

**SERIES:** VF-S250-XXA-CF | **DESCRIPTION:** AC-DC POWER SUPPLY

**FEATURES**

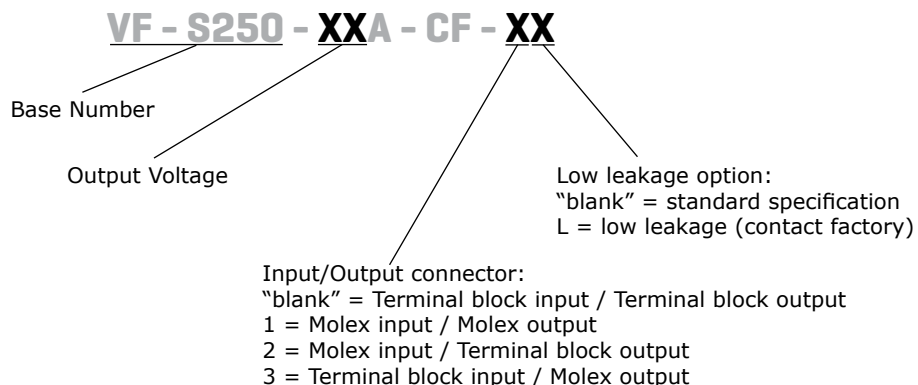
- up to 250 W continuous power
- 600W peak power within 500  $\mu$ s duty duration
- metal top cover and fan
- passive power factor correction
- power good signal
- remote on/off control
- 3,000 Vac isolation voltage
- over load, over voltage, over temperature, and short circuit protections
- UL, cUL, and TUV 60950-1 safety approvals
- efficiency up to 83%



| MODEL          | output voltage | output current | output <sup>1</sup> power | ripple and noise <sup>2,3</sup> | efficiency |
|----------------|----------------|----------------|---------------------------|---------------------------------|------------|
|                | (Vdc)          | max (A)        | max (W)                   | max (mVp-p)                     | typ (%)    |
| VF-S250-05A-CF | 5              | 40             | 200                       | 50                              | 75%        |
| VF-S250-09A-CF | 9              | 25             | 225                       | 90                              | 83%        |
| VF-S250-12A-CF | 12             | 20.83          | 250                       | 120                             | 80%        |
| VF-S250-15A-CF | 15             | 16.67          | 250                       | 150                             | 83%        |
| VF-S250-18A-CF | 18             | 13.89          | 250                       | 180                             | 83%        |
| VF-S250-24A-CF | 24             | 10.42          | 250                       | 240                             | 83%        |
| VF-S250-28A-CF | 28             | 8.93           | 250                       | 280                             | 83%        |
| VF-S250-36A-CF | 36             | 6.93           | 250                       | 360                             | 83%        |
| VF-S250-48A-CF | 48             | 5.21           | 250                       | 480                             | 83%        |
| VF-S250-54A-CF | 54             | 4.63           | 250                       | 540                             | 83%        |

Notes: 1. Maximum power must not exceed 135 W with convection cooling or 250 W for forced air. 5 and 9 V models maximum current listed.  
 2. 1% minimum load is required to maintain the ripple and regulation.  
 3. Ripple and noise is measured from 10 KHz to 20 MHz at output terminals with a 0.1  $\mu$ F ceramic capacitor and a 22  $\mu$ F electrolytic capacitor in parallel.

**PART NUMBER KEY**



## INPUT

| parameter      | conditions/description  | min    | typ | max      | units  |
|----------------|---|--------|-----|----------|--------|
| voltage        | 90-132/180-264 auto selectable  | 90/180 |     | 132/264  | Vac    |
| frequency      |   | 47     |     | 63       | Hz     |
| current        | at 110~120 Vac, cold start<br>at 200~240 Vac, cold start                            |        |     | 6<br>3   | A<br>A |
| inrush current | at 115 Vac, cold start<br>at 230 Vac, cold start                                    |        |     | 35<br>70 | A<br>A |
| power factor   | compliant to EN 61000-3-2 class A   |        |     |          |        |
| remote on/off  | designated as RMSW on the CN1, requires a low signal to inhibit output, hiccup mode |        |     |          |        |

## OUTPUT

| parameter               | conditions/description   | min | typ  | max | units |
|-------------------------|--|-----|------|-----|-------|
| line regulation         | low line to high line  |     | ±1   |     | %     |
| load regulation         | all other outputs  |     | ±1   |     | %     |
| temperature coefficient |  |     | 0.25 |     | mV/°C |
| transient response      | output voltage returns to within 1% in less than 2.5 ms for a 50% load change.<br>peak transient does not exceed 5%.                                   |     |      |     |       |
| start-up time           | at 120 Vac   |     |      | 1   | s     |
| rise time               |  | 0.2 |      | 20  | ms    |
| hold-up time            | at 120 Vac and 80% of rated maximum load   | 20  |      |     | ms    |
| adjustability           |  |     | ±5   |     | %     |
| power good              | designated as PG on the CN1, signal goes high 100-500 ms after the output reaches regulation, signal goes low at least 1 ms before loss of regulation. |     |      |     |       |
| fan drive               | 12 Vdc / 300 mA for external fan   |     |      |     |       |

## PROTECTIONS

| parameter                   | conditions/description  | min | typ | max | units |
|-----------------------------|---|-----|-----|-----|-------|
| over voltage protection     | AC input needs to be reset to restart the power supply                        |     |     | 130 | %     |
| over current protection     | automatically recovers  |     | 110 | 140 | %     |
| short circuit protection    | short circuit can be continuous, recovers automatically upon removal of short |     |     |     |       |
| over temperature protection | auto recovery   |     |     | 85  | °C    |

## SAFETY & COMPLIANCE

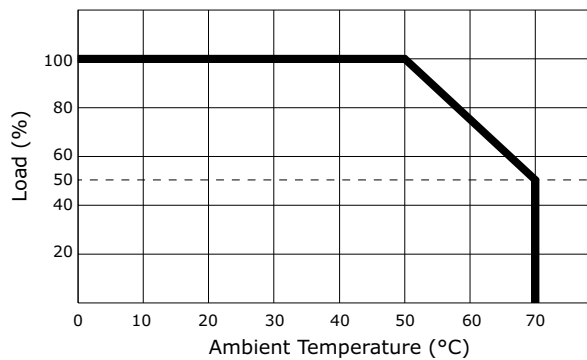
| parameter         | conditions/description   | min                     | typ | max | units             |
|-------------------|--|-------------------------|-----|-----|-------------------|
| isolation voltage | applied for 3 seconds at 10 mA max.<br>primary to secondary<br>primary to transformer core<br>primary to earth chassis | 3,000<br>1,500<br>1,500 |     |     | Vac<br>Vac<br>Vac |
| safety approvals  | UL 60950-1, CSA C22.2 No. 60950-1, TUV EN 60950-1 and CB   |                         |     |     |                   |
| EMI/EMC           | CISPR 22/EN 55022 class B, EN 61000-3-2, 3,<br>EN 61000-4-2, 3, 4, 5, 6, 8, 11, EN 55024 CE marked (LVD)               |                         |     |     |                   |
| leakage current   | at 240 Vac, (optional for 500 µA at 240 Vac,<br>300 µA at 120 Vac)   |                         |     | 1.5 | mA                |
| MTBF              | according to MIL-HDBK-217 at 30 °C   | 100,000                 |     |     | hrs               |
| RoHS compliant    | yes  |                         |     |     |                   |

## ENVIRONMENTAL

| parameter             | conditions/description                                      | min | typ | max | units |
|-----------------------|---|-----|-----|-----|-------|
| operating temperature |   | 0   |     | 70  | °C    |
| storage temperature   |   | -20 |     | 85  | °C    |
| operating humidity    | non-condensing  | 5%  |     | 90% | %     |
| storage humidity      | non-condensing  | 5%  |     | 95% | %     |
| vibration             | acceleration $\pm 7.35 M/(S \times S)$ , on X, Y and Z Axis | 5   |     | 50  | Hz    |

## DERATING CURVES

output power vs. ambient temperature

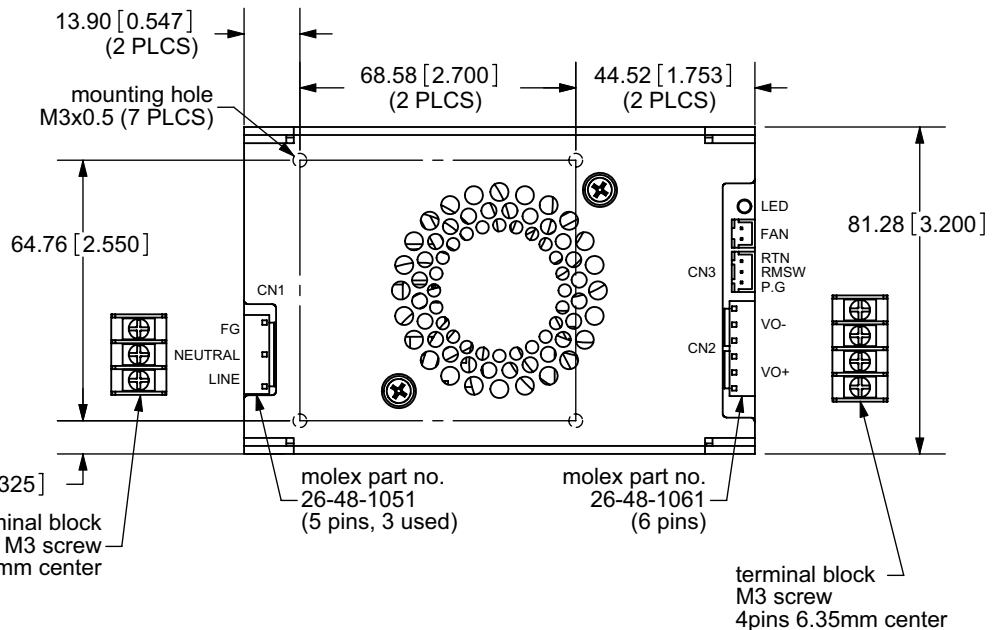
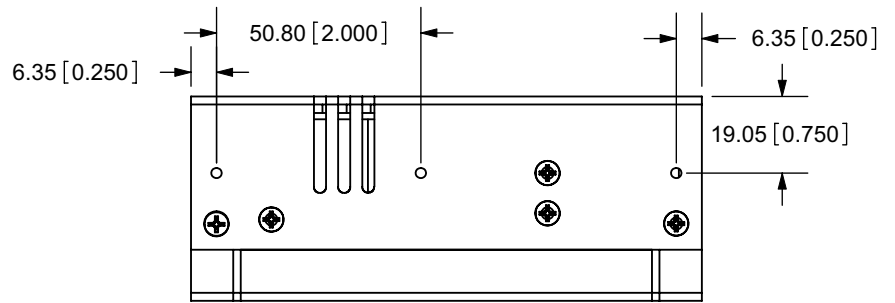
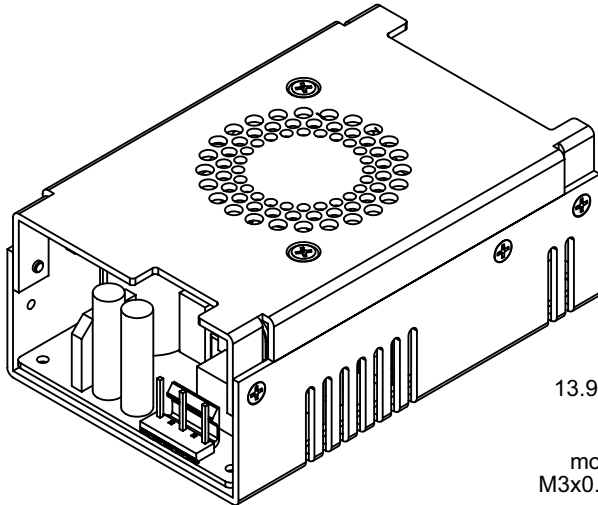


## MECHANICAL

| parameter  | conditions/description | min | typ | max | units  |
|------------|------------------------|-----|-----|-----|--------|
| dimensions | 5(L) x 3.2(W) x 2(H)   |     |     |     | inches |
| weight     |                        |     |     | 500 | g      |

## MECHANICAL DRAWING

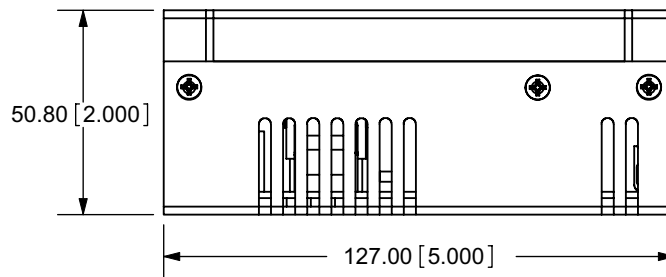
units: mm[inches]  
 tolerance: ±0.3mm  
 UNLESS OTHERWISE SPECIFIED



| CN1 |            |
|-----|------------|
| 1   | ground     |
| 2   | ac neutral |
| 3   | ac line    |

| CN2 |     |
|-----|-----|
| 1   | Vo+ |
| 2   | Vo+ |
| 3   | Vo+ |
| 4   | Vo- |
| 5   | Vo- |
| 6   | Vo- |

| CN3 |               |
|-----|---------------|
| 1   | Power Good    |
| 2   | remote switch |
| 3   | RTN           |



- Notes:
1. CN1 mates with molex part no. 09-93-0500 and molex 2478, 2578, 8818 crimp pins.
  2. CN2 mates with molex part no. 09-93-0600 and molex 2478, 2578, 8818 crimp pins.
  3. CN3 mates with JST part no. XHP-3 or equivalent (Chyao Shiunn JS-2001-03) and JST SXH-002T-P0.6 mating pins
  4. Fan drive connector mates with JST part no. XHP-2 or equivalent
  5. Mounting hole maximum M3 screw depth 3.8mm

## REVISION HISTORY

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| <b>rev.</b> | <b>description</b>                          | <b>date</b> |
|-------------|---|-------------|
| 1.0         | initial release                             | 05/5/2009   |
| 1.01        | new template applied                        | 12/17/2011  |
| 1.02        | V-Infinity branding removed                 | 08/28/2012  |
| 1.03        | updated Molex mating connector part numbers | 07/18/2013  |
| 1.04        | updated spec                                | 08/13/2013  |

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



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