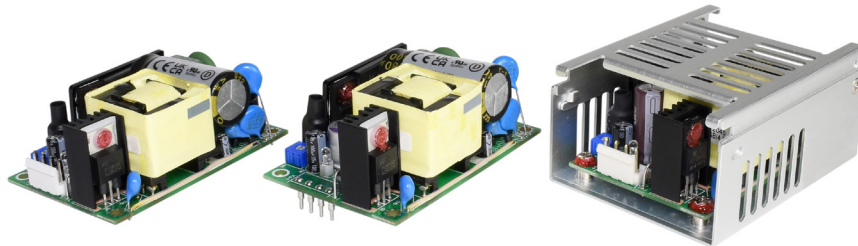


SERIES: VOF-80B | **DESCRIPTION:** INTERNAL AC-DC POWER SUPPLY

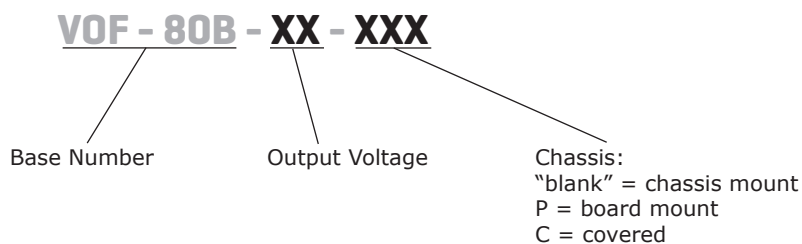
FEATURES

- universal input range 90~264 Vac
- high efficiency up to 91%
- 2"x3" open frame compact size
- Class I and Class II
- operating altitude 5,000 m
- continuous short circuit protection
- certified to EN/BS EN/UL 62368-1
- designed to meet IEC/EN 60335-1, EN 55032



| MODEL | output voltage | | output current | output power | ripple and noise ¹ | efficiency ² |
|------------|----------------|-------------|----------------|--------------|-------------------------------|-------------------------|
| | nom (Vdc) | range (Vdc) | max (A) | max (W) | max (mVp-p) | typ (%) |
| VOF-80B-12 | 12 | 11.4~12.6 | 6.7 | 80 | 120 | 89 |
| VOF-80B-15 | 15 | 14.25~15.75 | 5.36 | 80 | 150 | 89 |
| VOF-80B-24 | 24 | 22.8~25.2 | 3.35 | 80 | 240 | 90 |
| VOF-80B-48 | 48 | 45.6~50.4 | 1.67 | 80 | 480 | 91 |

Notes: 1. At full load, nominal input, 20 MHz bandwidth oscilloscope, with 10 μ F electrolytic and 0.1 μ F ceramic capacitors on the output.
 2. At 230 Vac input and 100% full load at 25°C.

PART NUMBER KEY


INPUT

| parameter | conditions/description | min | typ | max | units |
|---------------------------|--------------------------------|-----|------|------|-------|
| voltage ³ | ac input | 90 | | 264 | Vac |
| | dc input | 120 | | 370 | Vdc |
| frequency | | 50 | | 60 | Hz |
| current | at 100 Vac, full load | | | 1.7 | A |
| inrush current | at 240 Vac, cold start at 25°C | | | 100 | A |
| leakage current | | | | 0.25 | mA |
| no load power consumption | 48 Vdc output | | 0.35 | | W |
| | all other output models | | 0.3 | | W |

Note: 3. Safety approvals only apply to the ac input.

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|--------------------------|-----------------------------------|-------|-----|--------|-------|
| capacitive load | 12 Vdc | | | 13,400 | μF |
| | 15 Vdc | | | 11,000 | μF |
| | 24 Vdc | | | 6,700 | μF |
| | 48 Vdc | | | 3,340 | μF |
| output voltage set point | 90 Vac ~ 264 Vac, full load, 25°C | 11.88 | 12 | 12.12 | Vdc |
| | | 14.85 | 15 | 15.15 | Vdc |
| | | 23.76 | 24 | 24.24 | Vdc |
| | | 47.52 | 48 | 48.48 | Vdc |
| line regulation | 90 Vac ~ 264 Vac, full load | | | ±0.5 | % |
| load regulation | 10~100% load | | | ±1 | % |
| hold-up time | 115 Vac | | 12 | | ms |
| switching frequency | output power = max. rated power | | 65 | | kHz |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|--|-----|-----|------|-------|
| over voltage protection | built-in TVS component to clamp output voltage | | | | |
| | 12 Vdc | | | 16.2 | Vdc |
| | 15 Vdc | | | 18.9 | Vdc |
| | 24 Vdc | | | 31.5 | Vdc |
| | 48 Vdc | | | 58.8 | Vdc |
| short circuit protection | continuous, auto recovery | | | | |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|---------------------|--|-----|-----|-------|-------|
| isolation voltage | input to output for 1 minute | | | 3,000 | Vac |
| safety approvals | certified to 62368-1: EN, BS EN, UL designed to meet 60335-1: IEC, EN designed to meet 55032: EN | | | | |
| safety class | Class I or Class II | | | | |
| conducted emissions | EN55032, EN61204-3:2000, EN61000-6-3:2012, EN61000-6-4:2011, Class B, 47 CFR FCC Part 15 Subpart B | | | | |
| radiated emissions | EN55032, EN61204-3:2000, EN61000-6-3:2012, EN61000-6-4:2011, Class B, 47 CFR FCC Part 15 Subpart B | | | | |
| ESD | IEC 61000-4-2:2008, air discharge: ±8kV, contact discharge: ±4kV, perf. Criteria A | | | | |
| radiated immunity | IEC 61000-4-3:2010, perf. Criteria A | | | | |
| EFT/burst | IEC61000-4-4:2012, ±1kV, ±2kV, perf. Criteria A | | | | |
| surge | IEC61000-4-5:2014, L-N: ±0.5kV, ±1kV, L-E (Ground): ±0.5kV, ±1kV, ±2kV, perf. Criteria A | | | | |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|--------------------------------|--|---------|-----|-----|-------|
| conducted immunity | IEC 61000-4-6:2013, perf. Criteria A | | | | |
| voltage dips and interruption | IEC 61000-4-11:2004, Dip: 30% reduction, dip >95% reduction, perf. Criteria A IEC 61000-4-11:2004, >95% reduction, perf. Criteria B | | | | |
| power frequency magnetic field | IEC 61000-4-8:2009, perf. Criteria A | | | | |
| vibration | meet MIL-STD-810F table 514.5CVIII,15~2000Hz, X,Y,Z axis, 1 hour (each axis). total 3 hrs | | 4 | | g |
| shock | meet MIL-STD-810F table 516.5, table 516.5-I 10ms, each axis 3 times ($\pm X, \pm Y, \pm Z$ axis) | | 75 | | g |
| MTBF | MIL-HDBK-217F at 25°C | 300,000 | | | hours |
| RoHS | yes | | | | |

ENVIRONMENTAL

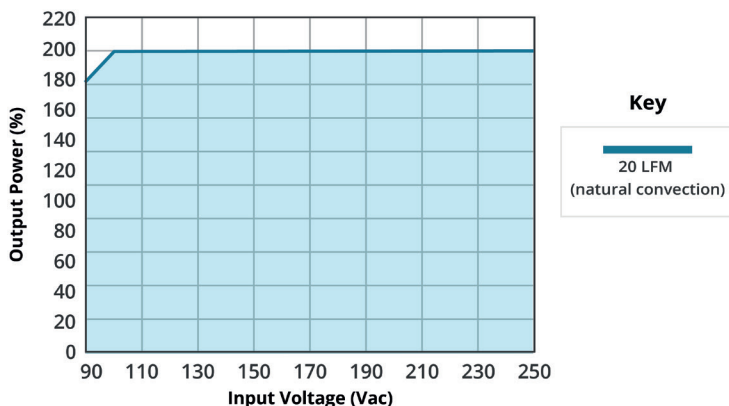
| parameter | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-------|-------|
| operating temperature | see derating curve | -30 | | 80 | °C |
| storage temperature | | -30 | | 85 | °C |
| storage humidity | non-condensing | | | 93 | % |
| altitude | | | | 5,000 | m |

MECHANICAL

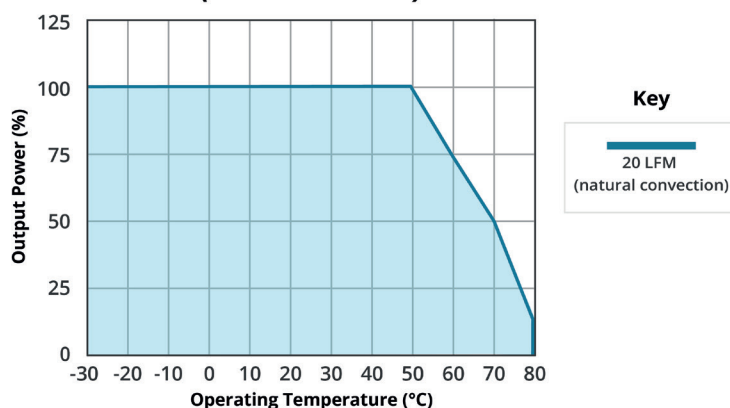
| parameter | conditions/description | min | typ | max | units |
|------------|---|-----|-------------------|-----|----------------|
| dimensions | chassis mount: 76.20 x 50.80 x 34.00 [3.000 x 2.000 x 1.339 inch] board mount: 76.20 x 50.80 x 35.90 [3.000 x 2.000 x 1.413 inch] covered: 81.28 x 62.00 x 40.00 [3.200 x 2.441 x 1.575 inch] | | | | mm mm mm |
| weight | chassis mount board mount covered | | 135 133 174 | | g g g |

DERATING CURVE

PEAK LOAD V_{in} DE-RATING

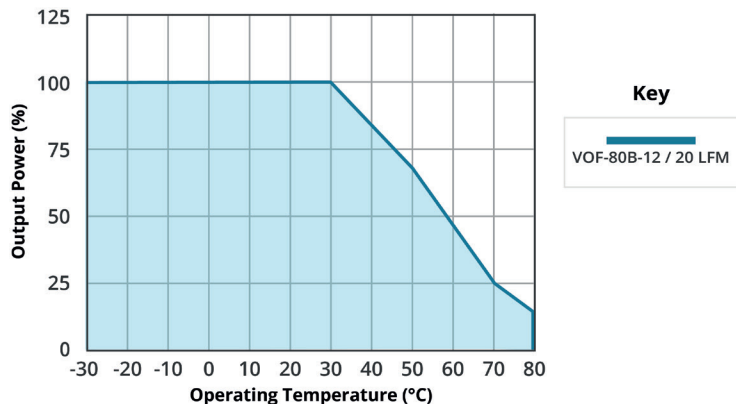


POWER DERATING CURVE (natural convection)

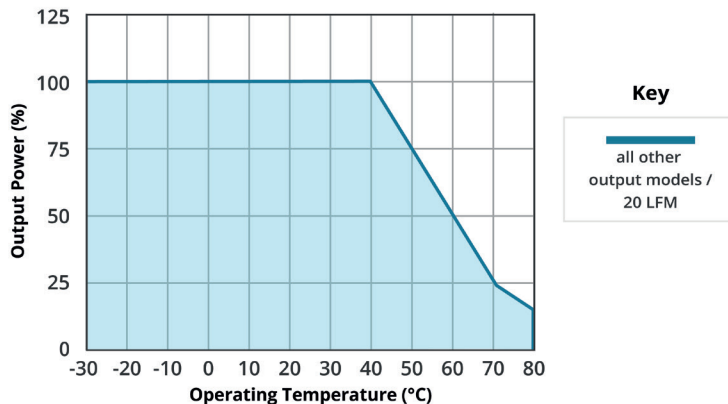


DERATING CURVE (CONTINUED)

POWER DERATING CURVE
(natural convection)

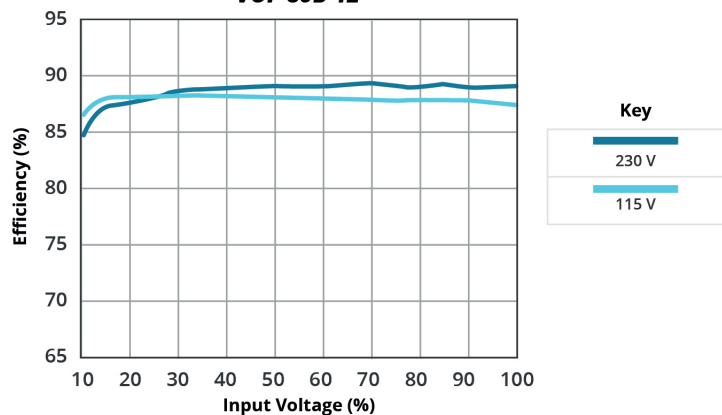


POWER DERATING CURVE
(natural convection)

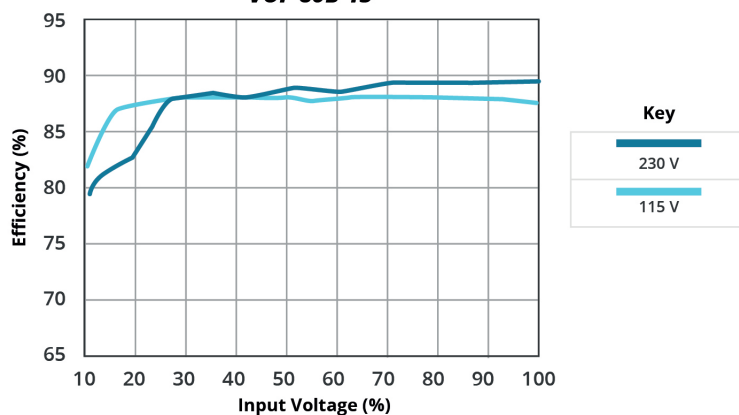


EFFICIENCY CURVES

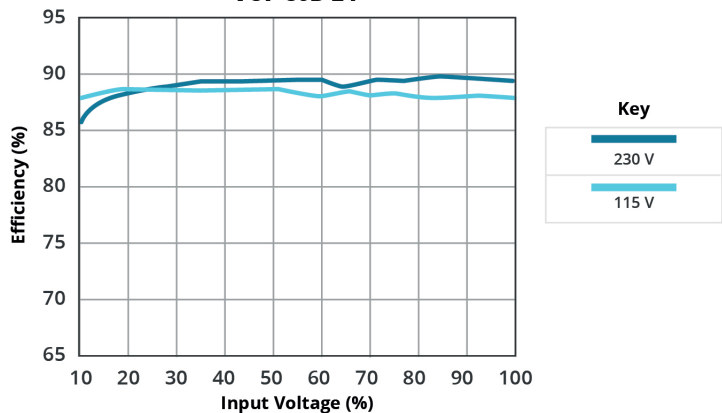
EFFICIENCY VS INPUT LOAD
VOF-80B-12



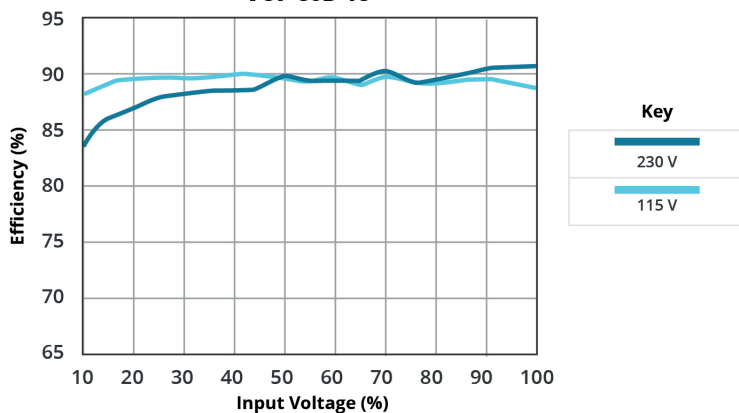
EFFICIENCY VS INPUT LOAD
VOF-80B-15



EFFICIENCY VS INPUT LOAD
VOF-80B-24



EFFICIENCY VS INPUT LOAD
VOF-80B-48



MECHANICAL DRAWING

Chassis mount

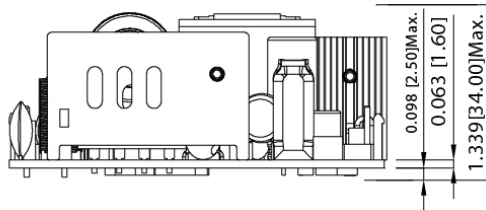
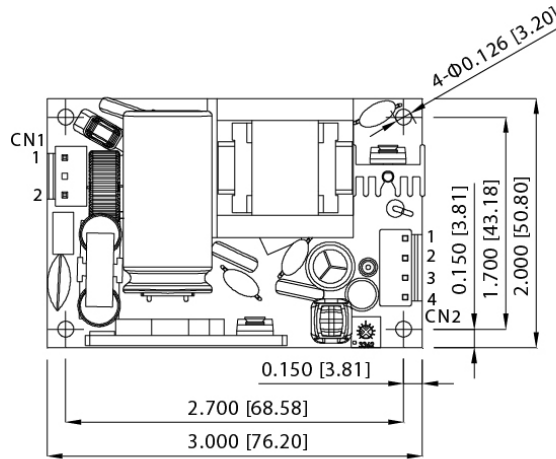
units: inches [mm]

tolerance inches: x.xxx = +0.039/-0

mm: x.xx = +1.0/-0

| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | Function |
| 1 | AC(N) |
| 2 | AC(L) |

| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | Function |
| 1 | -Vout |
| 2 | -Vout |
| 3 | +Vout |
| 4 | +Vout |



Board mount:

units: mm [inch]

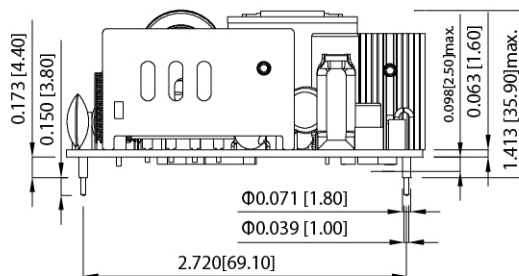
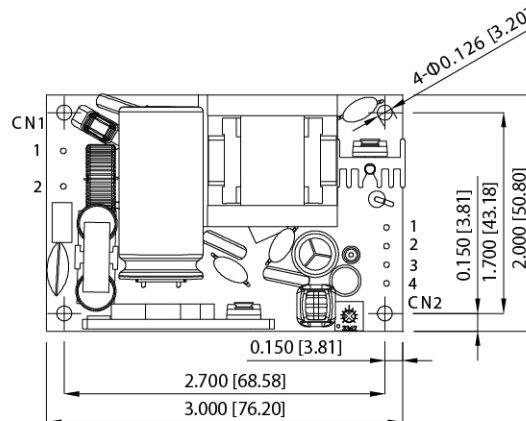
units: inches [mm]

tolerance inches: x.xxx = +0.039/-0

mm: x.xx = +1.0/-0

| PIN CONNECTIONS | |
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| PIN | Function |
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| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | Function |
| 1 | -Vout |
| 2 | -Vout |
| 3 | +Vout |
| 4 | +Vout |

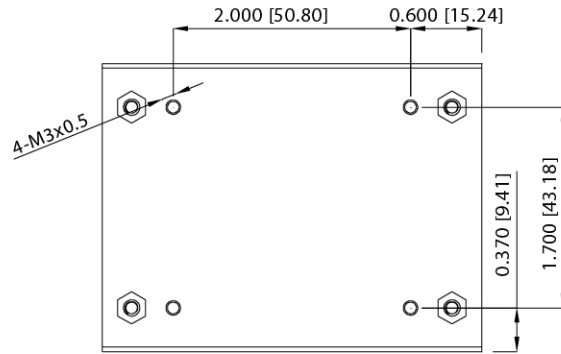
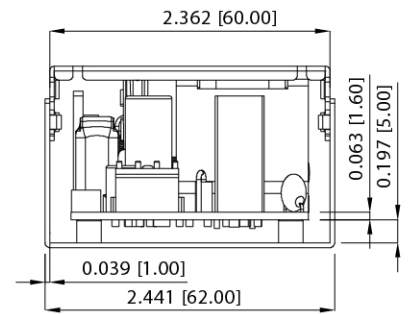
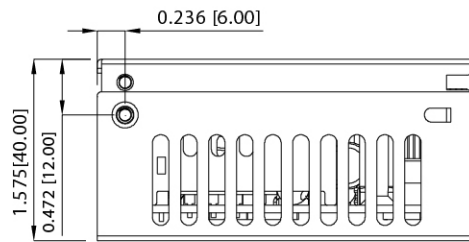
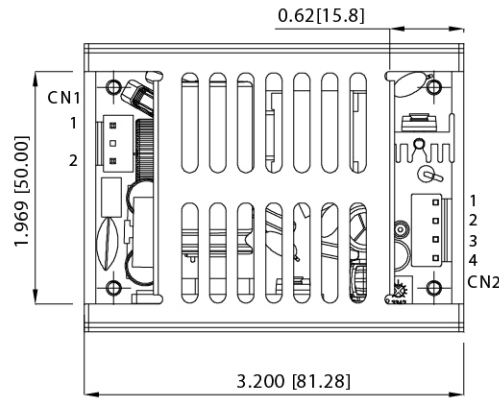


Covered:

units: mm [inch]
 units: inches [mm]
 tolerance inches: x.xxx = +0.039/-0
 mm: x.xx = +1.0/-0

| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | Function |
| 1 | AC(N) |
| 2 | AC(L) |

| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | Function |
| 1 | -Vout |
| 2 | -Vout |
| 3 | +Vout |
| 4 | +Vout |



REVISION HISTORY

| rev. | description | date |
|------|-----------------|------------|
| 1.0 | initial release | 10/19/2023 |

The revision history provided is for informational purposes only and is believed to be accurate.



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