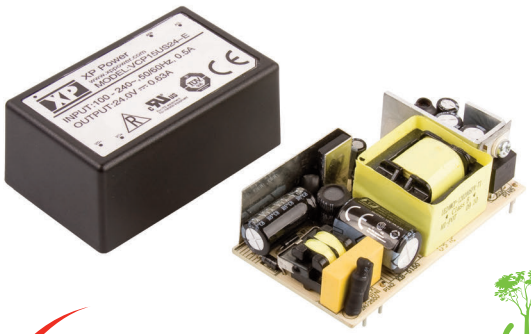
24 Watts
VCP Series



- Low Cost
- Output Voltages from 5 to 24 V
- PCB Mount
- Open Frame & Encapsulated Versions
- IT & Medical Approvals
- Class II Construction
- No Load Input Power <0.3 W

Specification

Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Input Current	• 0.6 A max at 90 VAC
Inrush Current	• 40 A max at 240 VAC, cold start at 25 °C
Power Factor	• EN61000-3-2, class A
No Load Input Power	• <0.3 W
Input Protection	• Internal T2.0A/250 V fuse in line

Output

Output Voltage	• See table
Initial Set Accuracy	• ±2% at 50% load
Minimum Load	• No minimum load required
Start Up Delay	• 2 s max
Start Up Rise Time	• 50 ms typical
Hold Up Time	• 5 ms typical at full load and 115 VAC
Line Regulation	• ±0.5% max
Load Regulation	• 2% max, 0-100% load
Transient Response	• 10% max. deviation, recovery to <1% within 500 µs for a 50% step load change at 0.2 A/µs
Ripple & Noise	• See table
Overvoltage Protection	• See table
Overload Protection	• 120-280 %, auto recovery
Short Circuit Protection	• Trip and restart (hiccup mode)
Temperature Coefficient	• 0.2 %/°C

General

Efficiency	• See table
Isolation	• 4000 VAC Input to Output
Switching Frequency	• 65 kHz typical
MTBF	• 250 kHrs to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• 0 °C to +70 °C, derate from 100% load at 50 °C to 50% load at 70 °C
Cooling	• Natural convection
Operating Humidity	• 5-90% RH, non-condensing
Storage Temperature	• -20 °C to +80 °C
Vibration	• 10-300 Hz, 2 g 15 mins/sweep. 30 mins for each of 3 axes

EMC & Safety

Emissions	• EN55011/22, level B conducted & radiated
Harmonic Currents	• EN61000-3-2, class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, ±4kV indirect contact, ±8kV air, 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, 3 V, 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, cUL60950-1, IEC60950-1, EN60601-1, cUL60601-1, IEC60601-1

Models and Ratings

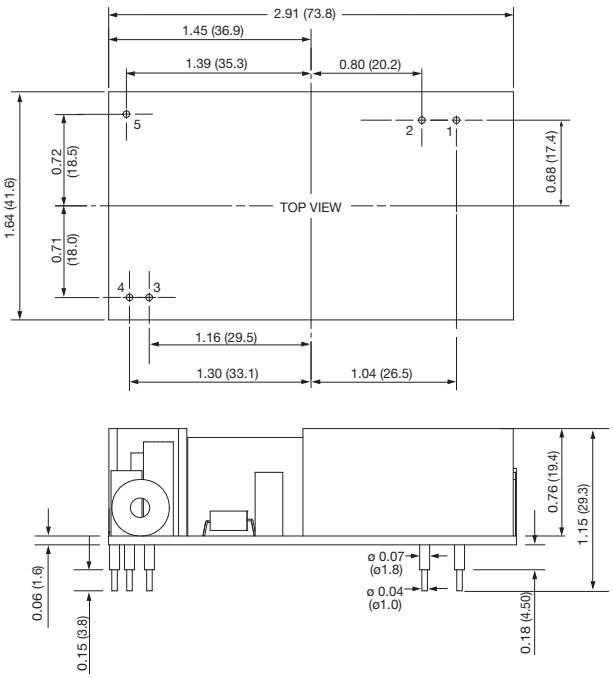
Output Power	Output Voltage[2]	Output Current	Ripple & Noise[1]	OVP Setting[3]	Efficiency[5]	Model Number[4]
12.5 W	5.0 V	2.5 A	100 mV	10.0 V	73%	VCP24US05
24.0 W	12.0 V	2.0 A	100 mV	20.0 V	80%	VCP24US12
24.0 W	15.0 V	1.6 A	150 mV	25.0 V	81%	VCP24US15
24.0 W	24.0 V	1.0 A	200 mV	35.0 V	82%	VCP24US24

Notes

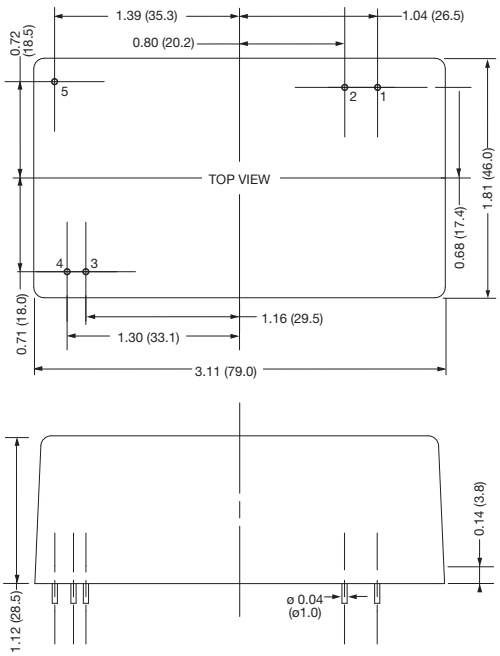
1. Measured at DC output connectors using 20 MHz bandwidth and 0.1 µF ceramic capacitor in parallel with 10 µF electrolytic capacitor placed at connector terminals.
2. Other voltages between 5.0 V and 24.0 V are available, consult sales for details.
3. Typical trip point.
4. For encapsulated versions, add suffix '-E' to the model number, e.g. VCP24US12-E
5. Average of efficiencies measured at 25%, 50%, 75% & 100% load and 230 VAC input.

Mechanical Details

Open Frame Version



Encapsulated Version (–E)



Pin	Designation
1	Live
2	Neutral
3	Output +VE
4	Output -VE
5	N/C

Notes

1. All dimensions are in inches (mm).
2. Weight: open frame versions: 0.165 lbs (75 g) approx, encapsulated versions 0.32 lbs (150 g) approx.
3. Tolerance: x.xx = ±0.04 (x.x = ±0.1); x.xxx = ±0.2 (x.xx = ±0.5)