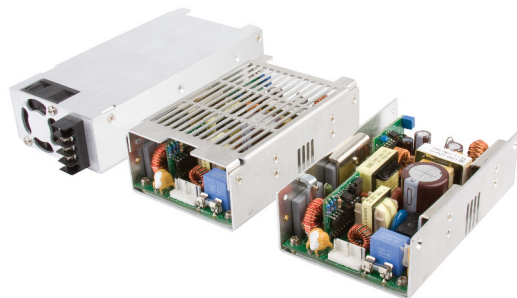


300 Watts

SDF Series



- 3.2" x 5" Footprint
- Fits 1U Applications
- High Efficiency
- Up to 600 W Peak Power
- Single & Dual Outputs
- Output Voltages from 5 V to 54 V
- 3 Year Warranty

Specification

Input

| | |
|-----------------------|--|
| Input Voltage | • 90-264 VAC |
| Input Frequency | • 47-63 Hz |
| Input Current | • 5.0 A at 90 VAC, 2 A at 230 VAC |
| Inrush Current | • Max 70 A at 230 VAC, 35 A at 115 VAC, cold start 25 °C |
| Power Factor | • >0.9 |
| Earth Leakage Current | • <1 mA at 264 VAC |
| Input Protection | • F5 A / 350 V internal in line fuse |

Output

| | |
|----------------------------|--|
| Output Voltage | • See table |
| Output Voltage Trim | • $\pm 5\%$ on V1 (V2 of dual output models will track by same % of adjustment) |
| Initial Set Accuracy | • $\pm 1\%$ |
| Minimum Load | • 1% on single output models, 10% on both outputs of dual output models |
| Start Up Delay | • 1.5 s max at 120 VAC |
| Start Up Rise Time | • 100 ms typical |
| Hold Up Time | • 16 ms min at 80% of full load, 120 VAC |
| Line Regulation | • $\pm 0.5\%$ |
| Load Regulation | • $\pm 1\%$ 1-100% load for single outputs $\pm 3\%$ V1, $\pm 7\%$ V2 for dual output models (except 0512, $\pm 10\%$ on V2) |
| Over/Undershoot | • 5% max |
| Transient Response | • 5% max deviation, recovery to within 1% in 2.5 ms for a 50% load change |
| Ripple & Noise | • 1% pk-pk (see note 1) |
| Overvoltage Protection | • 105-130% Vnom on output V1, recycle input to reset |
| Overtemperature Protection | • Measured internally with auto recovery |
| Overload Protection | • 110-140% |
| Short Circuit Protection | • Trip & restart (hiccup mode), auto recovery |
| Remote On/Off | • Requires a low signal to inhibit output |
| Fan Supply | • 12 VDC, 300 mA, not available on '-F', '-E' or '-K' versions with built-in fan |

General

| | |
|---------------------|--|
| Efficiency | • Single output models: typically 87% Dual output models: typically 82% |
| Isolation | • 3000 VAC Input to Output 1500 VAC Input to Ground 250 VDC Output to Ground |
| Switching Frequency | • 40-66 kHz PFC variable, 55 kHz - 75 kHz PWM fixed |
| Power Density | • 12.5 W/in ³ |
| Signals | • Power Good goes Hi 100-500 ms after output is in regulation and goes Low at least 1 ms before loss of regulation |
| MTBF | • 110 kHrs to MIL-HDBK-217F at 25 °C, GB |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | • 0 °C to +70 °C, derate at 2.5%/ °C from +50 °C to +70 °C |
| Storage Temperature | • -20 °C to +85 °C |
| Operating Humidity | • 5-90%, non-condensing |
| Storage Humidity | • 5-95%, non-condensing |
| Cooling | • '-F', '-E' & '-K' versions have built-in fan, others require 15 CFM to meet forced air ratings |
| Operating Altitude | • 3000 m |
| Vibration | • 5-50 Hz, acceleration 7.35 m/s ² on X, Y and Z axis |

EMC & Safety

| | |
|----------------------|--|
| Emissions | • EN55022 Level B conducted & radiated |
| Harmonic Currents | • EN61000-3-2 class A EN61000-3-2 class C for loads $\geq 20\%$ |
| Voltage Flicker | • EN61000-4-2, level 3 Perf Criteria A |
| ESD Immunity | • EN61000-3-3 |
| Radiated Immunity | • EN61000-4-3, 3 V/m Perf Criteria A |
| EFT/Burst | • EN61000-4-4, level 2 Perf Criteria A |
| Surge | • EN61000-4-5, installation class 3, Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, 3V Perf Criteria A |
| Dips & Interruptions | • EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B |
| Safety Approvals | • UL60950-1, CSA C22.2 No. 950, EN60950-1 |

Models and Ratings

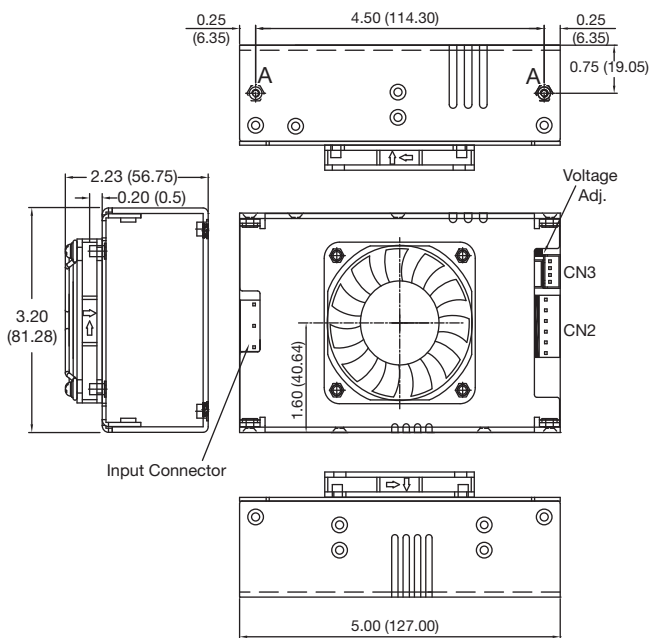
| Output Voltage | Output Power | Output Current | | Model Number ^(3,4,5,6) |
|----------------------------|--------------|--------------------|---------------------|-----------------------------------|
| | | Nominal | Peak ⁽²⁾ | |
| 5 V | 210 W | 42.00 A | 120.00 A | SDF300PS05 ⁽⁷⁾ |
| 9 V | 245 W | 27.27 A | 66.67 A | SDF300PS09 ⁽⁷⁾ |
| 12 V | 300 W | 25.00 A | 50.00 A | SDF300PS12 |
| 15 V | 300 W | 20.00 A | 40.00 A | SDF300PS15 |
| 18 V | 300 W | 16.67 A | 33.30 A | SDF300PS18 ⁽⁷⁾ |
| 24 V | 300 W | 12.50 A | 25.00 A | SDF300PS24 |
| 28 V | 300 W | 10.70 A | 21.43 A | SDF300PS28 ⁽⁷⁾ |
| 36 V | 300 W | 8.33 A | 16.67 A | SDF300PS36 ⁽⁷⁾ |
| 48 V | 300 W | 6.25 A | 12.50 A | SDF300PS48 |
| 54 V | 300 W | 5.56 A | 11.10 A | SDF300PS54 ⁽⁷⁾ |
| V1: +5.00 V V2: +12.0 V | 240 W | 24.00 A 13.33 A | 28.80 A 16.00 A | SDF300PD0512 ⁽⁷⁾ |
| V1: +5.00 V V2: +24.0 V | 240 W | 24.00 A 6.67 A | 28.80 A 8.00 A | SDF300PD0524 ⁽⁷⁾ |
| V1: +5.00 V V2: +48.0 V | 240 W | 24.00 A 3.33 A | 28.80 A 4.00 A | SDF300PD0548 ⁽⁷⁾ |
| V1: +12.0 V V2: +24.0 V | 240 W | 13.33 A 6.67 A | 16.00 A 8.00 A | SDF300PD1224 ⁽⁷⁾ |

Notes

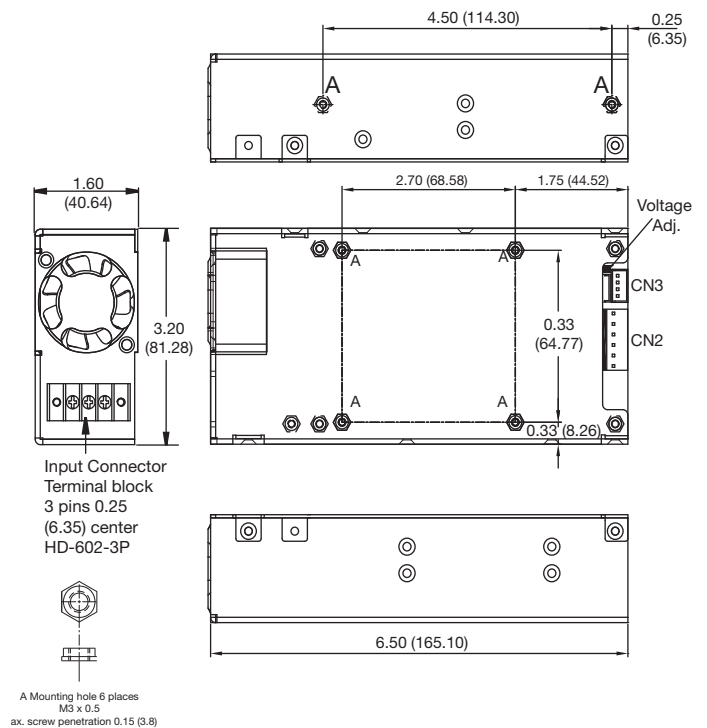
- Ripple & noise is measured using a 0.1 μF ceramic capacitor in parallel with 22 μF electrolytic and 20 MHz bandwidth
- Peak load can be taken for 500 μs. Average power not to exceed max power.
- Add suffix '-F' for top fan cover option e.g. SDF300PS24-F
Add suffix '-E' for end fan cover with screw terminal option e.g. SDF300PS24-E
Add suffix '-K' for end fan cover with IEC inlet option e.g. SDF300PS24-K
- Add suffix 'D' for optional output terminal block on single output models except the 5 V, 9 V and 12 V output models which are only available with output terminal blocks eg. SDF300PS24D-F.⁽⁷⁾
- Add suffix 'G' for optional input terminal blocks eg. SDF300PS24DG-F, except for enclosed with end fan (option '-E') which has input terminal blocks as standard.⁽⁷⁾
- Add suffix 'H' for optional molex output terminal on dual output models used in convection applications.⁽⁷⁾
- Available for OEM quantities, contact Sales.

Mechanical Details

Enclosed with top fan (Option '-F')



Enclosed with end fan (Option '-E')



Notes

- All dimensions are in inches (mm)
- Tolerance: ±0.012 (±0.3)
- Weight: Enclosed with top fan (option '-F'): 1.23 lbs (560 g)
Enclosed with end fan (option '-E' & '-K'): 1.32 lbs (600 g)
- Mounting holes and mating half connectors common to all models.

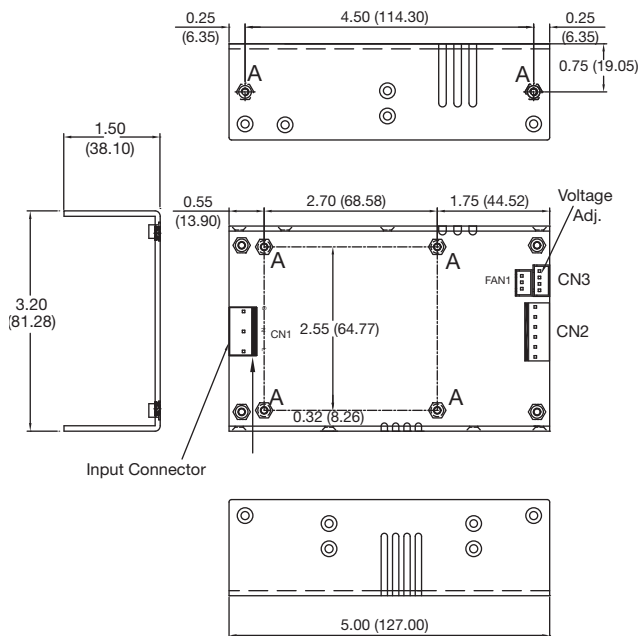
| Output Voltage | Output Power | | Output Current | | | Model Number ^(3,4,5,6) |
|----------------------------|---------------|-------------------|--------------------|-------------------|---------------------|-----------------------------------|
| | Forced Cooled | Convection Cooled | Forced Cooled | Convection Cooled | Peak ⁽²⁾ | |
| 5 V | 210 W | 100 W | 42.00 A | 20.00 A | 120.00 A | SDF300PS05 ⁽⁷⁾ |
| 9 V | 245 W | 120 W | 27.27 A | 13.36 A | 66.67 A | SDF300PS09 ⁽⁷⁾ |
| 12 V | 300 W | 150 W | 25.00 A | 12.50 A | 50.00 A | SDF300PS12 |
| 15 V | 300 W | 150 W | 20.00 A | 10.00 A | 40.00 A | SDF300PS15 |
| 18 V | 300 W | 150 W | 16.67 A | 8.33 A | 33.30 A | SDF300PS18 ⁽⁷⁾ |
| 24 V | 300 W | 150 W | 12.50 A | 6.25 A | 25.00 A | SDF300PS24 |
| 28 V | 300 W | 150 W | 10.70 A | 5.35 A | 21.43 A | SDF300PS28 ⁽⁷⁾ |
| 36 V | 300 W | 150 W | 8.33 A | 4.17 A | 16.67 A | SDF300PS36 ⁽⁷⁾ |
| 48 V | 300 W | 150 W | 6.25 A | 3.12 A | 12.50 A | SDF300PS48 |
| 54 V | 300 W | 150 W | 5.56 A | 2.78 A | 11.10 A | SDF300PS54 ⁽⁷⁾ |
| V1: +5.00 V V2: +12.0 V | 240 W | 120 W | 24.00 A 13.33 A | 12.00 A 6.67 A | 28.80 A 16.00 A | SDF300PD0512 ⁽⁷⁾ |
| V1: +5.00 V V2: +24.0 V | 240 W | 120 W | 24.00 A 6.67 A | 12.00 A 3.33 A | 28.80 A 8.00 A | SDF300PD0524 ⁽⁷⁾ |
| V1: +5.00 V V2: +48.0 V | 240 W | 120 W | 24.00 A 3.33 A | 12.00 A 1.67 A | 28.80 A 4.00 A | SDF300PD0548 ⁽⁷⁾ |
| V1: +12.0 V V2: +24.0 V | 240 W | 120 W | 13.33 A 6.67 A | 6.67 A 3.33 A | 16.00 A 8.00 A | SDF300PD1224 ⁽⁷⁾ |

Notes

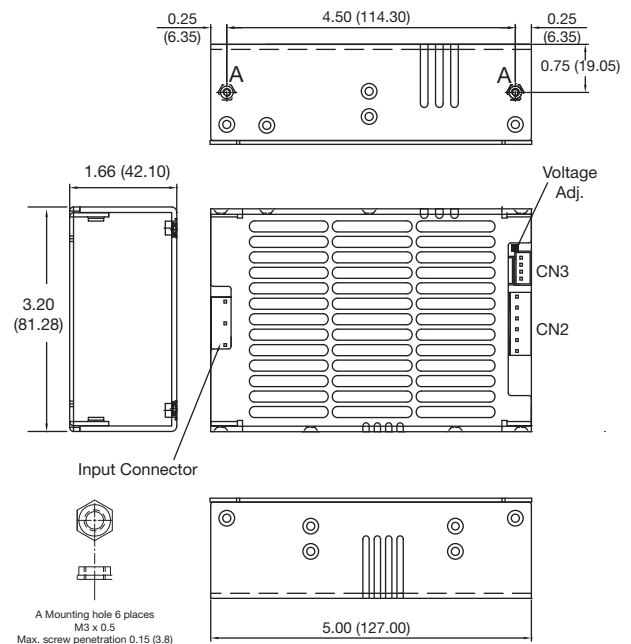
- Ripple & noise is measured using a 0.1 μF ceramic capacitor in parallel with 22 μF electrolytic and 20 MHz bandwidth
- Peak load can be taken for 500 μs. Average power not to exceed max power.
- Add suffix '-C' for vented cover option e.g. SDF300PS24-C
- Add suffix 'D' for optional output terminal block on single output models except the 5 V, 9 V and 12 V output models which are only available with output terminal blocks eg. SDF300PS24D-F.⁽⁷⁾
- Add suffix 'G' for optional input terminal blocks eg. SDF300PS24DG-F, except for enclosed with end fan (option '-E') which has input terminal blocks as standard.⁽⁷⁾
- Add suffix 'H' for optional moxex output terminal on dual output models used in convection applications.⁽⁷⁾
- Available for OEM quantities, contact Sales.

Mechanical Details

U-Channel



U-Channel with cover (Option '-C')

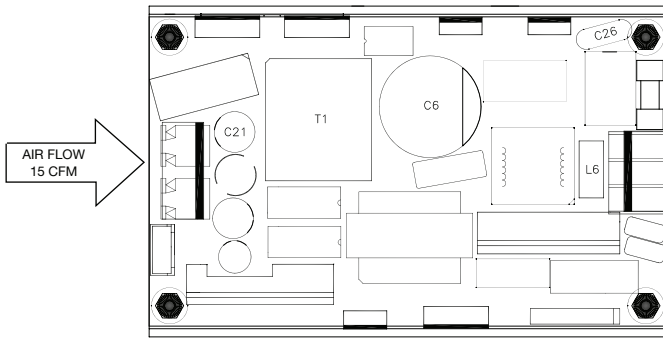


Notes

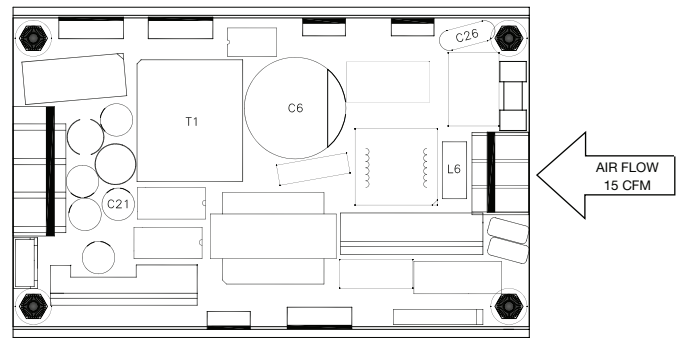
- All dimensions are in inches (mm)
- Tolerance: ±0.012 (±0.3)
- Weight: U-Channel: 1.08 lbs (490 g)
U-Channel with cover (option '-C'): 1.12 lbs (510 g)
- Mounting holes and mating half connectors common to all models.

Application Notes

Thermal Considerations - U Channel



Single Output Models

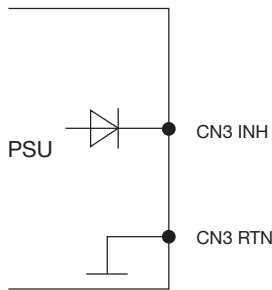


Dual Output Models

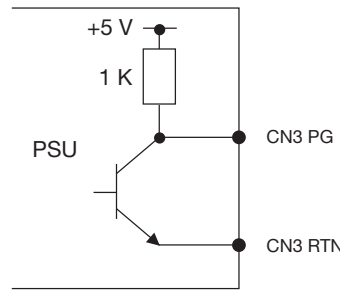
In order to ensure safe operation of the PSU in the end-use equipment, the temperature of the components listed in the table (right) must not be exceeded. See drawing above for component locations. The temperature should be monitored using K type thermocouples placed on the hottest part of the component (out of any direct airflow).

| Temperature Measurement | |
|-------------------------|------------------------|
| Component | Max Continuous Temp °C |
| C26 | 85 |
| C6 | 105 |
| C21 | 105 |
| L6 | 120 |
| T1 Coil | 120 |

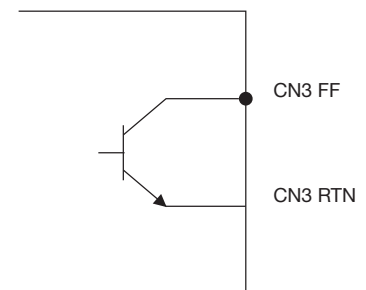
Remote On/Off (INH)



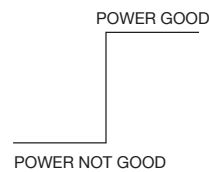
Power Good (PG)



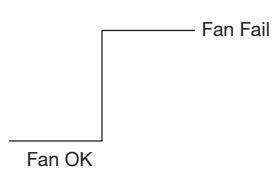
Fan Fail (FF)



- Note:**
- Applying <math><0.3\text{ V}</math> or short between pins INH and RTN turns the output OFF.
 - Applying >math>>4.5\text{ V}</math> or open circuit between pins INH and RTN turns output ON.
 - The output will enter at hiccup mode. Recommended maximum time is 3 minutes.



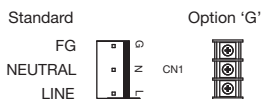
- Note:**
- Sink current = 6 mA, Source current = 1 mA
 - Power is good 100-500 ms after output is in regulation.
 - Power not good at least 1 ms before loss of regulation.



- Note:**
- Open collector signal: 28 V maximum voltage and 5 mA (maximum sink current)

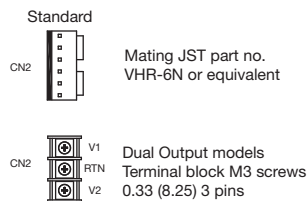
Connectors

INPUT CONNECTORS



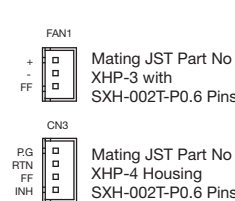
Mating JST part no. VHR-5N or equivalent (5 pin, 3 used)
Crimp contacts for JST VHR Series:
SVH-21T-P1.1 - 22-18awg
SVH-41T-P1.1 - 20-16awg

OUTPUT CONNECTORS



Terminal block 3 pins 0.25 (6.35) center HD-601-3P

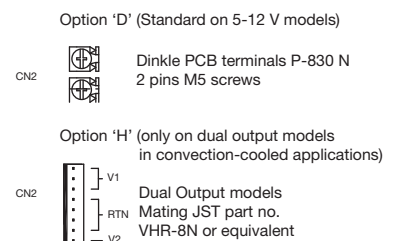
SIGNALS & FAN CONNECTORS



Mating JST Part No XHP-3 with SXH-002T-P0.6 Pins

Mating JST Part No XHP-4 Housing SXH-002T-P0.6 Pins

OPTIONAL OUTPUT CONNECTORS⁽¹⁾



Dinkle PCB terminals P-830 N 2 pins M5 screws

Option 'H' (only on dual output models in convection-cooled applications)

Dual Output models Mating JST part no. VHR-8N or equivalent

(1) Available for OEM quantities, contact Sales.