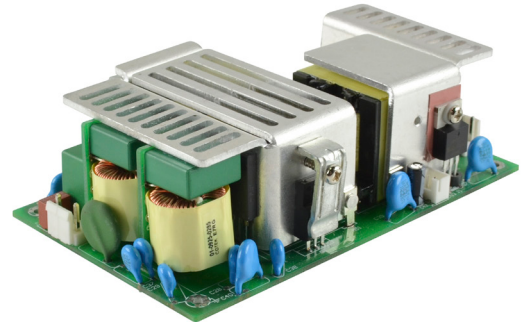




## SERIES: VOF-185 | DESCRIPTION: AC-DC POWER SUPPLY

### 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%

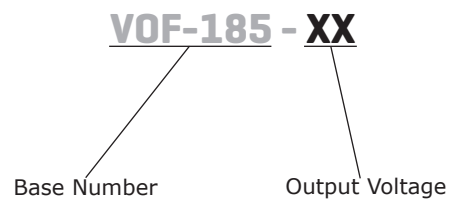


| MODEL      | output voltage | output current max | output power <sup>1</sup> max | ripple and noise <sup>2</sup> max | efficiency <sup>3</sup> typ |
|------------|----------------|--------------------|-------------------------------|-----------------------------------|-----------------------------|
|            | (Vdc)          | (A)                | (W)                           | (mVp-p)                           | (%)                         |
| 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  $\mu$ F and 47  $\mu$ F 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



## 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 |     | 1,200<br>1,500<br>2,400<br>3,600<br>4,800 |     | 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 <sup>1</sup> | 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.

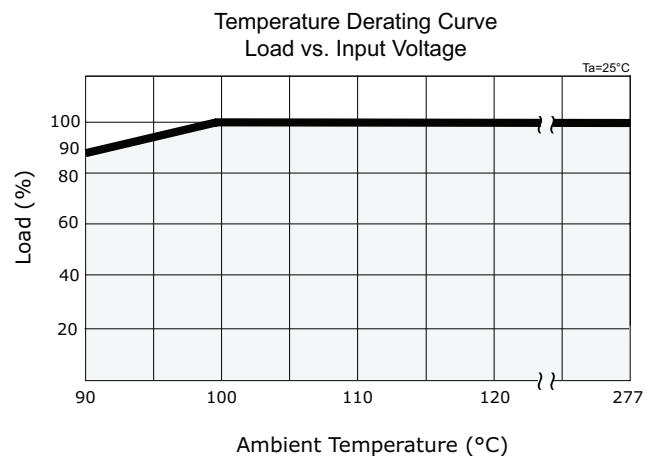
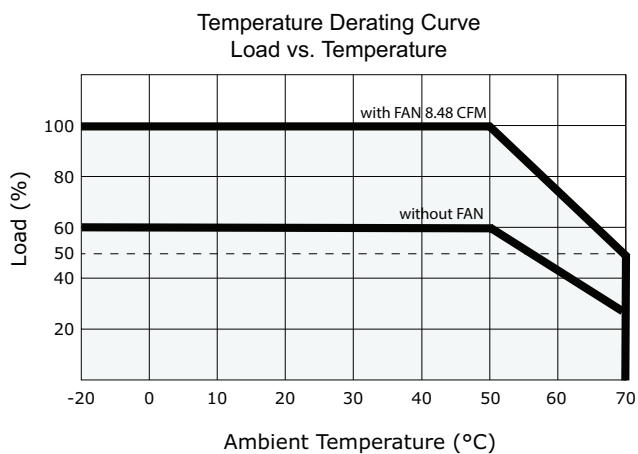
## SAFETY & COMPLIANCE (CONTINUED)

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

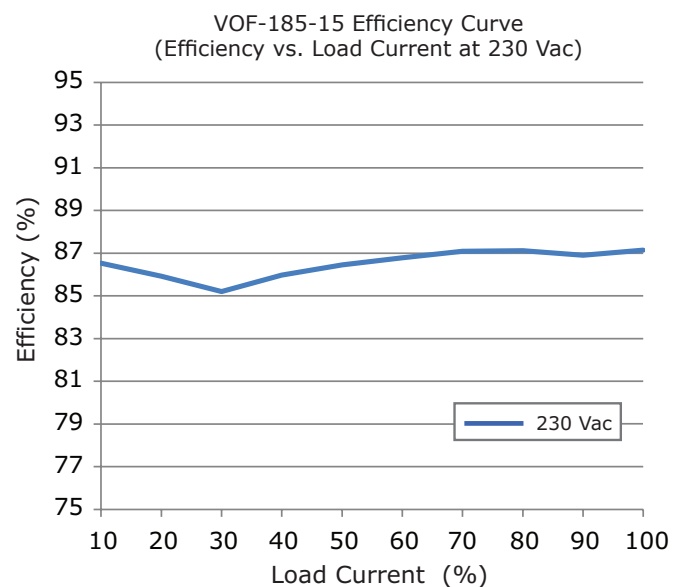
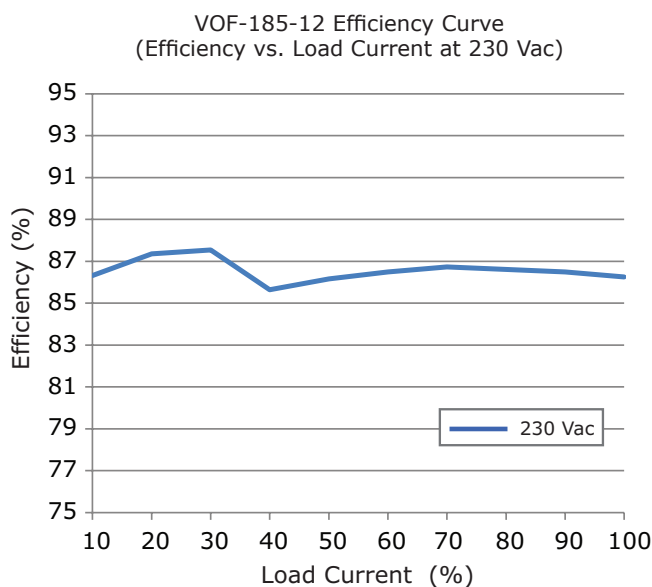
## ENVIRONMENTAL

| 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

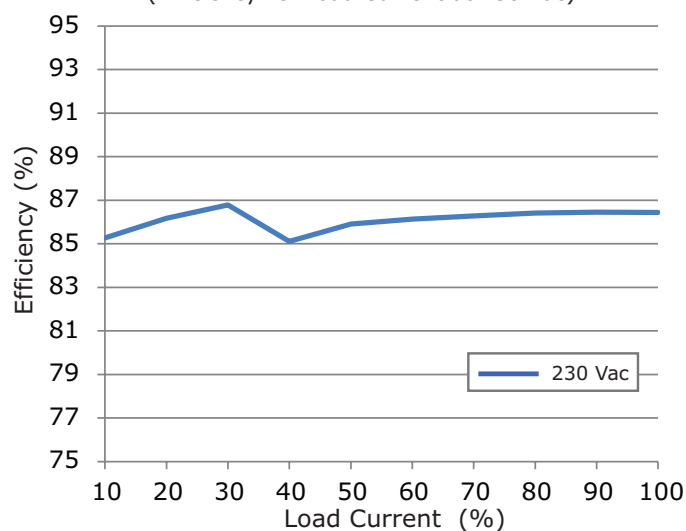


## EFFICIENCY CURVES

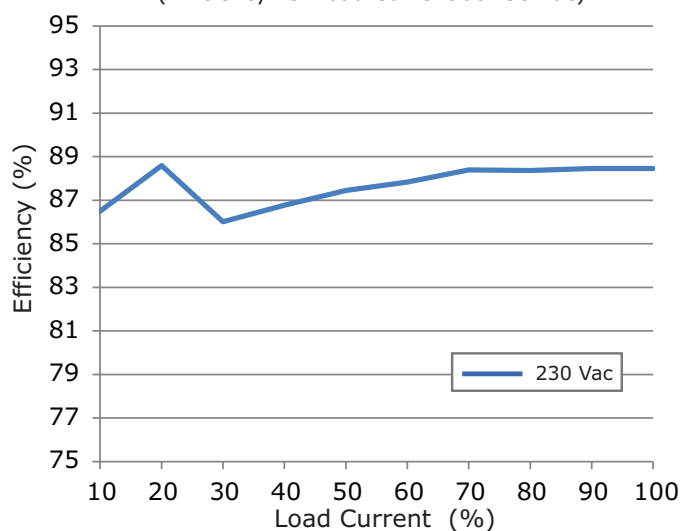


## EFFICIENCY CURVES (CONTINUED)

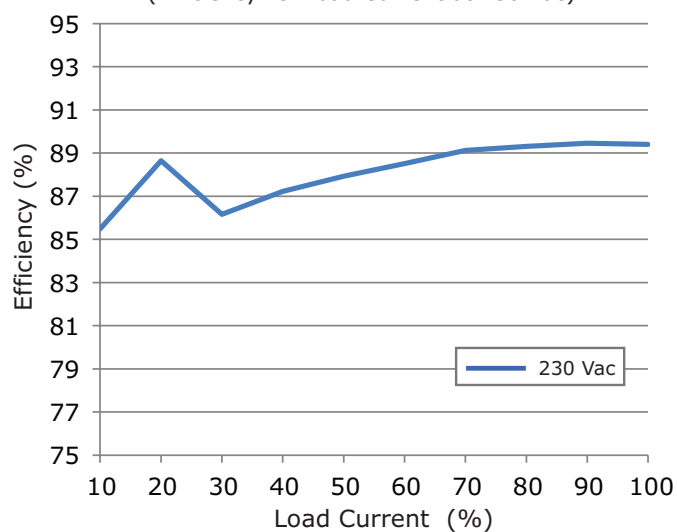
VOF-185-24 Efficiency Curve  
(Efficiency vs. Load Current at 230 Vac)



VOF-185-36 Efficiency Curve  
(Efficiency vs. Load Current at 230 Vac)



VOF-185-48 Efficiency Curve  
(Efficiency vs. Load Current at 230 Vac)



## 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              |     |      |     |       |

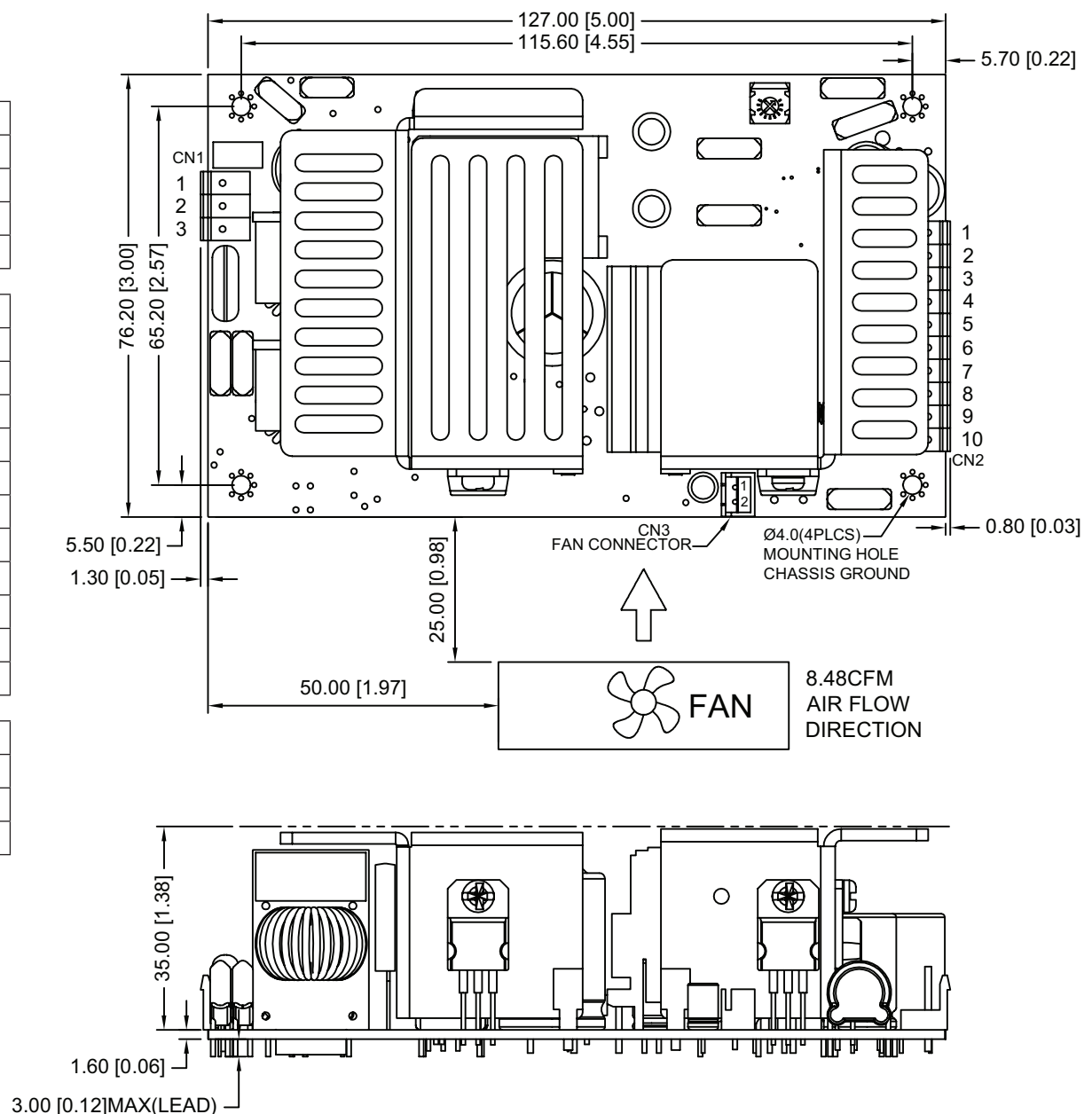
## MECHANICAL DRAWING

units: mm [inch]  
tolerance:  $\pm 0.3$  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     |



## REVISION HISTORY

| rev. | description             | date       |
|------|-------------------------|------------|
| 1.0  | initial release         | 06/27/2016 |
| 1.01 | added efficiency curves | 09/27/2016 |

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

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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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