

**SERIES:** VF-S320-XXA | **DESCRIPTION:** AC-DC POWER SUPPLY

**FEATURES**

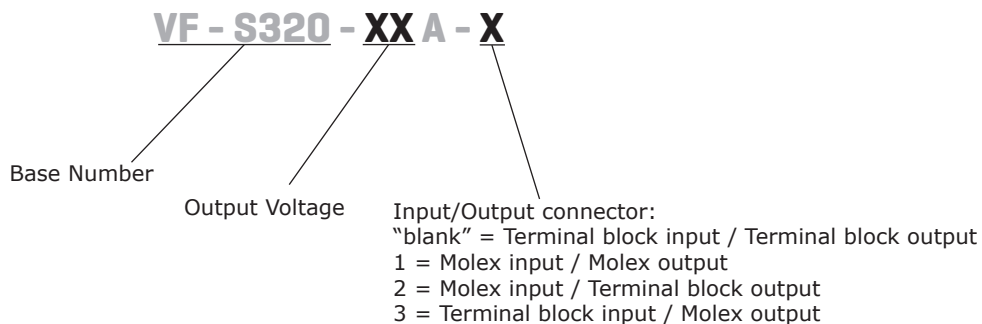
- up to 320 W continuous power w/ 22 CFM forced air
- 700 W peak power within 500  $\mu$ s duty duration
- passive power factor correction
- power good signal
- 3,000 Vac isolation voltage
- over load, over voltage, over temperature, and short circuit protections
- UL, cUL, and TUV 60950-1 safety approvals
- efficiency up to 83%



| MODEL       | output voltage | output current |                                 | output power <sup>1</sup> |                                 | ripple and noise <sup>3,4</sup> | efficiency |
|-------------|----------------|----------------|---------------------------------|---------------------------|---------------------------------|---------------------------------|------------|
|             | (Vdc)          | max (A)        | max w/ airflow <sup>2</sup> (A) | max (W)                   | max w/ airflow <sup>2</sup> (W) | max (mVp-p)                     | typ (%)    |
| VF-S320-05A | 5              | 27.28          | 45                              | 136                       | 225                             | 50                              | 75%        |
| VF-S320-09A | 9              | 16.37          | 29.1                            | 147                       | 262                             | 90                              | 83%        |
| VF-S320-12A | 12             | 15             | 26.67                           | 180                       | 320                             | 120                             | 80%        |
| VF-S320-15A | 15             | 12             | 21.33                           | 180                       | 320                             | 150                             | 83%        |
| VF-S320-18A | 18             | 10             | 17.78                           | 180                       | 320                             | 180                             | 83%        |
| VF-S320-24A | 24             | 7.5            | 13.33                           | 180                       | 320                             | 240                             | 83%        |
| VF-S320-28A | 28             | 6.43           | 11.43                           | 180                       | 320                             | 280                             | 83%        |
| VF-S320-36A | 36             | 5              | 8.89                            | 180                       | 320                             | 360                             | 83%        |
| VF-S320-48A | 48             | 3.75           | 6.67                            | 180                       | 320                             | 480                             | 83%        |
| VF-S320-54A | 54             | 3.33           | 5.93                            | 180                       | 320                             | 540                             | 83%        |

- Notes:
1. Maximum power must not exceed 180 W with convection cooling or 320 W for forced air.
  2. With external 22 CFM fan.
  3. 1% minimum load is required to maintain the ripple and regulation.
  4. 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 100~120 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                        |        |     |          |        |

## 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 CN3.<br>This signal goes TTL high 100-500 ms after the output reaches regulation.<br>It goes low at least 1 mS before loss of regulation. |     |      |     |       |
| fan drive               | 12 Vdc / 400 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

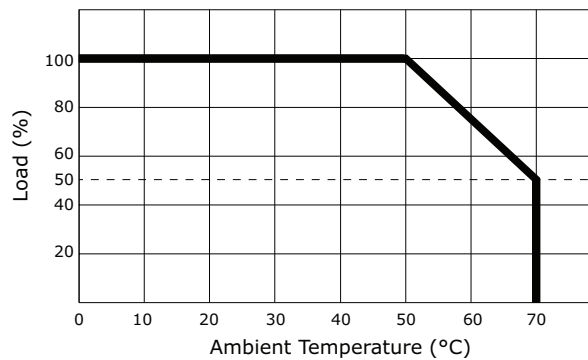
| parameter         | conditions/description  | min                     | typ | max        | units             |
|-------------------|---|-------------------------|-----|------------|-------------------|
| isolation voltage | applied for 3 seconds at 10 mA max.<br>primary to secondary<br>primary to transformer 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. 60950-1-03, TUV EN 60950-1, CE Mark (LVD)<br>EN 61000-3-(2,3) & IEC 61000-4 Series regulations and CB |                         |     |            |                   |
| EMI/EMC           | pass FCC Part 15, CISPR 22 class B, conducted   |                         |     |            |                   |
| leakage current   | at 240 Vac<br>at 120 Vac  |                         |     | 500<br>300 | µA<br>µA          |
| RoHS compliant    | yes   |                         |     |            |                   |
| MTBF              | according to MIL-HDBK-217 at 30 °C  | 100,000                 |     |            | hrs               |

## ENVIRONMENTAL

| parameter             | conditions/description                              | min | typ | max | units |
|-----------------------|---|-----|-----|-----|-------|
| operating temperature | see derating curve                                  | 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/(SxS), on X, Y and Z Axis | 5   |     | 50  | Hz    |

## DERATING CURVES

output power vs. ambient temperature

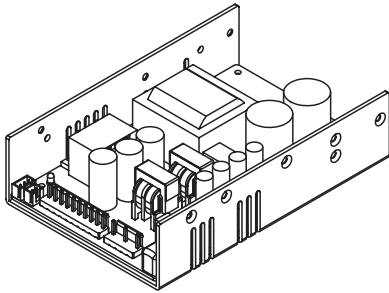


## MECHANICAL

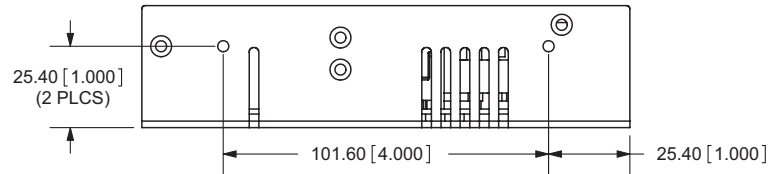
| parameter  | conditions/description                     | min | typ | max | units |
|------------|--|-----|-----|-----|-------|
| dimensions | 152.40 x 101.60 x 38.10 [6 x 4 x 1.5 inch] |     |     |     | mm    |
| weight     |  |     |     | 600 | g     |

## MECHANICAL DRAWING

units: mm[inches]  
 tolerance:  $\pm 0.3$  mm  
 unless otherwise specified



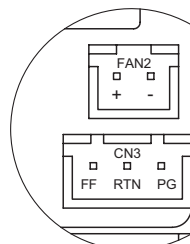
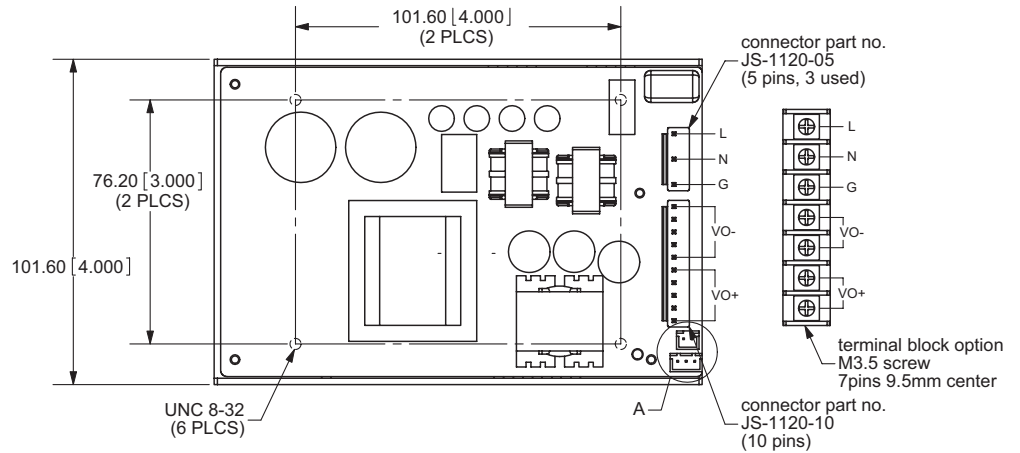
SCALE: 1:3



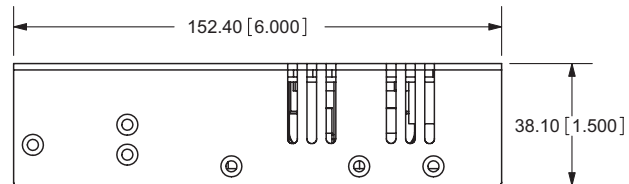
| CN1 |            |
|-----|------------|
| 1   | ground     |
| 2   | ac neutral |
| 3   | ac line    |

| CN2 |     |
|-----|-----|
| 1   | Vo+ |
| 2   | Vo+ |
| 3   | Vo+ |
| 4   | Vo+ |
| 5   | Vo+ |
| 6   | Vo- |
| 7   | Vo- |
| 8   | Vo- |
| 9   | Vo- |
| 10  | Vo- |

| CN3 |            |
|-----|------------|
| 1   | power good |
| 2   | RTN        |
| 3   | fan fail   |



DETAIL A  
 SCALE 2 : 1



- Notes:
1. CN1 mates with JST VH series 5-pin connector.
  2. CN2 mates with VH series 10-pin connector.
  3. CN3 mates with JST 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 max depth 4.00mm

## REVISION HISTORY

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| rev. | description  | date       |
|------|--|------------|
| 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 | removed on/off information, removed low leakage option, updated spec | 04/23/2013 |

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



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