50-100 Watts
VCS Series

**Specification**

### Input
- **Input Voltage**: 85-264 VAC (127-370 VDC), see derating curve
- **Input Frequency**: 47-63 Hz
- **Input Current**: VCS50: 1.1 A, VCS70: 1.4 A, VCS100: 2.0 A typical at 90 VAC
- **Inrush Current**: 60 A max at 230 VAC, cold start at 25 °C
- **Power Factor**: EN61000-3-2 Class A
- **Earth Leakage Current**: 1.0 mA maximum
- **Input Protection**: 50 & 70 W: T3.15 A/250 V, 100 W: T4.0 A/250 V, fuse fitted in live line
- **No Load Input Power**: <0.5 W

### Output
- **Output Voltage**: See model table
- **Output Adjust**: ±10.0% (5 V & 12 V versions are -5% to +10%)
- **Initial Set Tolerance**: ±1.0%
- **Minimum Load**: None required
- **Start Up Delay**: 1 s maximum
- **Hold Up Time**: 10 ms min at 115 VAC and full load
- **Line Regulation**: ±0.5%, 90 VAC to 264 VAC input
- **Load Regulation**: 5 V & 12 V versions: ±1%, Others: ±0.5% 0% to 100% load
- **Transient Response**: Less than 4% deviation with a 50% to 75% load change at 1 A/µs. Output returns to within 1% in less than 500 µs
- **Ripple & Noise**: 1% maximum pk-pk, 20 MHz bandwidth
- **Overvoltage Protection**: 120-140% of nominal output, auto recovery
- **Overload Protection**: 110-150% of nominal, trip and restart
- **Short Circuit Protection**: Continuous trip and restart
- **Temperature Coefficient**: ±0.03%/°C after 20 min warm up

### General
- **Efficiency**: See tables
- **Isolation**: 3000 VAC Input to Output, 1500 VAC Input to Ground, 500 VAC Output to Ground
- **Switching Frequency**: 65 kHz typical
- **MTBF**: >500 khrs to MIL-STD-217F at 25 °C, GB

### Environmental
- **Operating Temperature**: -25 °C to +70 °C, see derating curve
- **Cooling**: Convection cooled
- **Operating Humidity**: 0-95% R.H, non-condensing
- **Storage Temperature**: -40 °C to +80 °C
- **Operating Altitude**: 3000 m
- **Shock**: ±3 x 30 g shocks in each plane, 30 g: 11 ms (±0.5 ms), half sine, compliant to EN60068-2-27 & EN60068-2-47
- **Vibration**: 10-500 Hz at 2 g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6

### EMC & Safety
- **Emissions**: EN55032 Class 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, level 3 Perf Criteria A
- **EFT/Burst**: EN61000-4-4, level 3 Perf Criteria A (note 3)
- **Surge**: EN61000-4-5, installation Class 3, Perf Criteria A
- **Conducted Immunity**: EN61000-4-6, level 3 Perf Criteria A
- **Dips & Interruptions**: EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B
- **Safety Approvals**: IEC60950-1, CSA C22.2 No.60950-1-03, UL60950-1, TUV EN60950-1, UL62368-1, EN62368-1, IEC62368-1
**Model and Ratings**

<table>
<thead>
<tr>
<th>Output Power</th>
<th>Output Voltage</th>
<th>Output Current</th>
<th>Ripple &amp; Noise</th>
<th>Efficiency</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 W</td>
<td>5.0 V</td>
<td>8.00 A</td>
<td>50 mV</td>
<td>79%</td>
<td>VCS50US05</td>
</tr>
<tr>
<td>50 W</td>
<td>12.0 V</td>
<td>4.20 A</td>
<td>120 mV</td>
<td>85%</td>
<td>VCS50US12</td>
</tr>
<tr>
<td></td>
<td>15.0 V</td>
<td>3.30 A</td>
<td>150 mV</td>
<td>86%</td>
<td>VCS50US15</td>
</tr>
<tr>
<td></td>
<td>24.0 V</td>
<td>2.10 A</td>
<td>240 mV</td>
<td>88%</td>
<td>VCS50US24</td>
</tr>
<tr>
<td></td>
<td>48.0 V</td>
<td>1.05 A</td>
<td>480 mV</td>
<td>88%</td>
<td>VCS50US48</td>
</tr>
</tbody>
</table>

**Notes**
1. Minimum average of efficiencies measured at 25%, 50%, 75% & 100% load.
2. Ripple & Noise may exceed specified values below -10 °C.
3. Level 3 performance criteria A is met for loads >2%. At no load, result is performance criteria A Level 2 or less than 4% output deviation at Level 3.

**Mechanical Details**

**Derating Curves**

1. All dimensions in inches (mm)
2. Weight: 0.55 lbs (250 g) approx
3. Tolerance ±0.02 (+0.5)
4. Maximum mounting screw penetration 0.157 (4.0) from outer surface
5. Screw terminal sizes M3
Model and Ratings

<table>
<thead>
<tr>
<th>Output Power</th>
<th>Output Voltage</th>
<th>Output Current</th>
<th>Ripple &amp; Noise (mV)</th>
<th>Efficiency (%)</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 W</td>
<td>5.0 V</td>
<td>10.0 A</td>
<td>50 mV</td>
<td>80%</td>
<td>VCS70US05</td>
</tr>
<tr>
<td>70 W</td>
<td>12.0 V</td>
<td>5.83 A</td>
<td>120 mV</td>
<td>87%</td>
<td>VCS70US12</td>
</tr>
<tr>
<td></td>
<td>15.0 V</td>
<td>4.67 A</td>
<td>150 mV</td>
<td>87%</td>
<td>VCS70US15</td>
</tr>
<tr>
<td></td>
<td>24.0 V</td>
<td>2.92 A</td>
<td>240 mV</td>
<td>87%</td>
<td>VCS70US24</td>
</tr>
<tr>
<td></td>
<td>48.0 V</td>
<td>1.46 A</td>
<td>480 mV</td>
<td>87%</td>
<td>VCS70US48</td>
</tr>
</tbody>
</table>

Notes
1. Minimum average of efficiencies measured at 25%, 50%, 75% & 100% load.
2. Ripple & Noise may exceed specified values below -10 °C.
3. For all loads.

Mechanical Details

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC Live</td>
</tr>
<tr>
<td>2</td>
<td>AC Neutral</td>
</tr>
<tr>
<td>3</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>-Vout</td>
</tr>
<tr>
<td>5</td>
<td>+Vout</td>
</tr>
</tbody>
</table>

Notes
1. All dimensions in inches (mm)
2. Weight: 0.88 lbs (400 g) approx
3. Tolerance ±0.02 (±0.5)
4. Maximum mounting screw penetration 0.157 (4.0) from outer surface
5. Screw terminal sizes M3

Derating Curves

- Output Power vs. Ambient Temperature (°C)
- Output Power vs. Input Voltage (VAC)
Model and Ratings

<table>
<thead>
<tr>
<th>Output Power</th>
<th>Output Voltage</th>
<th>Output Current</th>
<th>Ripple &amp; Noise</th>
<th>Efficiency</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 W</td>
<td>5.0 V</td>
<td>14.0 A</td>
<td>50 mV</td>
<td>78.0%</td>
<td>VCS100US05</td>
</tr>
<tr>
<td></td>
<td>12.0 V</td>
<td>8.33 A</td>
<td>120 mV</td>
<td>85.0%</td>
<td>VCS100US12</td>
</tr>
<tr>
<td></td>
<td>15.0 V</td>
<td>6.67 A</td>
<td>150 mV</td>
<td>86.0%</td>
<td>VCS100US15</td>
</tr>
<tr>
<td></td>
<td>24.0 V</td>
<td>4.17 A</td>
<td>240 mV</td>
<td>86.5%</td>
<td>VCS100US24</td>
</tr>
<tr>
<td></td>
<td>48.0 V</td>
<td>2.08 A</td>
<td>480 mV</td>
<td>88.0%</td>
<td>VCS100US48</td>
</tr>
<tr>
<td>100 W</td>
<td>10.0 V</td>
<td>5.0 A</td>
<td>70 mV</td>
<td>78.0%</td>
<td>VCS100US05</td>
</tr>
<tr>
<td></td>
<td>12.0 V</td>
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</tbody>
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Notes
1. Minimum average of efficiencies measured at 25%, 50%, 75% & 100% load.
2. Ripple & Noise may exceed specified values below -10 °C.
3. Level 3 performance criteria A is met for loads >10%. At no load, result is performance criteria A at Level 2 or less than 5% output deviation at Level 3.

Mechanical Details

![Mechanical Details Diagram]

Notes
1. All dimensions in inches (mm)
2. Weight: 1.1 lbs (500 g) approx
3. Tolerance ±0.02 (±0.5)
4. Maximum mounting screw penetration 0.157 (4.0) from outer surface
5. Screw terminal sizes M4

Derating Curves

![Derating Curves Diagram]