20/40 Watts
VEH Series



- Energy Efficiency Level V
- CEC 2008 and EISA 2007 Compliant
- Optional Inlet Connectors
- Class II Versions
- +70 °C Operating Temperature
- Compact Dimensions
- Low Cost

Specification

Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Input Current	• 0.4 A max VEH20 1.0 A max VEH40
Inrush Current	• VEH20: 15 A/30 A for 115 VAC/230 VAC, cold start at 25 °C VEH40: 45 A/90 A for 115 VAC/230 VAC, cold start at 25 °C
Earth Leakage Current	• 0.75 mA at 240 VAC/50 Hz
Power Factor	• EN61000-3-2, Class A
Input Protection	• Internal fuse fitted in line VEH20: T1 A, 250 V VEH40: T3.15 A, 250 V
No Load Input Power	• <0.3 W

Output

Output Voltage	• See table
Minimum Load	• No minimum load required
Hold Up Time	• VEH20: 5 ms min, VEH40: 12 ms min, at full load & 110 VAC
Start Up Delay	• 2 s max at full load 100 VAC
Transient Response	• 2% deviation, recovery to within 1% of nominal in 500 µs for 50% load change
Regulation	• See table
Ripple & Noise	• 1% pk-pk max, 20 MHz bandwidth
Overvoltage Protection	• Not fitted
Overload Protection	• 110-150%
Short Circuit Protection	• Trip & restart (hiccup mode), auto recovery
Temperature Coefficient	• ±0.04%/°C

General

Efficiency	• 87% typical (average of measured values with output loads of 25%, 50%, 75% and 100%)
Energy Efficiency	• Level V
Isolation	• 3000 VAC Input to Output 1500 VAC Input to Ground* 500 VDC Output to Ground* *Not C2 version
Switching Frequency	• VEH20: 63 kHz typical VEH40: 20 kHz - 60 kHz variable
MTBF	• >250 kHrs to MIL-HDBK-217F at 25 °C,GB

Environmental

Operating Temperature	• 0 °C to +70 °C, derate from 100% power at +40 °C to 50% power at +70 °C
Storage Temperature	• -40 °C to +85 °C
Cooling	• Convection-cooled
Operating Humidity	• 5-95% RH, non-condensing
Operating Altitude	• 2000 m
Shock	• 10 g, 10 ms on 3 axes

EMC & Safety

Emissions	• EN55022 level B conducted & radiated
Harmonic Current	• 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 2 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 1 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, UL/cUL60950-1, Approved as Limited Power Source

Models and Ratings

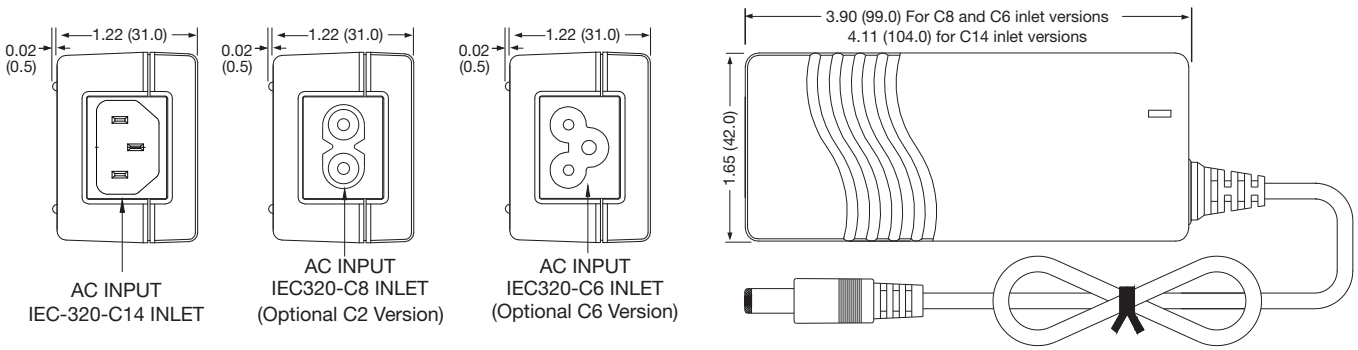
Max Output Power	Output Voltage[1]	Output Current	Total Regulation[2]	Model Number
20 W	12.0 VDC	1.67 A	5%	VEH20US12[3,4]
20 W	15.0 VDC	1.33 A	5%	VEH20US15[3,4]
20 W	18.0 VDC	1.11 A	5%	VEH20US18[3,4]
20 W	24.0 VDC	0.83 A	5%	VEH20US24[3,4]
20 W	48.0 VDC	0.42 A	5%	VEH20US48[3,4]
40 W	12.0 VDC	3.33 A	5%	VEH40US12
40 W	15.0 VDC	2.67 A	5%	VEH40US15
40 W	18.0 VDC	2.22 A	5%	VEH40US18
40 W	24.0 VDC	1.67 A	5%	VEH40US24
40 W	48.0 VDC	0.83 A	5%	VEH40US48

Notes

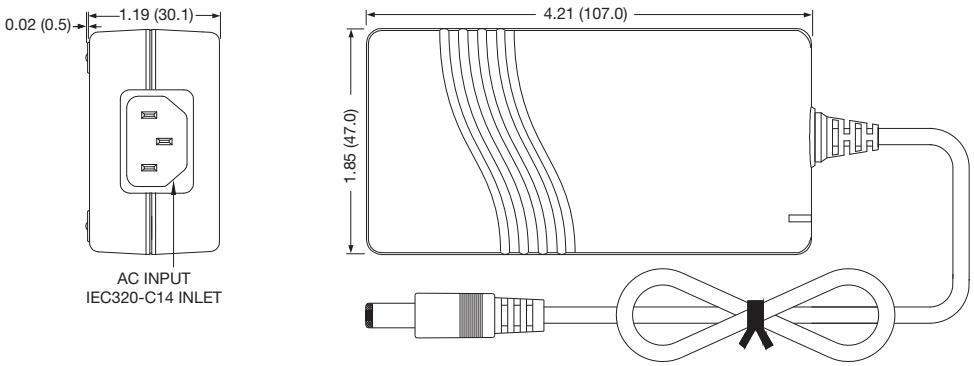
1. Other output voltages available, contact sales for details
2. Total regulation includes line regulation and load regulation.
3. Standard input connector is IEC320-C14 inlet. For optional IEC320-C6 inlet add suffix 'C6' to model number, e.g. VEH20US12C6.
4. For optional class II version with IEC320-C8 inlet add suffix 'C2' to model number e.g. VEH20US12C2

Mechanical Details

VEH20



VEH40



Notes

1. All dimensions are shown in inches (mm). Tolerance ±0.04 (±1.0) max.
2. Weight: 0.37 lbs (170 g) for VEH20, 0.62 lbs (280 g) for VEH40
3. Output connector: is 0.22 (5.5) outer diameter barrel, 0.10 (2.5) inner diameter barrel with center positive (+) and outer shell negative (-). Length is 0.433 (11.0).
4. Output cable length is 48" (1220mm) approx.
5. For European mains lead order part: EU-MAINS-IEC, for IEC320-C14 inlet, EU-MAINS-C5 for IEC320-C6 inlet, EU-MAINS-8 for Class II
6. For UK mains lead order part: UK-MAINS-IEC, for IEC320-C14 inlet, UK-MAINS-C5 for IEC320-C6 inlet, UK-MAINS-8 for Class II
7. For US mains lead order part: US-MAINS-IEC, for IEC320-C14 inlet, US-MAINS-C5 for IEC320-C6 inlet, US-MAINS-8 for Class II