


**CUI INC**

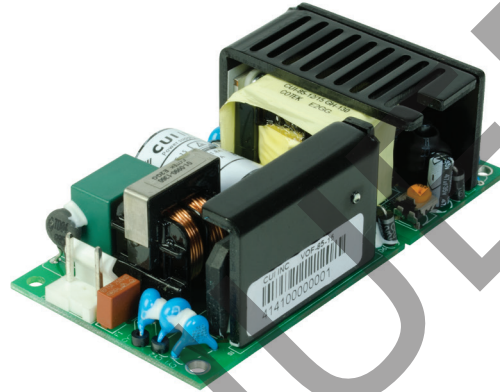
a bel group

date 02/06/2023

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**SERIES: VOF-85 | DESCRIPTION: AC-DC POWER SUPPLY**
**FEATURES**

- up to 85 W continuous power
- compact size
- universal input (90~277 Vac)
- single output from 5~48 Vdc
- user trimmable output voltage option
- no load power consumption <0.25W
- 3000 Vac isolation
- over current, over voltage, and short circuit protections
- certified to 60950: UL/cUL
- efficiency up to 89%



| MODEL      | output<br>voltage | output<br>current<br>max | output<br>power <sup>1</sup><br>max | ripple<br>and noise <sup>2</sup><br>max | efficiency<br>typ |
|------------|-------------------|--------------------------|-------------------------------------|-----------------------------------------|-------------------|
|            | (Vdc)             | (A)                      | (W)                                 | (mVp-p)                                 | (%)               |
| VOF-85-5   | 5                 | 10.6                     | 53                                  | 120                                     | 78                |
| VOF-85-12  | 12                | 7.1                      | 85                                  | 120                                     | 86                |
| VOF-85-15* | 15                | 5.7                      | 85                                  | 150                                     | 88                |
| VOF-85-24* | 24                | 3.6                      | 85                                  | 240                                     | 87                |
| VOF-85-48* | 48                | 1.8                      | 85                                  | 480                                     | 89                |

Notes:

1. 5 Vdc output model requires forced air with 6.7 CFM external fan to achieve 53W. All other models can achieve 85W with convection cooling.
2. Ripple & noise are measured at 20 MHz BW with 0.1  $\mu$ F ceramic cap and a 10  $\mu$ F electrolytic capacitors on the output and the two earth ground pads are connected to input earth ground.
3. \* Discontinued model.

**PART NUMBER KEY**
**VOF-85 - XX**

Base Number

Output Voltage

## INPUT

| parameter                 | conditions/description                         | min | typ        | max          | units  |
|---------------------------|------------------------------------------------|-----|------------|--------------|--------|
| voltage                   |                                                | 90  |            | 277          | Vac    |
| frequency                 |                                                | 47  |            | 63           | Hz     |
| input current             | at 115 Vac, full load<br>at 230 Vac, full load |     | 1.8<br>0.8 |              | A<br>A |
| inrush current            | at 230 Vac, cold start                         |     | 50         |              | A      |
| leakage current           | at 277 Vac                                     |     |            | 3.5          | mA     |
| no load power consumption | at 110 Vac<br>at 230 Vac                       |     |            | 0.25<br>0.35 | W<br>W |
| input fuse                | 5 A/250V time delay fuse (included)            |     |            |              |        |

## OUTPUT

| parameter                  | conditions/description                                                              | min | typ                                 | max | units                                     |
|----------------------------|-------------------------------------------------------------------------------------|-----|-------------------------------------|-----|-------------------------------------------|
| line regulation            | low line to high line                                                               |     | ±0.5                                |     | %                                         |
| load regulation            | full load to 10% load                                                               |     | ±1                                  |     | %                                         |
| initial set point accuracy |                                                                                     |     | ±3                                  |     | %                                         |
| transient response         | 1 kHz, 10~100% load<br>VOF-85-5<br>VOF-85-12<br>VOF-85-15<br>VOF-85-24<br>VOF-85-48 |     | 500<br>1200<br>1500<br>2400<br>4800 |     | mVp-p<br>mVp-p<br>mVp-p<br>mVp-p<br>mVp-p |
| hold-up time               | at 115 Vac, full load                                                               | 8   |                                     |     | ms                                        |
| start-up time              | at 115 Vac, full load                                                               |     | 50                                  |     | ms                                        |
| start-up delay             | at 115 Vac, full load                                                               |     | 1000                                |     | ms                                        |
| adjustability              | built in trim pot                                                                   |     | ±5                                  |     | %                                         |
| switching frequency        |                                                                                     | 61  | 65                                  | 69  | kHz                                       |
| temperature coefficient    |                                                                                     |     | ±0.03                               |     | %/°C                                      |
| fan drive <sup>1</sup>     | 12 Vdc/100 mA for external fan                                                      |     |                                     |     |                                           |

Notes: 1. Fan drive for VOF-85-5 model only.

## PROTECTIONS

| parameter                | conditions/description | min | typ | max | units |
|--------------------------|------------------------|-----|-----|-----|-------|
| short circuit protection | hiccup, auto recovery  | 110 |     |     | %     |
| over current protection  | hiccup, auto recovery  | 110 |     |     | %     |
| over voltage protection  | clamped by TVS         |     |     |     |       |

## SAFETY & COMPLIANCE

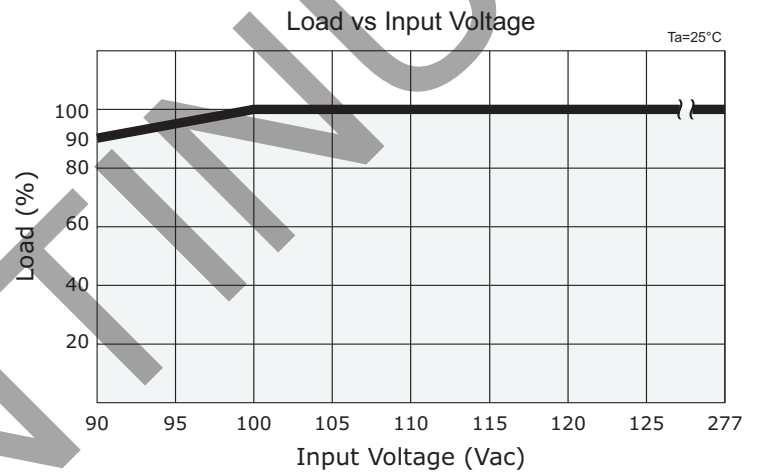
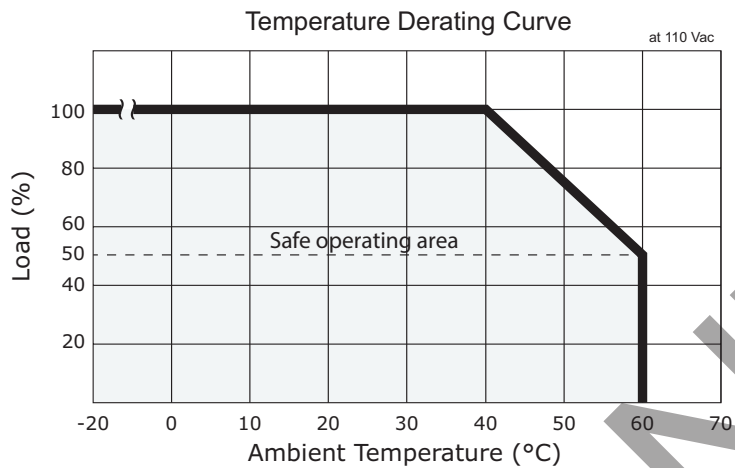
| parameter            | conditions/description                                                                                                                                                                | min                     | typ | max | units             |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----|-----|-------------------|
| isolation voltage    | input to output<br>input to ground<br>output to ground                                                                                                                                | 3,000<br>1,500<br>1,500 |     |     | Vac<br>Vac<br>Vac |
| safety approvals     | certified to 60950: UL/cUL                                                                                                                                                            |                         |     |     |                   |
| EMI/EMC <sup>2</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 |                         |     |     |                   |
| class                | class II                                                                                                                                                                              |                         |     |     |                   |
| MTBF                 | as per MIL-HDBK-217F at 25 °C, full load                                                                                                                                              | 250,000                 |     |     | hours             |
| RoHS                 | 2011/65/EU                                                                                                                                                                            |                         |     |     |                   |

Notes: 2. 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 |      | 60  | °C    |
| storage temperature   |                                                                                   | -40 |      | 85  | °C    |
| operating humidity    | non-condensing                                                                    | 20  |      | 90  | %     |
| storage humidity      | non-condensing                                                                    | 20  |      | 90  | %     |
| operating altitude    |                                                                                   |     | 2000 |     | m     |
| vibration & shock     | 10~3000Hz, 10 minutes per cycle, for 1 hour<br>along each of the X, Y, and Z axes |     | 2    |     | G     |

## DERATING CURVES



**MECHANICAL**

| parameter      | conditions/description                                                                             | min | typ | max | units |
|----------------|----------------------------------------------------------------------------------------------------|-----|-----|-----|-------|
| dimensions     | 101.6 x 50.8 x 33.6 (4.00 x 2.00 x 1.32 inch)                                                      |     |     |     | mm    |
| weight         |                                                                                                    |     | 170 |     | g     |
| cooling method | VOF-85-5: 6.7 CFM external fan at 25mm (not included)<br>all other models: open frame (convection) |     |     |     |       |

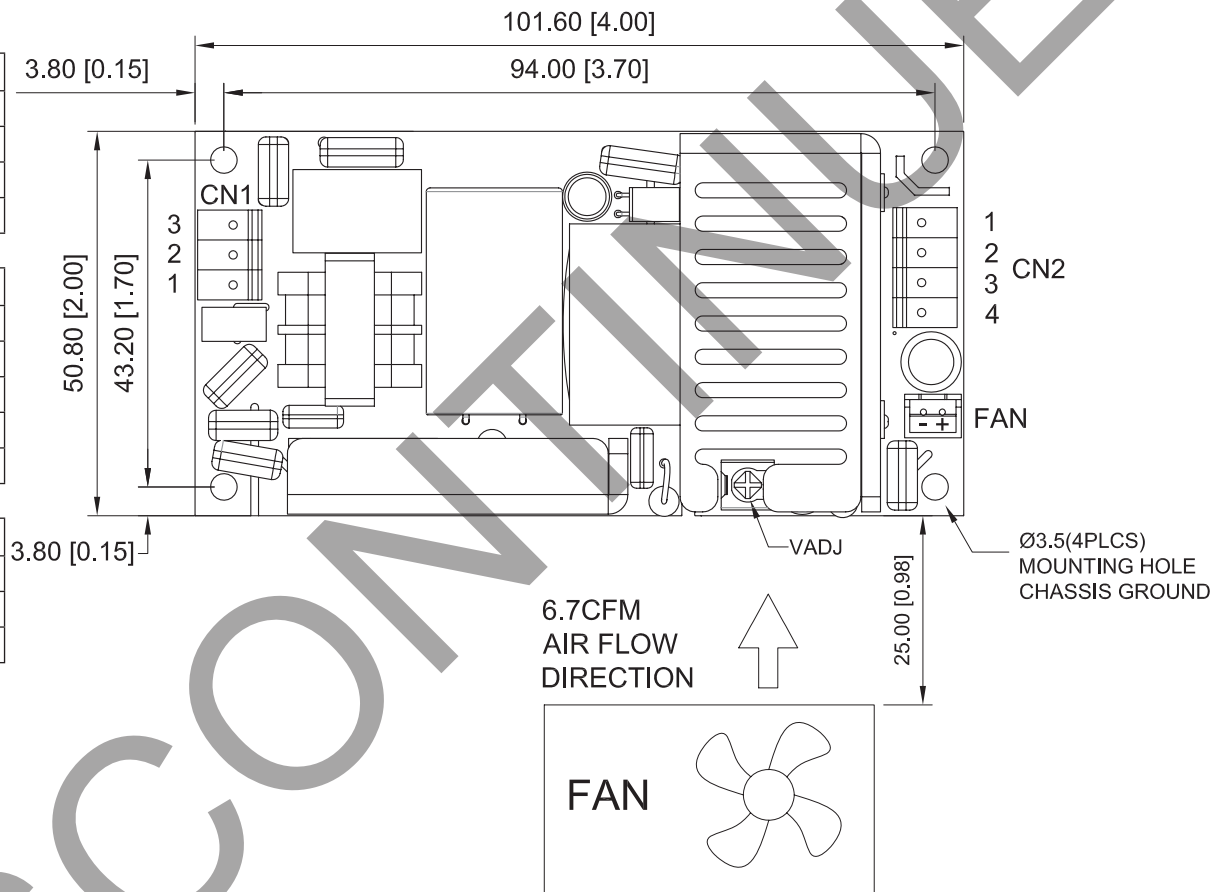
**MECHANICAL DRAWING**

units: mm[inch]  
tolerance:  $\pm 0.30$

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

| CN2 |          |
|-----|----------|
| PIN | Function |
| 1   | +Vo      |
| 2   | +Vo      |
| 3   | -Vo      |
| 4   | -Vo      |

| Fan <sup>1</sup> |          |
|------------------|----------|
| PIN              | Function |
| 1                | +FAN     |
| 2                | -FAN     |



- Notes:
1. Fan connector only populated on model VOF-85-5.
  2. CN1 mates with Molex housing 09-50-3031 with Molex 2478 series crimp contact or equivalent.
  3. CN2 mates with Molex housing 09-50-3041 with Molex 2478 series crimp contact or equivalent.
  4. Fan connector mates with JST housing XHP-2 with JST SXH-001T-P0.6 crimp contact or equivalent.
  5. All specifications are measured at  $T_a=25^{\circ}\text{C}$ , 230 Vac input voltage, and rated output load unless otherwise specified.

## REVISION HISTORY

| rev. | description                                         | date       |
|------|-----------------------------------------------------|------------|
| 1.0  | initial release                                     | 04/08/2014 |
| 1.01 | updated datasheet                                   | 05/09/2014 |
| 1.02 | updated derating curve, updated datasheet           | 06/10/2014 |
| 1.03 | updated datasheet                                   | 07/22/2014 |
| 1.04 | updated safety information                          | 11/19/2020 |
| 1.05 | discontinued model VOF-85-15, VOF-85-24 & VOF-85-48 | 02/06/2023 |

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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