

5 Watt

- Energy Efficiency Level VI
- Barrel Jack & USB Versions
- Fixed Mains Connectors
- Universal Input
- Output Voltages from 5.0 V to 12.0 V
- Class II Construction
- Low Cost



The VEL05 series of wall plug adaptors comply with the very latest energy efficiency VI standards with high active mode efficiency and extremely low no load power consumption. Available with multiple USB options in addition to the standard jack plug connector these adaptors suit a wide variety of cost sensitive applications while maintaining industry leading performance.

Dimensions:

VEL (body only):

- US: 2.17 x 0.95 x 1.40" (55.1 x 24.1 x 35.49 mm)
- EU: 2.17 x 0.95 x 1.40" (55.1 x 24.1 x 35.49 mm)
- UK: 2.17 x 1.95 x 1.69" (55.1 x 49.5 x 42.9 mm)
- AU: 2.17 x 1.59 x 1.75" (55.1 x 40.44 x 44.49 mm)

Models & Ratings

| Output Power | Output Voltage | Output Current | Total Regulation ⁽²⁾ | Efficiency | Output Connector | Model Number ⁽⁴⁾ |
|--------------|----------------|----------------|---------------------------------|------------|---------------------------|---------------------------------|
| 5 W | 5.0V | 1000 mA | 5% | 77% | USB A in case | VEL05US050-XX-BB |
| | 5.0V | 1000 mA | 5% | 74% | Mini USB B | VEL05US050-XX-MB |
| | 5.0V | 1000 mA | 5% | 74% | Micro USB B | VEL05US050-XX-UB |
| | 5.0V | 1000 mA | 5% | 75% | 5.5 x 2.1 x 12 mm DC Jack | VEL05US050-XX-JA |
| | 6.0V | 830 mA | 5% | 76% | 5.5 x 2.1 x 12 mm DC Jack | VEL05US060-XX-JA ⁽⁵⁾ |
| | 9.0V | 550 mA | 5% | 78% | 5.5 x 2.1 x 12 mm DC Jack | VEL05US090-XX-JA |
| | 12.0V | 420 mA | 5% | 79% | 5.5 x 2.1 x 12 mm DC Jack | VEL05US120-XX-JA |

Notes

1. Other output voltages available, contact sales for details.
2. Total regulation includes initial set accuracy, line and load regulation.
3. Typical average of efficiencies measured at 25%, 50%, 75% and 100% load and 115 VAC input.
4. Replace 'XX' in model number with 'US' for US mains plug, 'UK' for UK mains plug, 'EU' for European mains plug or 'AU' for Australia mains plug.
5. Level V Energy Efficiency.

Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---------------------|-----------------------------|---------|---------|-------|------------------------------|
| Input Voltage | 90 | | 264 | VAC | |
| Input Frequency | 47 | | 63 | Hz | |
| Input Current | | | 0.18 | A | 100 VAC |
| Inrush Current | | | 60 | A | 240 VAC, cold start at 25 °C |
| Power Factor | | | | | EN61000-3-2, class A |
| No Load Input Power | | | <0.1 | W | |
| Input Protection | Internal T1.0A/250 VAC fuse | | | | |

Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|--------------------------|---------|---------|---------|-----------------|---|
| Output Voltage | 5.0 | | 12.0 | V | See Models and Ratings table |
| Minimum Load | 0 | | | A | No minimum load required |
| Start Up Delay | | | 4 | s | |
| Start Up Rise Time | | 50 | | ms | |
| Hold Up Time | | 8 | | ms | Full load and 100 VAC |
| Total Regulation | | | 5 | % | See Models and Ratings table |
| Transient Response | | | 4 | % deviation | Recovery within <1% within 500 μ s for a 50% step load change at 0.2 A/ μ s |
| Ripple & Noise | | | 200 | mV pk-pk | 20 MHz bandwidth |
| Short Circuit Protection | | | | | Continuous, trip and restart (hiccup mode) with auto recovery |
| Temperature Coefficient | | | 0.05 | %/ $^{\circ}$ C | |

General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---------------------------|---------|-----------|---------|--------|-------------------------------------|
| Efficiency | 74 | | 79 | % | See Models and Ratings table |
| Energy Efficiency | | | | | Level VI |
| Isolation | | 3000 | | VAC | Input to Output |
| Switching Frequency | 24 | | 70 | kHz | Variable |
| Mean Time Between Failure | 100 | | | kHrs | MIL-HDBK-217F at 25 $^{\circ}$ C GB |
| Weight | | 0.28 (80) | | lb (g) | |

Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|-----------------------|---------|---------|---------|--------------|---|
| Operating Temperature | 0 | | +60 | $^{\circ}$ C | Derate from 100% load at 40 $^{\circ}$ C to 50% load at 60 $^{\circ}$ C |
| Storage Temperature | -40 | | +85 | $^{\circ}$ C | |
| Operating Humidity | 5 | | 95 | % | RH, non-condensing |
| Cooling | | | | | Natural convection |
| Shock | | | | | 1 m drop onto concrete on each of 6 axes |
| Vibration | 10 | | 300 | Hz | 2 g 15 mins/sweep, 30 mins for each of 3 axes |

EMC: Emissions

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

EMC: Immunity

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|------------------------|---|------------|----------|------------------------------------|
| ESD Immunity | EN61000-4-2 | 2,3 | B | \pm 4 kV contact, \pm 8 kV air |
| Radiated Immunity | EN61000-4-3 | 3 V/m | A | |
| EFT/Burst | EN61000-4-4 | Level 2 | B | |
| Surges | EN61000-4-5 | Level 2 | A | |
| Conducted Immunity | EN61000-4-6 | 3 V | A | |
| Magnetic Fields | EN61000-4-8 | 1 A/m | A | |
| Dips and Interruptions | EN55024 100% 10 ms, 30% 500 ms, 100% 5000 ms, Perf Criteria A, A, B | | | |

Safety Approvals

| Phenomenon | Standard |
|------------|---|
| CB Report | IEC60950-1 |
| UL | UL/cUL60950-1, approved as limited power source (LPS) |
| TUV | EN60950-1 |
| CCC | China Compulsory Certification, GB4943 |
| AU/NZ | AU/NZ 60950.1 |

Mechanical Details

VEL05US-US-BB



VEL05US-US-MB/UB/JA



Mechanical Details

VEL05US-UK-BB



VEL05US-UK-MB/UB/JA



Mechanical Details

VEL05US-EU-BB



VEL05US-EU-MB/UB/JA



Mechanical Details

VEL05US-AU-BB



VEL05U-AU-MB/UB/JA



Mechanical Details

Output Lead and Connection – Mini USB Versions (MB)



Wire type: VW-1 80°C 300 V L=1500 mm 2464 3.5Ø 24 AWG black



Output Lead and Connection – Micro USB Versions (UB)



Wire type: VW-1 80°C 300 V L=1500 mm 2464 3.5Ø 24 AWG black



Output Lead and Connection – DC Jack Versions (JA)



Wire type: VW-1 80°C 300 V L=1500 mm 2464 24 AWG 2C Black and White. Black - Negative, White - Positive

