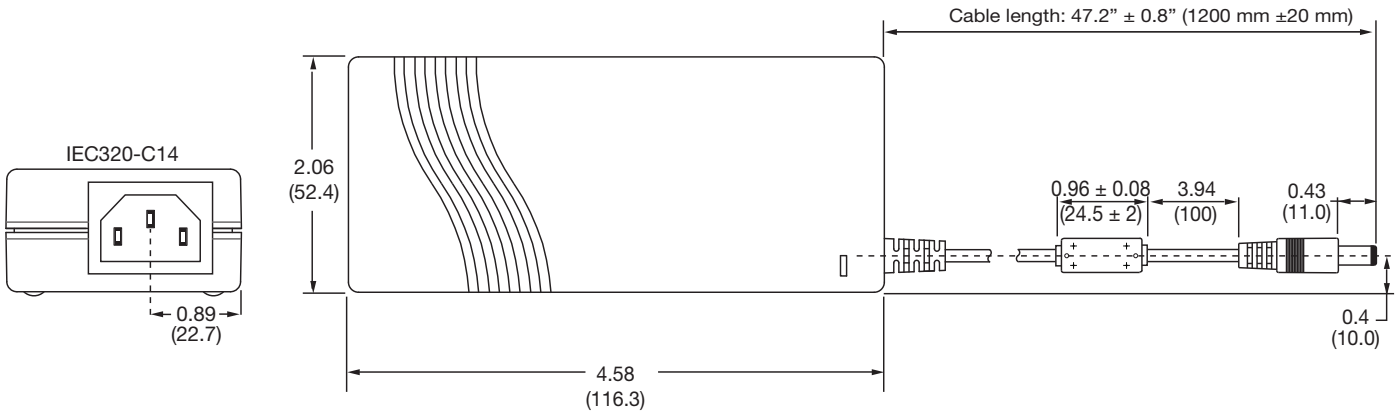
## Models and Ratings

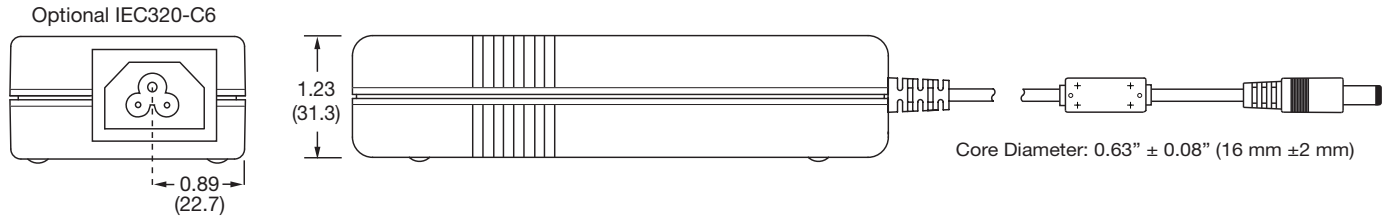
| Output Power | Output Voltage[5] | Output Current | OVP Setting[2] | Efficiency[3] | Model Number[4] |
|---|---|---|---|---|---|
| 65 W | 12.0 V | 5.41 A | 18.5 V | 88% | VEF65US12 |
| 65 W | 19.0 V | 3.42 A | 28.5 V | 89% | VEF65US19 |
| 65 W | 24.0 V | 2.71 A | 36.0 V | 89% | VEF65US24 |

### 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 IEC320-C6 input connector, add suffix 'C6' to end of the part number, e.g. VEF65US24C6. Contact sales for details.*
*5. Other voltages between 12 V and 30 V available on request, contact sales for details.*

## Mechanical Details




**Power Cord for C14 inlet, Order Part:**
**UK** - UK-MAINS-IEC
**European** - EU-MAINS-IEC
**US** - US-MAINS-IEC

**Power Cord for C6 inlet, Order Part:**
**UK** - UK-MAINS-5
**European** - EU-MAINS-5
**US** - US-MAINS-5

### Notes

1. All dimensions are shown in inches (mm), Tolerance is 0.04" (±1.0) max except output lead.
2. Weight: 0.76 lbs (345 g) approx.
3. Output connector is barrel type with 11 mm length, 5.5 mm dia. outer, 2.5 mm dia. inner with center + and outer shell - polarity.
4. Optional output connectors available.