

**SERIES:** VOF-65C | **DESCRIPTION:** AC-DC POWER SUPPLY
**FEATURES**

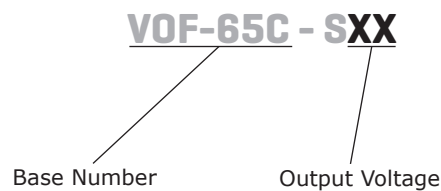
- universal input voltage range (85~264 VAC)
- 3 × 2 × 1.2 in (76.2 × 50.8 × 30 mm)
- class B EMI performance, meets CISPR32 / EN55032
- output short circuit, overcurrent & overvoltage protection
- safety certified: IEC/EN/UL 62368



| MODEL       | output<br>voltage<br>(Vdc) | output<br>current |             | output<br>power<br>max<br>(W) | ripple<br>and noise <sup>1</sup><br>max<br>(mVp-p) | efficiency <sup>2</sup><br>typ<br>(%) |
|-------------|----------------------------|-------------------|-------------|-------------------------------|----------------------------------------------------|---------------------------------------|
|             |                            | min<br>(mA)       | max<br>(mA) |                               |                                                    |                                       |
| VOF-65C-S5  | 5                          | 0                 | 10000       | 50                            | 150                                                | 80                                    |
| VOF-65C-S9  | 9                          | 0                 | 6600        | 60                            | 150                                                | 83                                    |
| VOF-65C-S12 | 12                         | 0                 | 5420        | 65                            | 150                                                | 85                                    |
| VOF-65C-S15 | 15                         | 0                 | 4340        | 65                            | 150                                                | 85                                    |
| VOF-65C-S24 | 24                         | 0                 | 2710        | 65                            | 150                                                | 87                                    |
| VOF-65C-S48 | 48                         | 0                 | 1360        | 65                            | 150                                                | 87                                    |

Notes:

1. At full load, nominal input, 20 MHz bandwidth oscilloscope, with 1  $\mu$ F ceramic and 10  $\mu$ F electrolytic capacitors on the output.
2. At 230 Vac input.
3. All specifications are measured at Ta=25°C, humidity <75%, nominal input voltage, and rated output load unless otherwise specified.

**PART NUMBER KEY**

## INPUT

| parameter                 | conditions/description   | min       | typ      | max         | units      |
|---------------------------|--------------------------|-----------|----------|-------------|------------|
| voltage                   |                          | 85<br>100 |          | 264<br>370  | Vac<br>Vdc |
| frequency                 |                          | 47        |          | 63          | Hz         |
| current                   | at 115 Vac<br>at 230 Vac |           |          | 1600<br>900 | mA<br>mA   |
| inrush current            | at 115 Vac<br>at 230 Vac |           | 35<br>50 |             | A<br>A     |
| no load power consumption |                          |           |          | 0.5         | W          |

## OUTPUT

| parameter                  | conditions/description                                                                                                                     | min | typ   | max                                                  | units |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|------------------------------------------------------|-------|
| capacitive load            | 5 Vdc output models<br>9 Vdc output models<br>12 Vdc output models<br>15 Vdc output models<br>24 Vdc output models<br>48 Vdc output models |     |       | 40,000<br>12,000<br>8,000<br>7,000<br>1,500<br>1,000 | μF    |
| initial set point accuracy |                                                                                                                                            |     | ±2    |                                                      | %     |
| line regulation            | at full load                                                                                                                               |     | ±0.5  |                                                      | %     |
| load regulation            | from 5~100% load                                                                                                                           |     | ±1    |                                                      | %     |
| hold-up time               | at 230 Vac, full load                                                                                                                      |     | 35    |                                                      | ms    |
| switching frequency        |                                                                                                                                            |     | 65    |                                                      | kHz   |
| temperature coefficient    |                                                                                                                                            |     | ±0.02 |                                                      | %/°C  |

## PROTECTIONS

| parameter                | conditions/description                                                                                                                                                            | min | typ | max                                    | units |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|----------------------------------------|-------|
| over voltage protection  | output voltage clamp, auto recovery<br>5 Vdc output models<br>9 Vdc output models<br>12 Vdc output models<br>15 Vdc output models<br>24 Vdc output models<br>48 Vdc output models |     |     | 7.5<br>9<br>16<br>20<br>24<br>35<br>60 | Vdc   |
| over current protection  | hiccup, auto-recovery                                                                                                                                                             | 120 |     | 300                                    | %     |
| short circuit protection | hiccup, continuous, auto-recovery                                                                                                                                                 |     |     |                                        |       |

## SAFETY & COMPLIANCE

| parameter           | conditions/description                                                        | min   | typ | max | units |
|---------------------|-------------------------------------------------------------------------------|-------|-----|-----|-------|
| isolation voltage   | input to output electric strength test for 1 minute,<br>leakage current <5 mA | 3,000 |     |     | Vac   |
| safety approvals    | IEC/UL/EN 62368-1 certified                                                   |       |     |     |       |
| safety class        | Class II                                                                      |       |     |     |       |
| conducted emissions | CISPR32/EN55032, Class B                                                      |       |     |     |       |
| radiated emissions  | CISPR32/EN55032, Class B                                                      |       |     |     |       |
| ESD                 | IEC/EN61000-4-2, Contact ±6KV, Perf. Criteria B                               |       |     |     |       |
| radiated immunity   | IEC/EN61000-4-3 10V/m perf. Criteria A                                        |       |     |     |       |

## SAFETY & COMPLIANCE (CONTINUED)

| parameter                    | conditions/description                                     | min     | typ | max | units |
|------------------------------|------------------------------------------------------------|---------|-----|-----|-------|
| EFT/burst                    | IEC/EN61000-4-4, $\pm 2$ kV, perf. Criteria B              |         |     |     |       |
| surge                        | IEC/EN61000-4-5, line to line $\pm 1$ kV, perf. Criteria B |         |     |     |       |
| conducted immunity           | IEC/EN61000-4-6, 10 Vrms, Perf. Criteria A                 |         |     |     |       |
| voltage dips & interruptions | IEC/EN61000-4-11, 0%, 70%, perf. Criteria B                |         |     |     |       |
| MTBF                         | as per MIL-HDBK-217F at 25°C                               | 300,000 |     |     | hours |
| RoHS                         | yes                                                        |         |     |     |       |

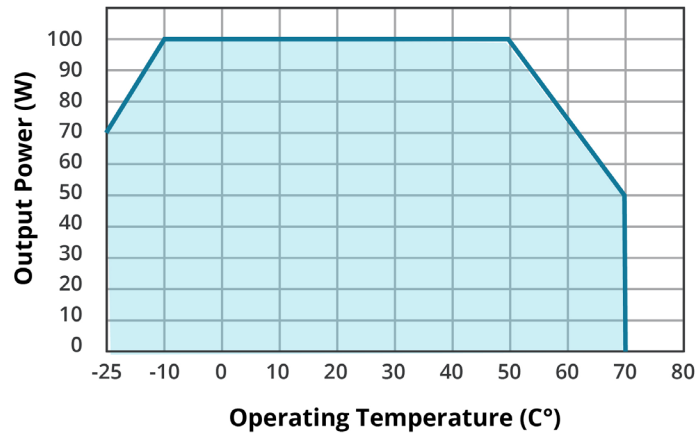
Notes: 4. The power supply is considered a component which will be installed into final equipment. The final equipment still must be tested to meet the necessary EMC directives.

## ENVIRONMENTAL

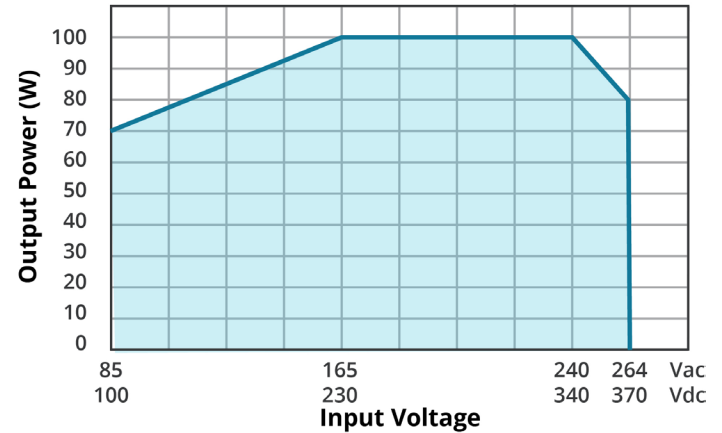
| parameter             | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | see derating curves    | -25 |     | 70  | °C    |
| storage temperature   |                        | -25 |     | 85  | °C    |
| storage humidity      | non-condensing         |     |     | 90  | %     |

## DERATING CURVES

**TEMPERATURE DERATING CURVE**  
(at 85~264 Vac / 100~370 Vdc)

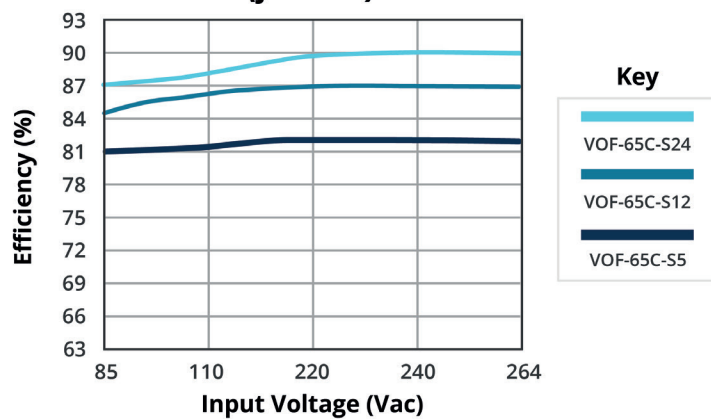


**INPUT VOLTAGE DERATING CURVE**  
(at 25°C)

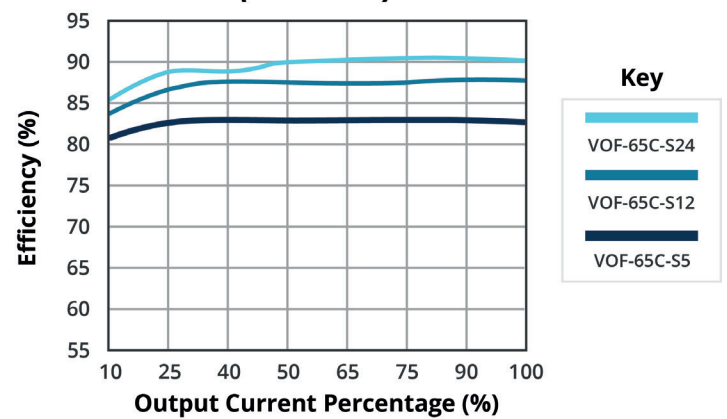


## EFFICIENCY CURVES

**EFFICIENCY VS INPUT LOAD**  
(full load)



**EFFICIENCY VS OUTPUT LOAD**  
(at 230 Vac)



## MECHANICAL

| parameter  | conditions/description | min | typ | max | units |
|------------|------------------------|-----|-----|-----|-------|
| dimensions | 76.20 x 50.80 x 30.00  |     |     |     | mm    |
| weight     |                        |     | 95  |     | g     |

## MECHANICAL DRAWING

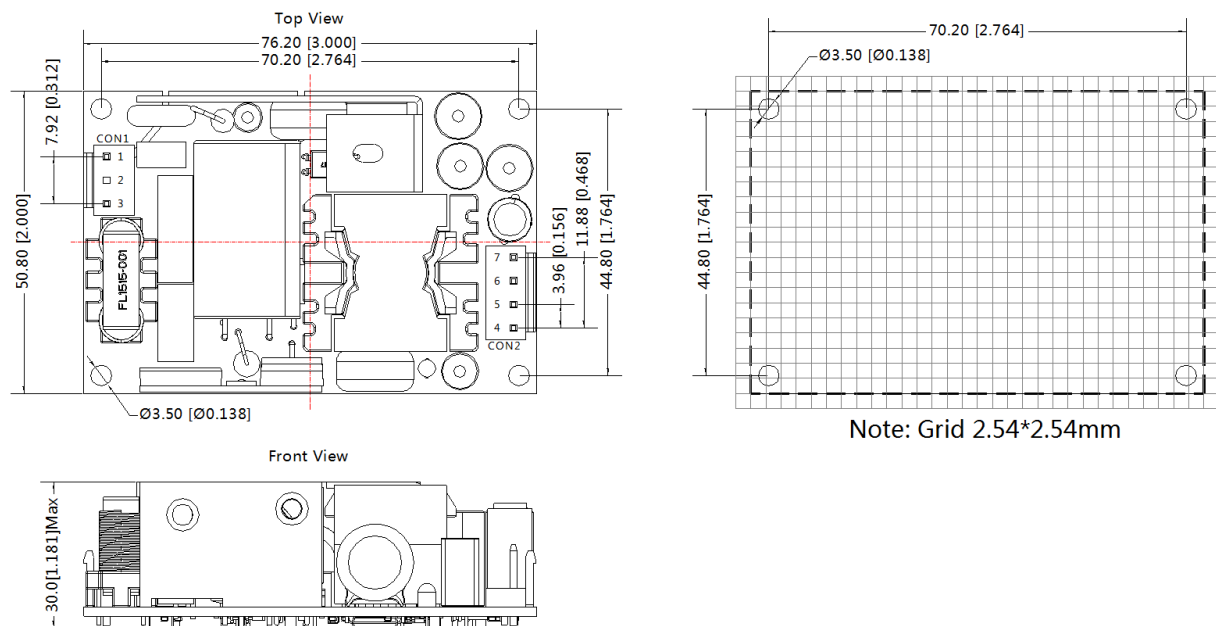
units: mm[inch]

tolerance:  $\pm 0.50[\pm 0.020]$ 

In CON1 model: VH-3A, Recommended terminal: VH-3Y

Out CON2 model: VH-4A, recommended terminal: VH-4Y

Mounting hole screwing torque: Max 0.4 N·m



| PIN-Out |          |                                          |                                         |
|---------|----------|------------------------------------------|-----------------------------------------|
| PIN     | Function | Connector                                | Terminal                                |
| 1       | AC(L)    | VH-3A<br>or B2P3-VH<br>or the same Spec. | VH-3Y<br>or VHR-3N<br>or the same Spec. |
| 2       | NoPin    |                                          |                                         |
| 3       | AC(N)    |                                          |                                         |
| 4       | -Vo      | VH-4A<br>or B4P-VH<br>or the same Spec.  | VH-4Y<br>or VHR-4N<br>or the same Spec. |
| 5       | -Vo      |                                          |                                         |
| 6       | +Vo      |                                          |                                         |
| 7       | +Vo      |                                          |                                         |

## REVISION HISTORY

| rev. | description                            | date       |
|------|----------------------------------------|------------|
| 1.0  | initial release                        | 10/17/2019 |
| 1.01 | derating and efficiency curves updated | 05/11/2021 |

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



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