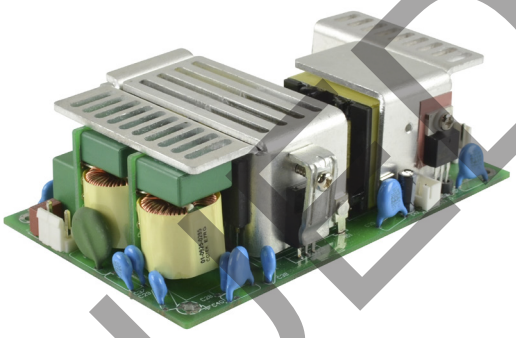
# **SERIES:** VOF-185 | **DESCRIPTION:** AC-DC POWER SUPPLY

## FEATURES

- up to 185 W continuous power
- universal input voltage range
- industry standard 3" x 5" footprint
- power factor correction
- low no load power consumption
- over voltage, over current, and short circuit protections
- output trim
- UL/cUL and TUV safety approvals
- efficiency up to 85%



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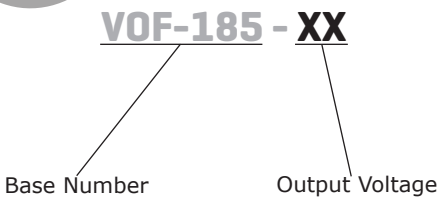
## MODEL

| MODEL | output voltage (Vdc) | output current max (A) | output power[1] max (W) | ripple and noise[2] max (mVp-p) | efficiency[3] typ (%) |
|---|---|---|---|---|---|
| VOF-185-12 | 12 | 15.42 | 185 | 120 | 85 |
| VOF-185-15 | 15 | 12.33 | 185 | 150 | 85 |
| VOF-185-24 | 24 | 7.71 | 185 | 240 | 85 |
| VOF-185-36 | 36 | 5.14 | 185 | 360 | 85 |
| VOF-185-48 | 48 | 3.85 | 185 | 480 | 85 |

Notes:
1. Maximum output power of 185 W with forced air cooling (8.48 CFM), 111 W with convection cooling.
2. At full load, nominal input, 20 MHz bandwidth oscilloscope, using a 12" twisted pair wire terminated together with a 0.1 µF and 47 µF capacitor.
3. At full load, 230 Vac input, without external fan.
4. All specifications are measured at Ta=25°C, 230 Vac input voltage, and rated output load unless otherwise specified.

## PART NUMBER KEY






Please read our datasheet & drawing disclaimer here.

## INPUT

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| voltage | | 90 | | 277 | Vac |
| frequency | | 47 | | 63 | Hz |
| current | at 115 Vac, full load<br>at 230 Vac, full load | | 2.3<br>1.2 | | A<br>A |
| inrush current | at 230 Vac, cold start | | | 80 | A |
| leakage current | at 264 Vac | | | 3.5 | mA |
| power factor correction | at 230 Vac, full load | 0.9 | | | |
| no load power consumption | at 230 Vac | | | 0.5 | W |
| input fuse | 6.3 A / 250 V time delay fuse (included) | | | | |

## OUTPUT

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| initial set point accuracy | | | ±3 | | % |
| line regulation | | | ±0.5 | | % |
| load regulation | from 100%~10% load | | ±2 | | % |
| transient response | 1 kHz, 100%~10% load<br>VOF-185-12<br>VOF-185-15<br>VOF-185-24<br>VOF-185-36<br>VOF-185-48 | | <br>1,200<br>1,500<br>2,400<br>3,600<br>4,800 | | <br>mVp-p<br>mVp-p<br>mVp-p<br>mVp-p<br>mVp-p |
| start-up delay time | at 115 Vac<br>at 230 Vac | | 3<br>2.5 | | s<br>s |
| start-up rise time | at 115 Vac, full load | | 50 | | ms |
| hold-up time | at 115 Vac, full load | 10 | | | ms |
| adjustability | built in trim pot | | ±5 | | % |
| switching frequency | | 30 | | 300 | kHz |
| temperature coefficient | at 0~50°C | | ±0.03 | | %/°C |
| fan output | 12 Vdc / 100 mA | | | | |

## PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| over voltage protection | clamped by TVS | | | | |
| over current protection | hiccup, auto recovery | 105 | | | % |
| short circuit protection | hiccup, auto recovery | 105 | | | % |

## SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| isolation voltage | input to output<br>input to ground<br>output to ground | | 3,000<br>1,500<br>500 | | Vac<br>Vac<br>Vac |
| safety approvals | UL 60950-1, EN 60950-1, IEC 60950-1 | | | | |
| EMI/EMC[1] | EN 55022: 2010 Class B, EN 61204-3:2000, EN 61000-6-3: 2007 +A1: 2011, EN 61000-3-2: 2006 +A2: 2009, EN 61000-3-3: 2008, EN 55024: 2010, EN 61000-6-1: 2007, ENV 50204: 1995, CE, FCC | | | | |

Notes: 1. The power supply is considered a component which will be installed into final equipment. The final equipment still must be tested to meet the necessary EMC directives.

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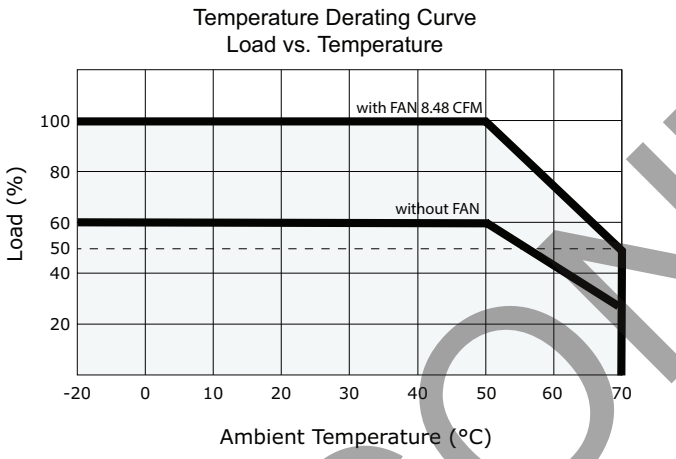
## SAFETY & COMPLIANCE (CONTINUED)

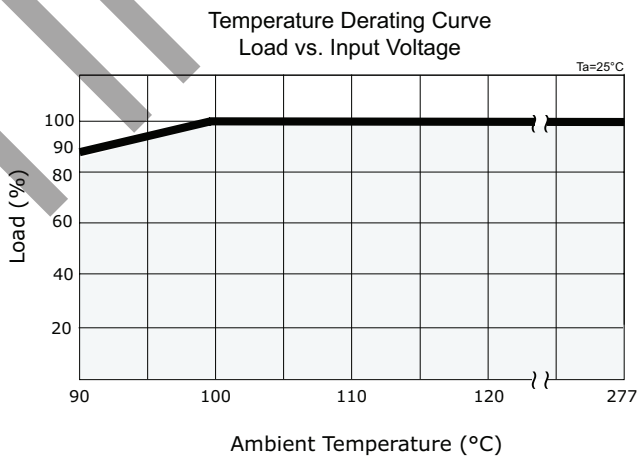
| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| class | class I | | | | |
| MTBF | as per MIL-HDBK-217F | 250,000 | | | hours |
| RoHS | 2011/65/EU | | | | |

## ENVIRONMENTAL

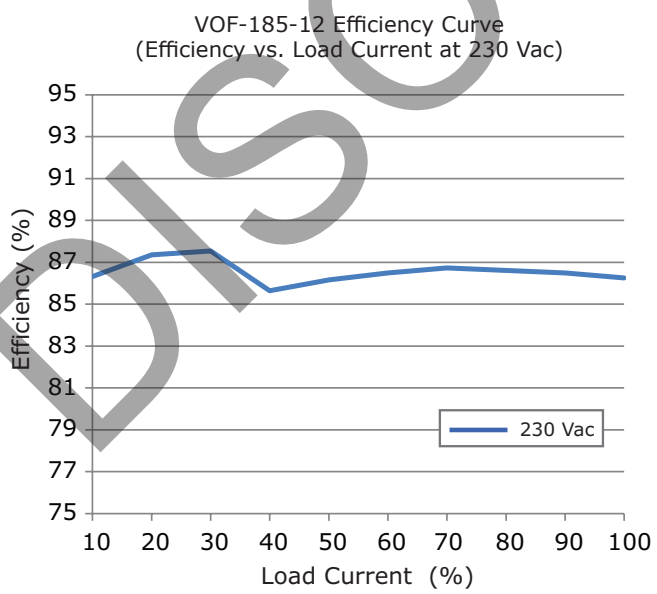
| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| operating temperature | see derating curves | -20 | | 70 | °C |
| storage temperature | | -40 | | 85 | °C |
| operating humidity | non-condensing | 20 | | 90 | % |
| storage humidity | non-condensing | 20 | | 90 | % |
| operating altitude | | | 5000 | | m |
| vibration & shock | 10~3000Hz, 10 minutes per cycle, for 1 hour along each of the X, Y, and Z axes | | 2 | | G |

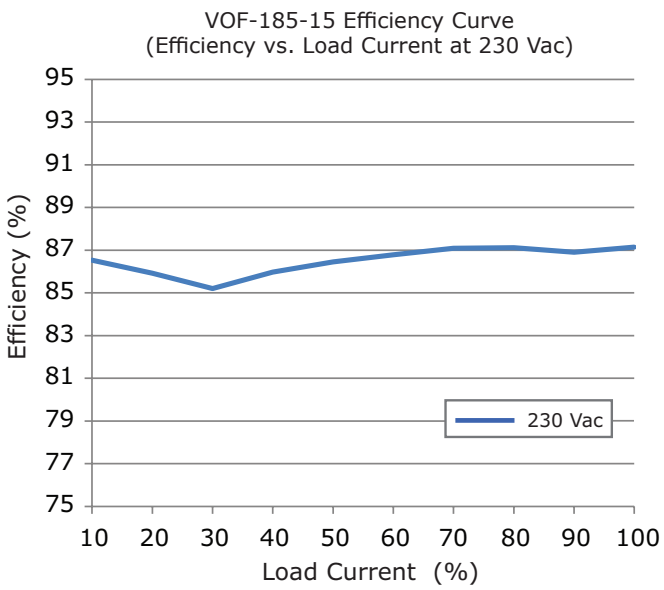
## DERATING CURVES




## EFFICIENCY CURVES

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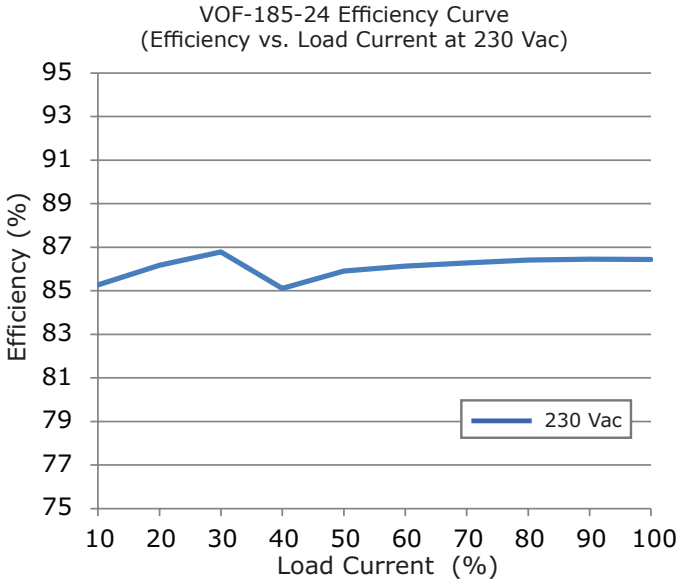
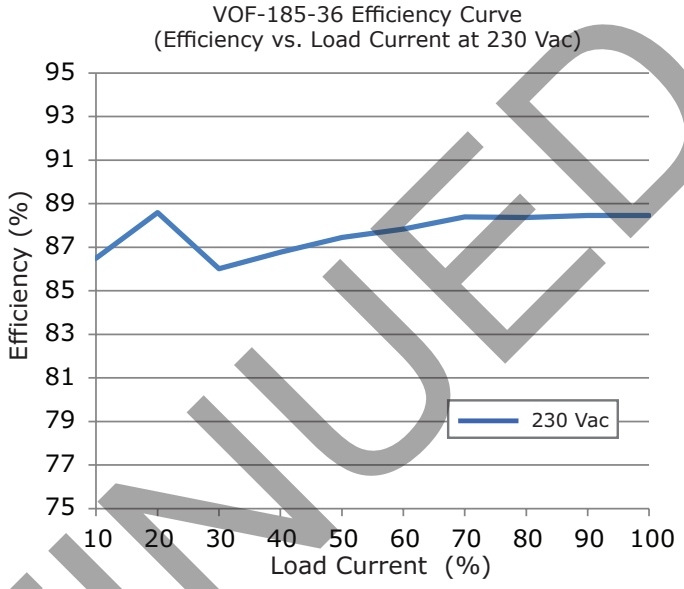
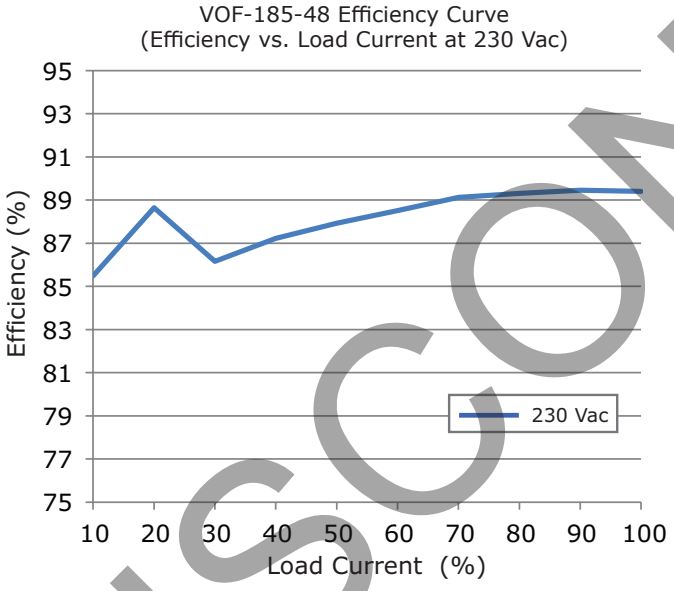
## EFFICIENCY CURVES (CONTINUED)

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## MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| dimensions | 127 x 76.2 x 39.6 | | | | mm |
| weight | | | 0.36 | | kg |
| cooling | external fan | | | | |
| AC input | CN1 mates with Molex 09-50-7031 housing with Molex 2478 series crimp contact or equivalent | | | | |
| DC output | CN2 mates with Molex 09-50-7101 housing with Molex 2478 series crimp contact or equivalent | | | | |
| Auxiliary (Fan) output | Fan mates with JST XHP-2 housing with JST SXH-001T-P0.6 contact or equivalent | | | | |

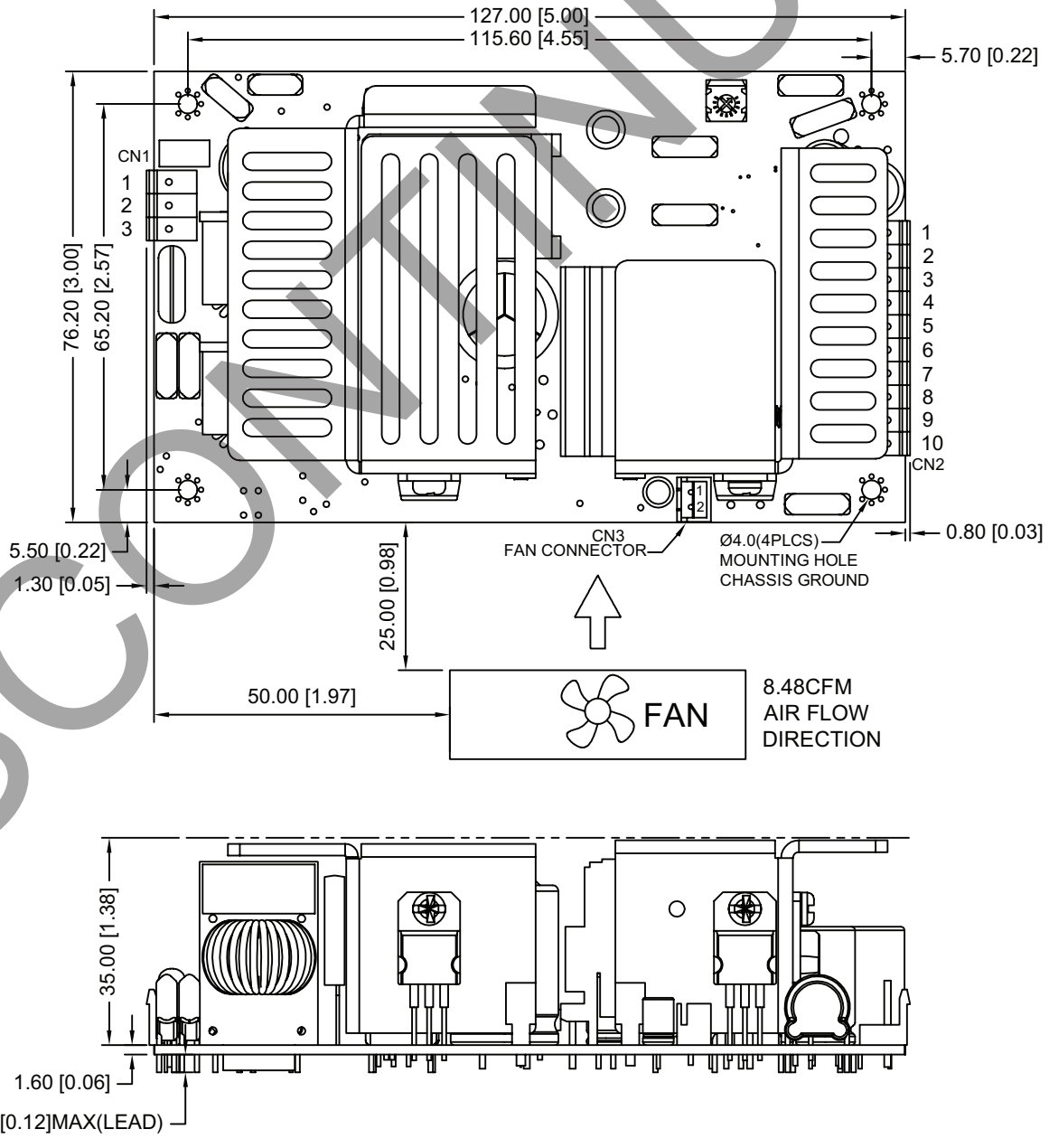
## MECHANICAL DRAWING

units: mm [inch]
tolerance: ±0.3 mm

| CN1 | |
|---|---|
| PIN | Function |
| 1 | L |
| 2 | NP |
| 3 | N |

| CN2 | |
|---|---|
| PIN | Function |
| 1 | +Vo |
| 2 | +Vo |
| 3 | +Vo |
| 4 | +Vo |
| 5 | +Vo |
| 6 | -Vo |
| 7 | -Vo |
| 8 | -Vo |
| 9 | -Vo |
| 10 | -Vo |

| CN3 (FAN) | |
|---|---|
| PIN | Function |
| 1 | +FAN |
| 2 | -FAN |

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## REVISION HISTORY

| rev. | description | date |
|---|---|---|
| 1.0 | initial release | 06/27/2016 |
| 1.01 | added efficiency curves | 09/27/2016 |
| 1.02 | company logo updated | 11/30/2020 |

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

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