

**SERIES:** VOF-S25C | **DESCRIPTION:** AC-DC POWER SUPPLY**FEATURES**

- universal input range (90 ~ 264 Vac)
- Class B emissions (EN55032/CISPR/FCC)
- certified to IEC/EN/UL 62368-1
- designed to meet IEC/EN 60335
- short circuit protection
- over voltage protection
- < 100 mW no-load power consumption
- Class II



| MODEL       | output voltage<br>(Vdc) | output current |            | output power<br>max<br>(W) | ripple and noise <sup>1</sup><br>max<br>(mVp-p) | efficiency <sup>2</sup><br>typ<br>(%) |
|-------------|-------------------------|----------------|------------|----------------------------|---|---------------------------------------|
|             |                         | min<br>(A)     | max<br>(A) |                            |   |                                       |
| VOF-S25C-5  | 5                       | 0              | 4.00       | 20                         | 50  | 81                                    |
| VOF-S25C-12 | 12                      | 0              | 2.10       | 25                         | 120   | 84                                    |
| VOF-S25C-15 | 15                      | 0              | 1.67       | 25                         | 150   | 85                                    |
| VOF-S25C-24 | 24                      | 0              | 1.05       | 25                         | 240   | 86                                    |
| VOF-S25C-36 | 36                      | 0              | 0.70       | 25                         | 360   | 87                                    |
| VOF-S25C-48 | 48                      | 0              | 0.52       | 25                         | 480   | 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, full load, 25°C.  
 3. All specifications are measured at T<sub>a</sub>=25°C, nominal input voltage, and 75% rated output load unless otherwise specified.

**PART NUMBER KEY**

## INPUT

| parameter       | conditions/description       | min | typ | max  | units |
|-----------------|------------------------------|-----|-----|------|-------|
| voltage         |                              | 90  |     | 264  | Vac   |
|                 |                              | 120 |     | 370  | Vdc   |
| frequency       |                              | 47  |     | 63   | Hz    |
| current         | at 100 Vac, full load        |     |     | 700  | mA    |
| inrush current  | at 240 Vac, cold start, 25°C |     |     | 60   | A     |
| leakage current | at 264 Vac                   |     |     | 0.25 | mA    |

## OUTPUT

| parameter                  | conditions/description                         | min | typ   | max    | units |
|----------------------------|--|-----|-------|--------|-------|
| capacitive load            | 5 Vdc output models                            |     |       | 81,000 | μF    |
|                            | 12 Vdc output models                           |     |       | 40,900 | μF    |
|                            | 15 Vdc output models                           |     |       | 19,800 | μF    |
|                            | 24 Vdc output models                           |     |       | 6,600  | μF    |
|                            | 36 Vdc output models                           |     |       | 4,000  | μF    |
|                            | 48 Vdc output models                           |     |       | 2,170  | μF    |
| initial set point accuracy | 5 Vdc output model                             |     |       | ±2     | %     |
|                            | all other models                               |     |       | ±1     | %     |
| line regulation            | measured at high line to low line at full load |     |       | ±1     | %     |
| load regulation            | measured at 10%~100% load                      |     |       | ±1     | %     |
| start-up time              |  |     |       | 3      | s     |
| hold-up time               | at 115 Vac                                     |     | 8     |        | ms    |
| switching frequency        |  |     | 65    |        | kHz   |
| temperature coefficient    |  |     | ±0.05 |        | %/°C  |

## PROTECTIONS

| parameter                | conditions/description      | min | typ  | max | units |
|--------------------------|-----------------------------|-----|------|-----|-------|
| over voltage protection  | TVS to clamp output voltage |     |      |     |       |
|                          | 5 Vdc output models         |     | 6.8  |     | Vdc   |
|                          | 12 Vdc output models        |     | 15.0 |     | Vdc   |
|                          | 15 Vdc output models        |     | 18.0 |     | Vdc   |
|                          | 24 Vdc output models        |     | 30.0 |     | Vdc   |
|                          | 36 Vdc output models        |     | 47.0 |     | Vdc   |
|                          | 48 Vdc output models        |     | 56.0 |     | Vdc   |
| short circuit protection | hiccup, auto recovery       |     |      |     |       |

## SAFETY & COMPLIANCE

| parameter                      | conditions/description  | min   | typ | max | units |
|--------------------------------|---|-------|-----|-----|-------|
| isolation voltage              | input to output for 1 minute  | 3,000 |     |     | Vac   |
| isolation resistance           |   | 100   |     |     | MΩ    |
| safety approvals               | certified to IEC/EN/UL 62368-1<br>designed to meet IEC/EN 60335               |       |     |     |       |
| safety class                   | Class II  |       |     |     |       |
| conducted emissions            | EN55032, EN61000-6-3:2012, Class B,<br>47 CFR FCC Part 15 Subpart B (Class B) |       |     |     |       |
| radiated emissions             | EN55032, EN61000-6-3:2012, Class B,<br>47 CFR FCC Part 15 Subpart B (Class B) |       |     |     |       |
| harmonic current emissions     | EN61000-3-2:2014  |       |     |     |       |
| voltage fluctuations & flicker | EN61000-3-3:2013  |       |     |     |       |

**SAFETY & COMPLIANCE (CONTINUED)**

| parameter                      | conditions/description  | min     | typ | max | units |
|--------------------------------|---|---------|-----|-----|-------|
| ESD                            | IEC61000-4-2:2008, air discharge: $\pm 8$ kV, contact discharge: $\pm 4$ kV |         |     |     |       |
| radiated immunity              | IEC61000-4-3:2010   |         |     |     |       |
| EFT/burst                      | IEC61000-4-4:2012, $\pm 0.5$ kV, $\pm 1$ kV, $\pm 2$ kV                     |         |     |     |       |
| surge                          | IEC61000-4-5:2014, L-N: $\pm 0.5$ kV, $\pm 1$ kV                            |         |     |     |       |
| conducted immunity             | IEC61000-4-6:2013   |         |     |     |       |
| power frequency magnetic field | IEC61000-4-8:2009   |         |     |     |       |
| voltage dips & interruptions   | IEC61000-4-11:2004, Dip: 30%, 10 ms, Dip: 60%, 100 ms, Dip: >95%, 5,000 ms  |         |     |     |       |
| MTBF                           | as per MIL-HDBK-217F, at 115 Vac, 25°C, GB                                  | 500,000 |     |     | hours |
| RoHS                           | yes   |         |     |     |       |

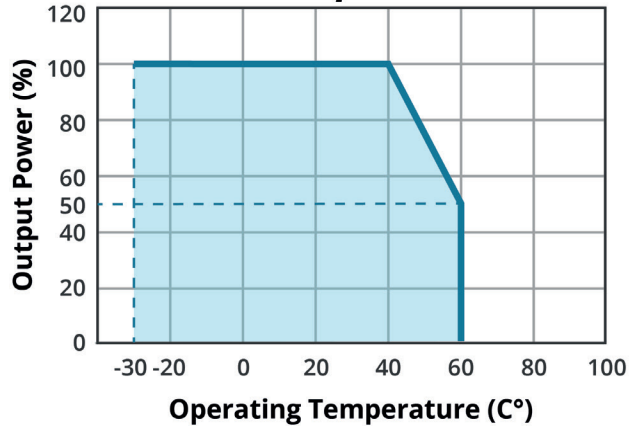
Notes: 4. The power supply is considered a component which will be installed into final equipment. The final equipment still must be tested to meet the necessary EMC directives.

**ENVIRONMENTAL**

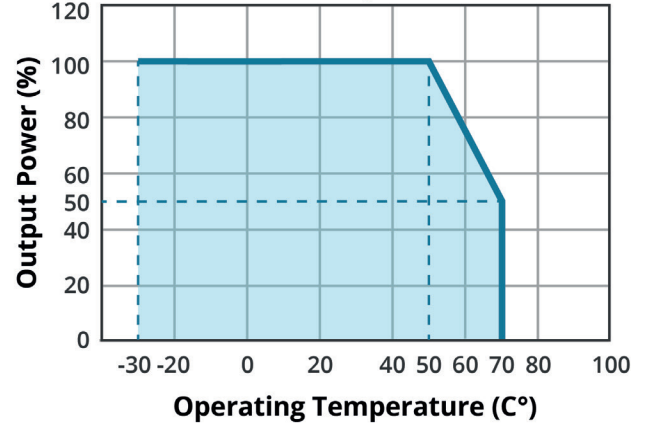
| parameter             | conditions/description  | min | typ | max   | units |
|-----------------------|---|-----|-----|-------|-------|
| operating temperature | see derating curves   | -30 |     | 70    | °C    |
| storage temperature   |   | -30 |     | 85    | °C    |
| operating humidity    | non-condensing  |     |     | 93    | %     |
| altitude              |   |     |     | 5,000 | m     |
| vibration             | as per MIL-STD-810F Table 514.5C-VIII; 15~2000 Hz for 1 hour on each axis for 3 hours |     | 4   |       | G     |
| shock                 | as per MIL-STD-810F Table 516.5, Table 516.5-1; for 10 ms on each axis 3 times        |     | 75  |       | G     |

## DERATING CURVES

**TEMPERATURE DERATING CURVE**  
**5 Vdc output models**



**TEMPERATURE DERATING CURVE**  
**all other output models**



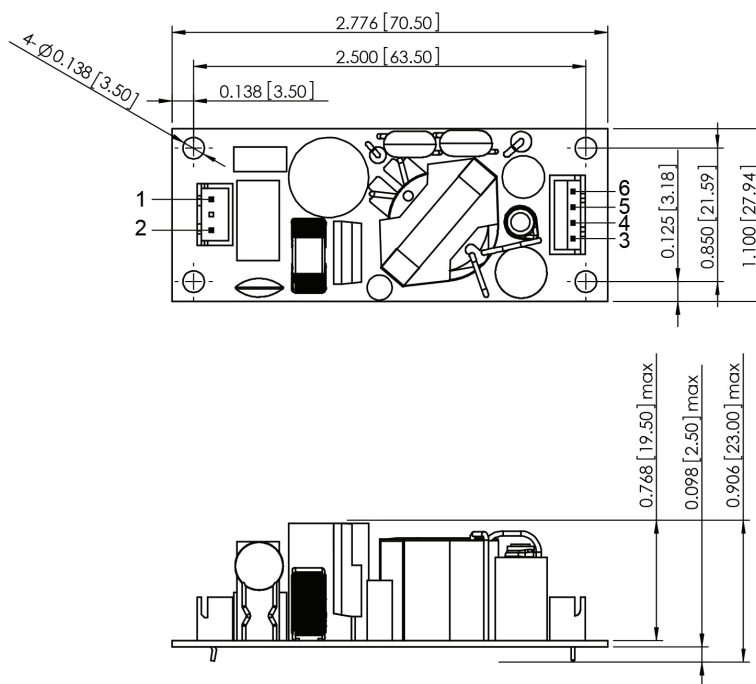
## MECHANICAL

| parameter  | conditions/description                        | min | typ | max | units  |
|------------|---|-----|-----|-----|--------|
| dimensions | 2.77 x 1.10 x 0.90 (70.50 x 27.94 x 23.00 mm) |     |     |     | inches |
| weight     |   |     | 55  |     | g      |

## MECHANICAL DRAWING

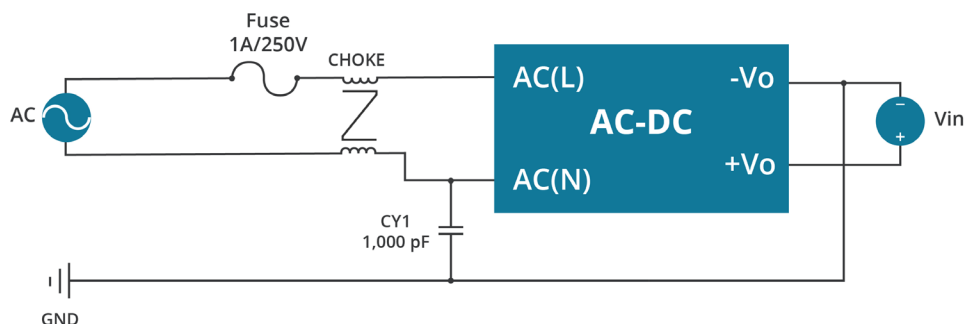
units: inch [mm]  
tolerance: ±0.020[±0.50]

| PIN CONNECTIONS |          |
|-----------------|----------|
| PIN             | Function |
|                 | Standard |
| 1               | AC (L)   |
| 2               | AC (N)   |
| 3               | +Vo      |
| 4               | +Vo      |
| 5               | -Vo      |
| 6               | -Vo      |



## EMC RECOMMENDATIONS

When used in a Class I system implementation (utilizing an Earth Ground connection as depicted in the schematic below), the VOF-S25C series requires additional inductance and Y-Caps to meet EN55032 Class B. These additional components are not required in a Class II implementation where no Earth Ground is present.

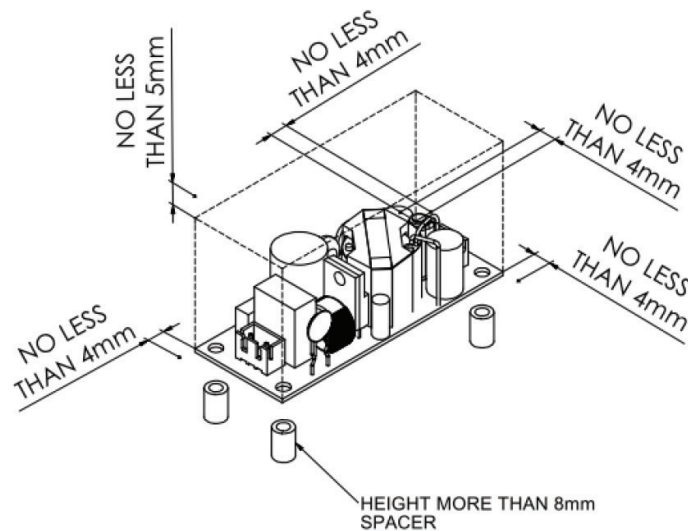


| CHOKE         |            |                      |               |
|---------------|------------|----------------------|---------------|
| Specification | Inductance | Duplex Winding/Turns | Manufacturers |
| UU9.8 R12K    | 10mH       | 2-UEW<br>∅ 0.27*85Ts | SEND POWER    |

| Y-CAP    |                   |                |               |
|----------|-------------------|----------------|---------------|
| Subclass | Withstand Voltage | Capacitance    | Manufacturers |
| Y1 CAP   | 250 V (min.)      | 1000 pF (typ.) | TDK           |

## INSTALLATION INSTRUCTIONS

The VOF-S25C has four 3.5 mm diameter mounting holes; one in each corner. Use 8 mm tall spacers (6 mm outside diameter max) to mount the unit, which will maintain the isolation and vibration specifications. A minimum of 4 mm clearance is required for all four sides of the unit and a minimum of 5 mm clearance is required above the top surface of the unit.



## REVISION HISTORY

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| rev. | description                                     | date       |
|------|---|------------|
| 1.0  | initial release                                 | 02/14/2020 |
| 1.01 | derating curves and emc circuit drawing updated | 02/11/2022 |

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



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