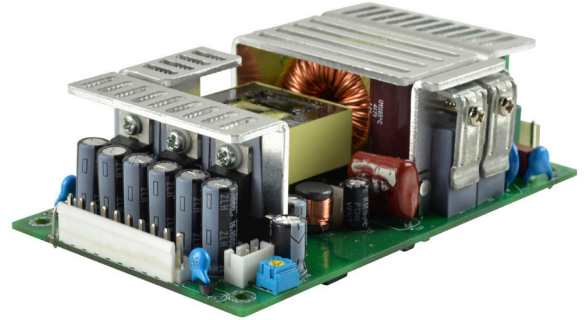




SERIES: VOF-280 | **DESCRIPTION:** AC-DC POWER SUPPLY

FEATURES

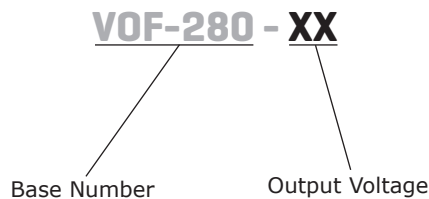
- up to 280 W continuous power
- universal input voltage range
- industry standard 3" x 5" footprint
- power factor correction
- low no load power consumption
- over voltage, over current, and short circuit protections
- output trim
- UL/cUL and TUV safety approvals
- efficiency up to 91%



| MODEL | output voltage | output current | output power ¹ | ripple and noise ² | efficiency ³ |
|------------|----------------|----------------|---------------------------|-------------------------------|-------------------------|
| | (Vdc) | max (A) | max (W) | max (mVp-p) | typ (%) |
| VOF-280-12 | 12 | 23.33 | 280 | 120 | 88 |
| VOF-280-15 | 15 | 18.67 | 280 | 150 | 90 |
| VOF-280-24 | 24 | 11.67 | 280 | 240 | 90 |
| VOF-280-36 | 36 | 7.78 | 280 | 360 | 90 |
| VOF-280-48 | 48 | 5.84 | 280 | 480 | 91 |

- Notes:
1. Maximum output power of 280 W with forced air cooling (34.2 CFM), 168 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



INPUT

| parameter | conditions/description | min | typ | max | units |
|---------------------------|--|--------------|------------|-----|--------|
| voltage | | 90 | | 277 | Vac |
| frequency | | 47 | | 63 | Hz |
| current | at 115 Vac, full load at 230 Vac, full load | | 3.5 1.7 | | A A |
| inrush current | at 230 Vac, cold start | | | 80 | A |
| leakage current | at 264 Vac | | | 3.5 | mA |
| power factor correction | at 115 Vac, full load at 230 Vac, full load | 0.98 0.95 | | | |
| 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 | | ±1 | | % |
| transient response | 1 kHz, 90%~10% load | | | | |
| | VOF-280-12 | | 1,200 | | mVp-p |
| | VOF-280-15 | | 1,500 | | mVp-p |
| | VOF-280-24 | | 2,400 | | mVp-p |
| | VOF-280-36 | | 3,600 | | mVp-p |
| | VOF-280-48 | | 4,800 | | mVp-p |
| start-up delay time | at 115 Vac | | 3 | | s |
| | at 230 Vac | | 2.5 | | s |
| start-up rise time | at 115/230 Vac | | 60 | | ms |
| hold-up time | at 115/230 Vac | 10 | | | ms |
| adjustability | built in trim pot | | ±5 | | % |
| switching frequency | | 75 | | 400 | kHz |
| temperature coefficient | at 0~50°C | | ±0.03 | | %/°C |
| fan output | 12 Vdc / 300 mA | | | | |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|------------------------|------|-----|------|-------|
| over voltage protection | latch mode | | | | |
| | VOF-280-12 | 13.8 | | 15.8 | Vdc |
| | VOF-280-15 | 16.5 | | 19.5 | Vdc |
| | VOF-280-24 | 26.5 | | 31.5 | Vdc |
| | VOF-280-36 | 38.5 | | 43.5 | Vdc |
| | VOF-280-48 | 55 | | 62 | Vdc |
| over current protection | hiccup, auto recovery | 110 | | | % |
| short circuit protection | latch | | | | |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|-------------------|-------------------------------------|-----|-------|-----|-------|
| isolation voltage | input to output | | 3,000 | | Vac |
| | input to ground | | 1,500 | | Vac |
| | output to ground | | 500 | | Vac |
| safety approvals | UL 60950-1, EN 60950-1, IEC 60950-1 | | | | |

SAFETY & COMPLIANCE (CONTINUED)

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

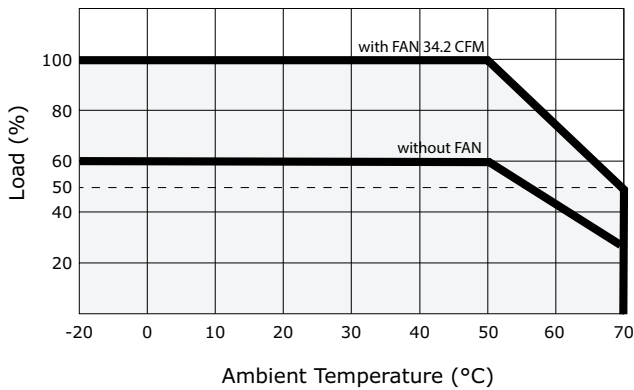
Notes: 1. The power supply is considered a component which will be installed into final equipment. The final equipment still must be tested to meet the necessary EMC directives.

ENVIRONMENTAL

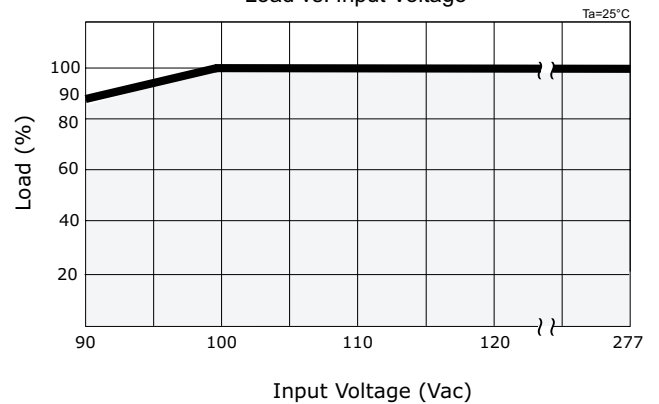
| parameter | conditions/description | min | typ | max | units |
|-----------------------|--|-----|------|-----|-------|
| operating temperature | see derating curves | -20 | | 70 | °C |
| storage temperature | | -40 | | 85 | °C |
| operating humidity | non-condensing | 20 | | 90 | % |
| storage humidity | 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

Temperature Derating Curve
Load vs. Temperature

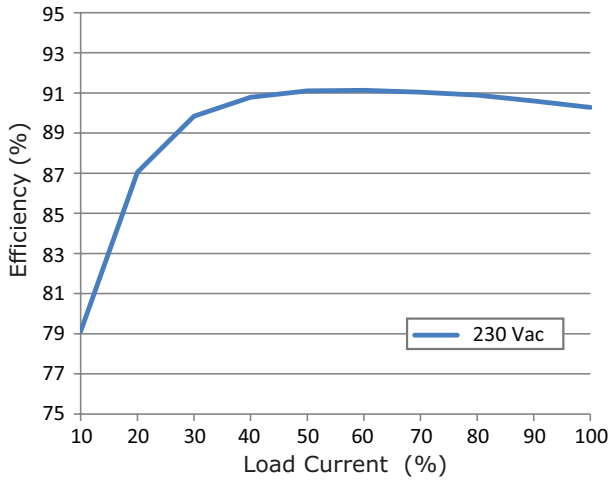


Temperature Derating Curve
Load vs. Input Voltage

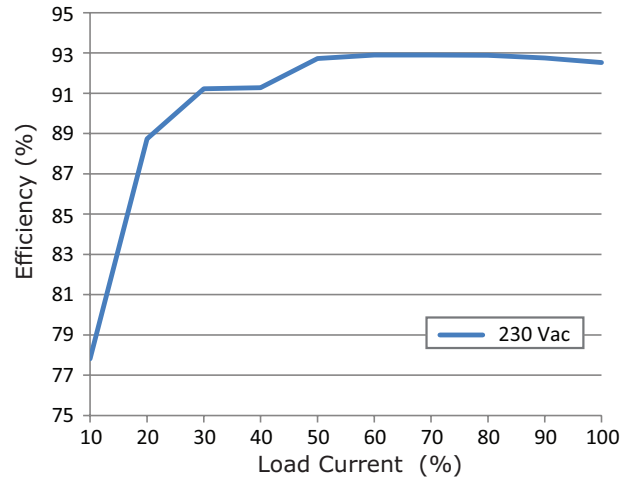


EFFICIENCY CURVES

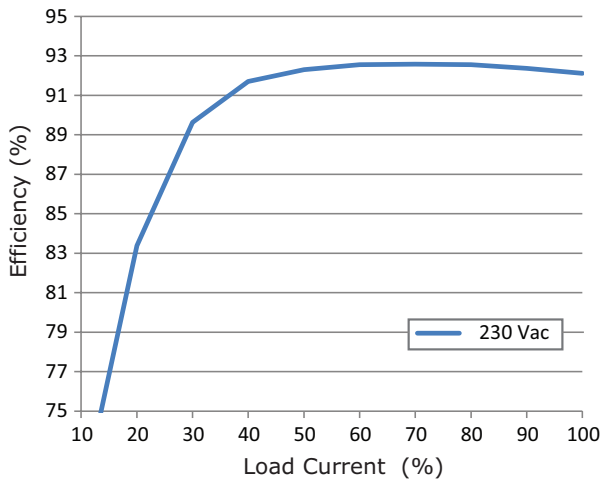
VOF-280-12 Efficiency Curve
(Efficiency vs. Load Current at 230 Vac)



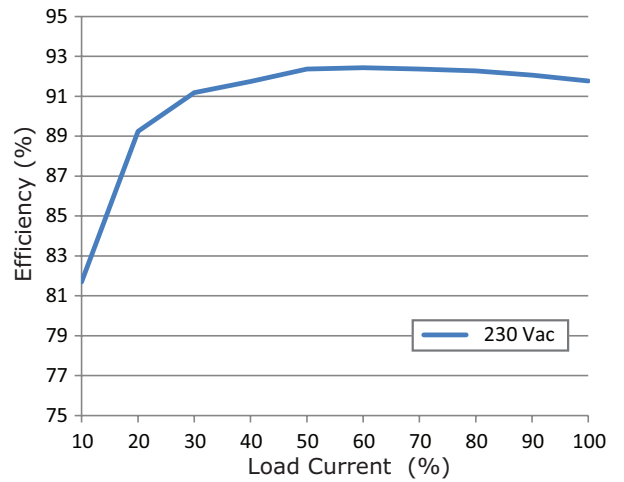
VOF-280-15 Efficiency Curve
(Efficiency vs. Load Current at 230 Vac)



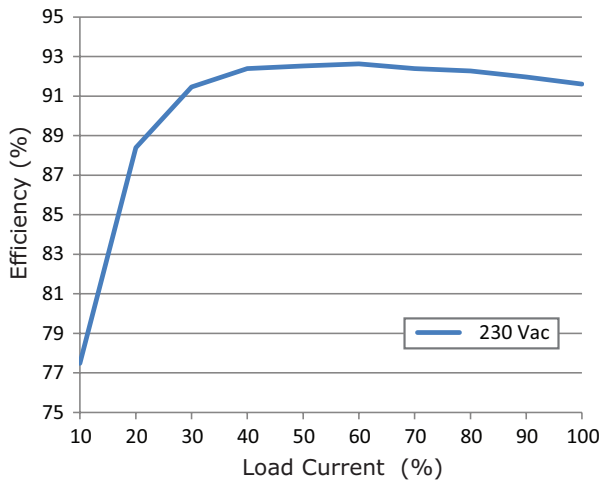
VOF-280-24 Efficiency Curve
(Efficiency vs. Load Current at 230 Vac)



VOF-280-36 Efficiency Curve
(Efficiency vs. Load Current at 230 Vac)



VOF-280-48 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 | | | | |

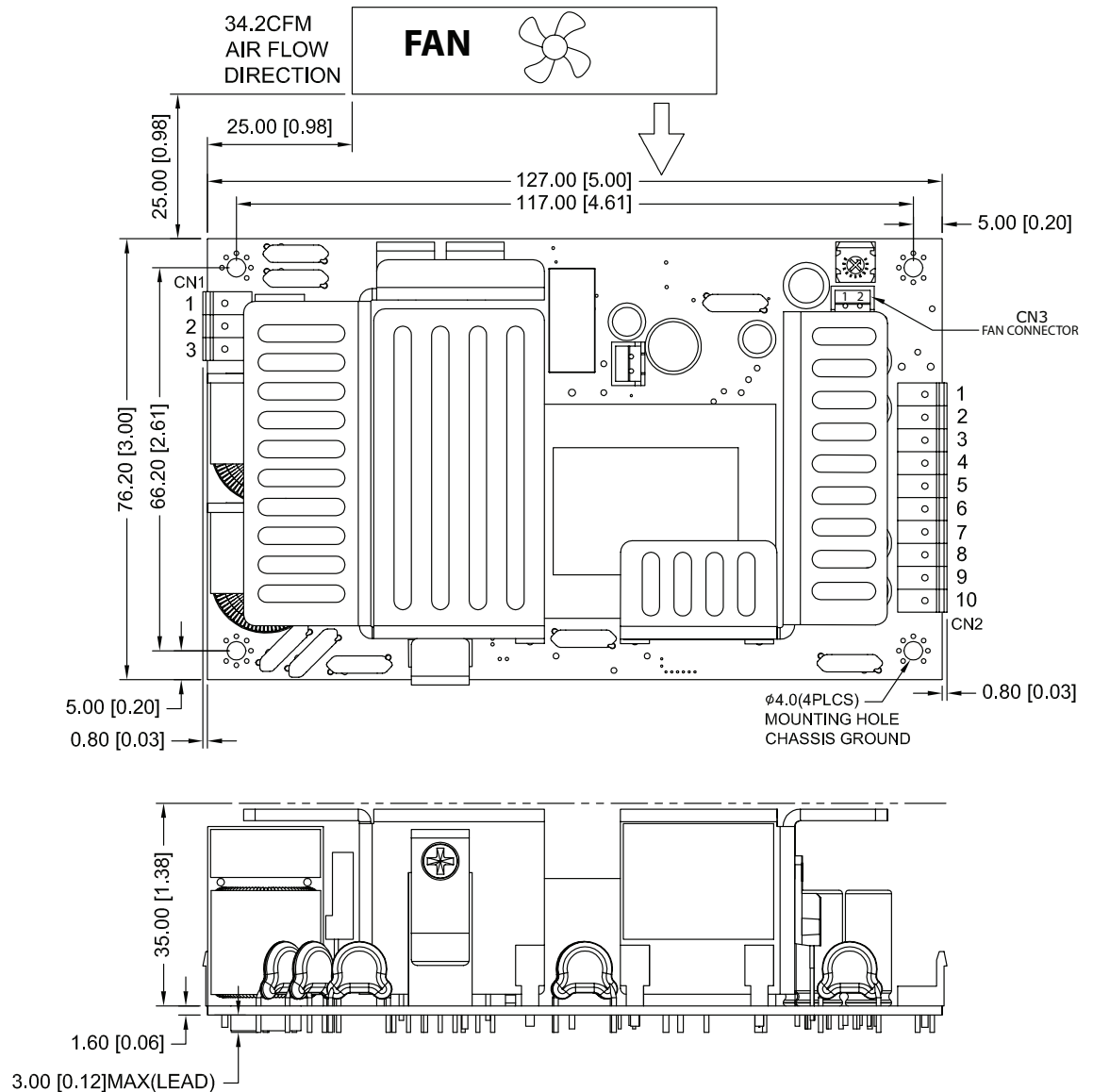
MECHANICAL DRAWING

units: mm [inch]
tolerance: ±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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