

# 50-100 Watts VCS Series

GREEN **XP** POWER

- Chassis Mount Industrial Supplies
- -25 °C to +70 °C Convection Cooled
- Class B Conducted & Radiated Emissions
- Output Voltages from 5 V to 48 V
- <0.5 W No Load Input Power
- Low Cost

## 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<br>100 W: T4.0A/250 V, fuse fitted in live line |
| No Load Input Power   | • <0.5 W                                                                   |

### Output

|                          |                                                                                                                              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage           | • See model table                                                                                                            |
| Output Adjust            | • $\pm 10.0\%$<br>(5 V & 12 V versions are -5% to +10%)                                                                      |
| Initial Set Tolerance    | • $\pm 1.0\%$                                                                                                                |
| Minimum Load             | • None required                                                                                                              |
| Start Up Delay           | • 1 s maximum                                                                                                                |
| Hold Up Time             | • 10 ms min at 115 VAC and full load                                                                                         |
| Line Regulation          | • $\pm 0.5\%$ , 90 VAC to 264 VAC input                                                                                      |
| Load Regulation          | • 5 V & 12 V versions: $\pm 1\%$ , Others: $\pm 0.5\%$<br>0% to 100% load                                                    |
| Transient Response       | • Less than 4% deviation with a 50% to 75% load change at 1 A/ $\mu$ s. Output returns to within 1% in less than 500 $\mu$ s |
| 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  | • $\pm 0.03\%/^{\circ}\text{C}$ after 20 min warm up                                                                         |

### General

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Efficiency          | • See tables                                                                       |
| Isolation           | • 3000 VAC Input to Output<br>1500 VAC Input to Ground<br>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                 | • $\pm 3 \times 30$ g shocks in each plane,<br>30 g: 11 ms ( $\pm 0.5$ 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, CE (Meets all applicable directives), UKCA (Meets all applicable legislation) |

## Model and Ratings

**VCS50 XP**

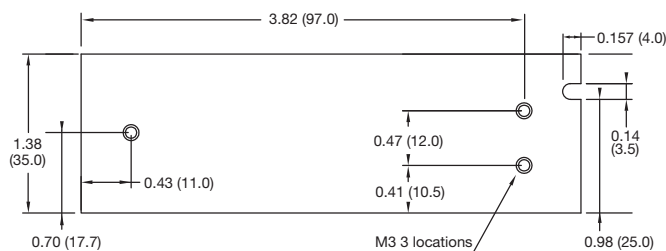
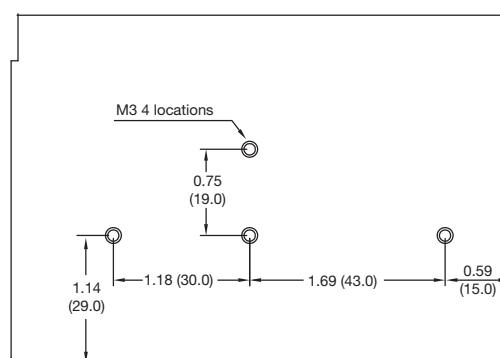
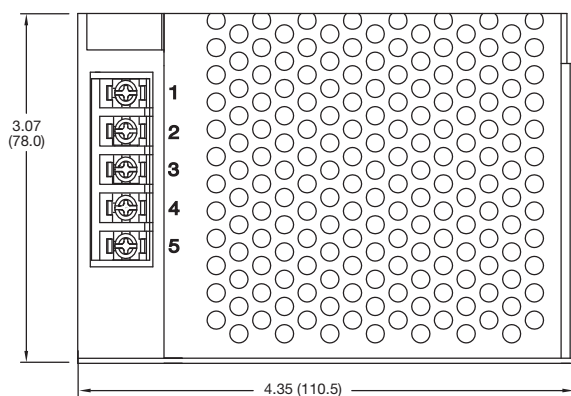
| Output Power | Output Voltage | Output Current | Ripple & Noise <sup>(2)</sup> | Efficiency <sup>(1)</sup> | Model Number |
|--------------|----------------|----------------|-------------------------------|---------------------------|--------------|
| 40 W         | 5.0 V          | 8.00 A         | 50 mV                         | 79%                       | VCS50US05    |
| 50 W         | 12.0 V         | 4.20 A         | 120 mV                        | 85%                       | VCS50US12    |
|              | 15.0 V         | 3.30 A         | 150 mV                        | 86%                       | VCS50US15    |
|              | 24.0 V         | 2.10 A         | 240 mV                        | 88%                       | VCS50US24    |
|              | 48.0 V         | 1.05 A         | 480 mV                        | 88%                       | VCS50US48    |

### 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

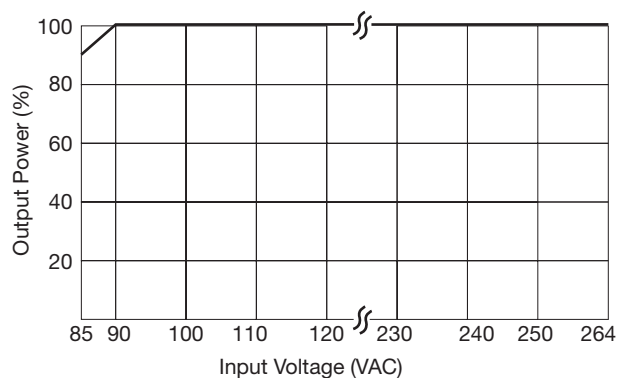
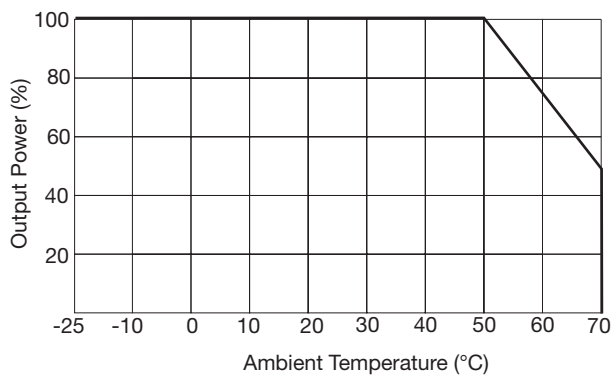


| Pin | Function   |
|-----|------------|
| 1   | AC Live    |
| 2   | AC Neutral |
| 3   | Ground     |
| 4   | -Vout      |
| 5   | +Vout      |

### Notes

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

## Derating Curves



# Model and Ratings

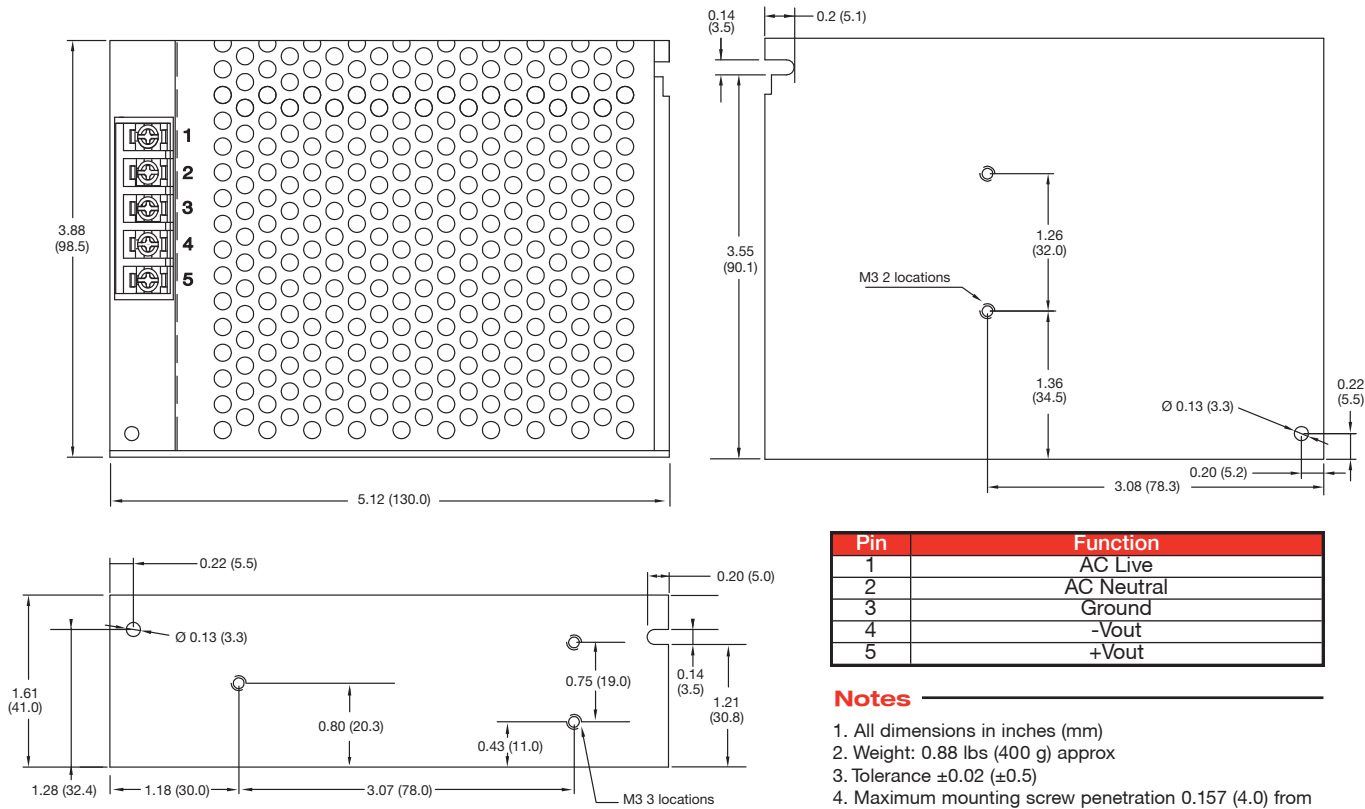
VCS70 XP

| Output Power | Output Voltage | Output Current | Ripple & Noise <sup>(2)</sup> | Efficiency <sup>(1)</sup> | Model Number |
|--------------|----------------|----------------|-------------------------------|---------------------------|--------------|
| 50 W         | 5.0 V          | 10.0 A         | 50 mV                         | 80%                       | VCS70US05    |
| 70 W         | 12.0 V         | 5.83 A         | 120 mV                        | 87%                       | VCS70US12    |
|              | 15.0 V         | 4.67 A         | 150 mV                        | 87%                       | VCS70US15    |
|              | 24.0 V         | 2.92 A         | 240 mV                        | 87%                       | VCS70US24    |
|              | 48.0 V         | 1.46 A         | 480 mV                        | 87%                       | VCS70US48    |

## 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.

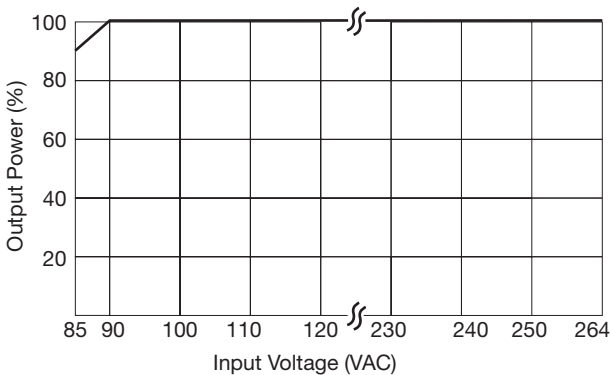
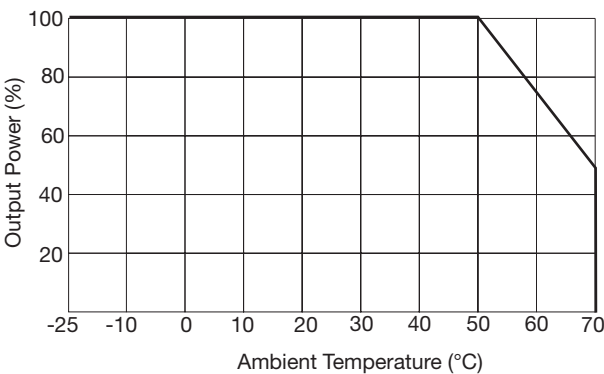
# Mechanical Details



## Notes

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

# Derating Curves



## Model and Ratings

VCS100 **XP**

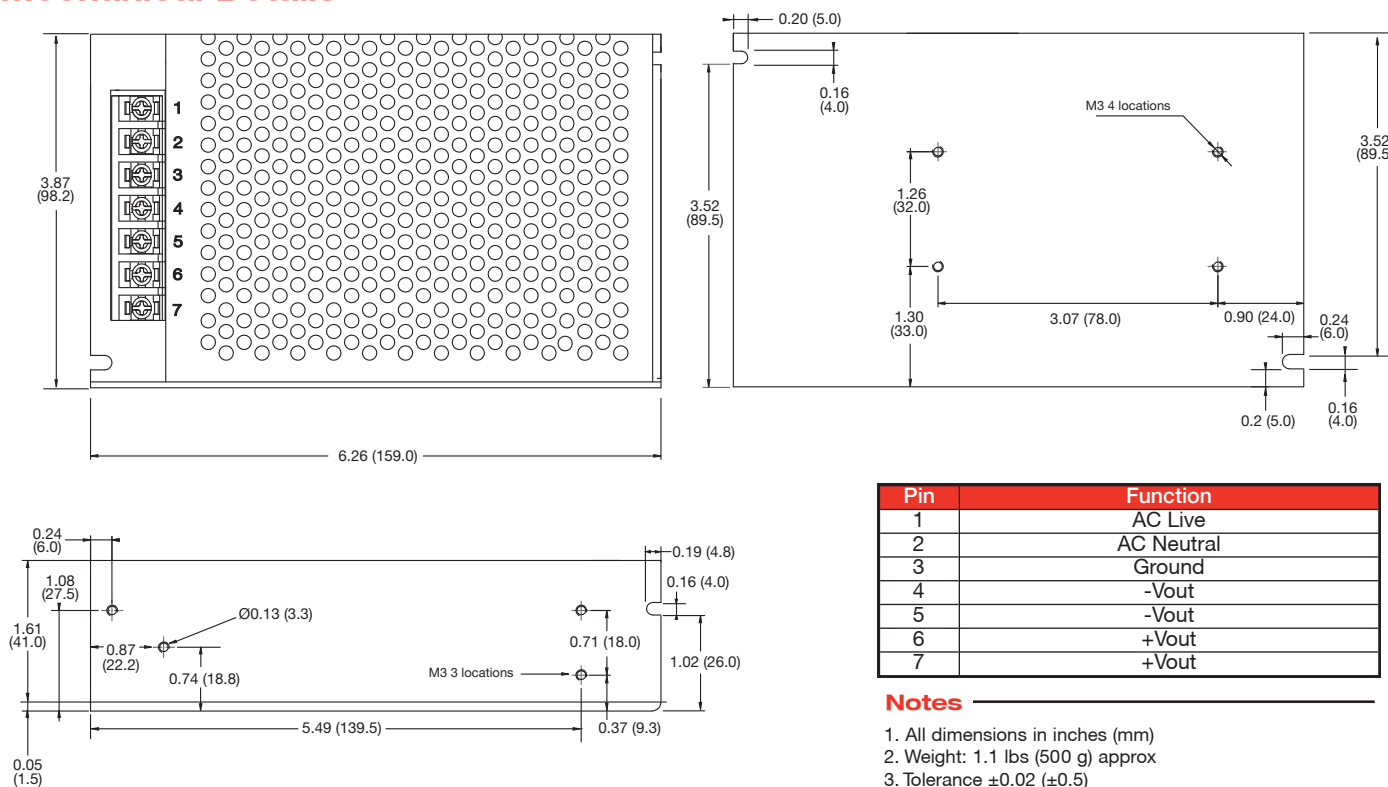
| Output Power | Output Voltage | Output Current | Ripple & Noise <sup>(2)</sup> | Efficiency <sup>(1)</sup> | Model Number |
|--------------|----------------|----------------|-------------------------------|---------------------------|--------------|
| 70 W         | 5.0 V          | 14.0 A         | 50 mV                         | 78.0%                     | VCS100US05   |
| 100 W        | 12.0 V         | 8.33 A         | 120 mV                        | 85.0%                     | VCS100US12   |
|              | 15.0 V         | 6.67 A         | 150 mV                        | 86.0%                     | VCS100US15   |
|              | 24.0 V         | 4.17 A         | 240 mV                        | 86.5%                     | VCS100US24   |
|              | 48.0 V         | 2.08 A         | 480 mV                        | 88.0%                     | VCS100US48   |

## 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



## Notes

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

## Derating Curves

