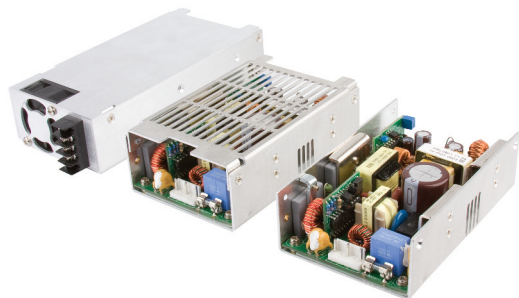


# 300 Watts

## 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	• ±5% on V1 (V2 of dual output models will track by same % of adjustment)
Initial Set Accuracy	• ±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	• ±0.5%
Load Regulation	• ±1% 1-100% load for single outputs ±3% V1, ±7% V2 for dual output models (except 0512, ±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 <sup>3</sup>
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 <sup>2</sup> on X, Y and Z axis

#### EMC & Safety

Emissions	• EN55032 Level B conducted & radiated
Harmonic Currents	• EN61000-3-2 class A EN61000-3-2 class C for loads ≥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	• UL62368-1, CSA62368-1 via cUL, EN62368-1

**Models and Ratings**

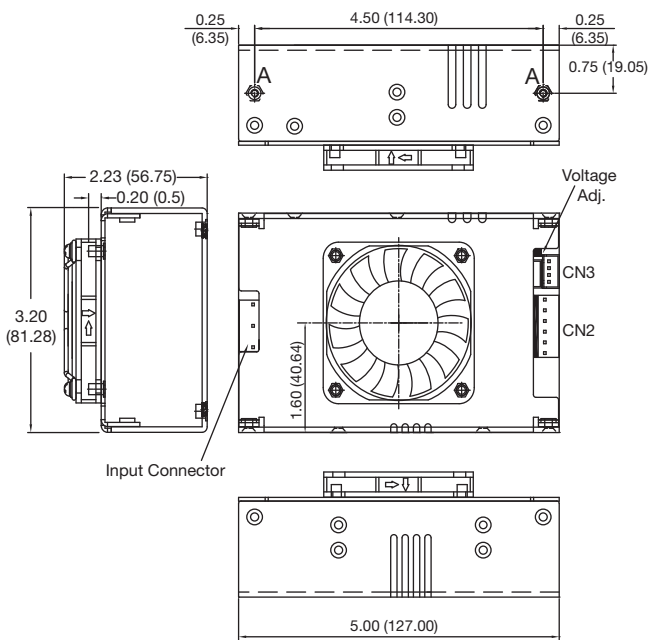
Output Voltage	Output Power	Output Current		Model Number <sup>(3,4,5,6)</sup>
		Nominal	Peak <sup>(2)</sup>	
5 V	210 W	42.00 A	120.00 A	SDF300PS05 <sup>(7)</sup>
9 V	245 W	27.27 A	66.67 A	SDF300PS09 <sup>(7)</sup>
12 V	300 W	25.00 A	50.00 A	SDF300PS12
15 V	300 W	20.00 A	40.00 A	SDF300PS15
18 V	300 W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

**Notes**

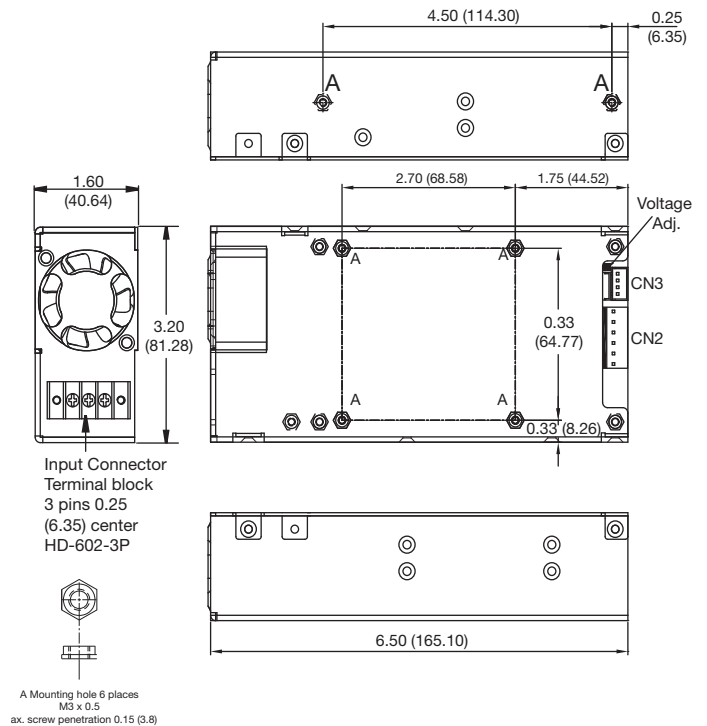
- Ripple & noise is measured using a 0.1 μF ceramic capacitor in parallel with 22 μF electrolytic and 20 MHz bandwidth
- Peak load can be taken for 500 μs. Average power not to exceed max power.
- Add suffix '-F' for top fan cover option e.g. SDF300PS24-F  
Add suffix '-E' for end fan cover with screw 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<sup>(7)</sup>
- 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.<sup>(7)</sup>
- Add suffix 'H' for optional molex output terminal on dual output models used in convection applications.<sup>(7)</sup>
- 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.



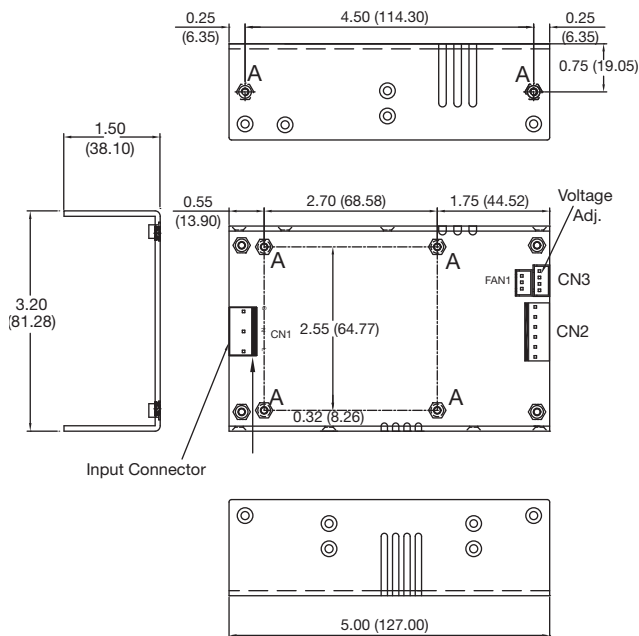
Output Voltage	Output Power		Output Current			Model Number <sup>(3,4,5,6)</sup>
	Forced Cooled	Convection Cooled	Forced Cooled	Convection Cooled	Peak <sup>(2)</sup>	
5 V	210 W	100 W	42.00 A	20.00 A	120.00 A	SDF300PS05 <sup>(7)</sup>
9 V	245 W	120 W	27.27 A	13.36 A	66.67 A	SDF300PS09 <sup>(7)</sup>
12 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 <sup>(7)</sup>
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 <sup>(7)</sup>
36 V	300 W	150 W	8.33 A	4.17 A	16.67 A	SDF300PS36 <sup>(7)</sup>
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 <sup>(7)</sup>
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 <sup>(7)</sup>
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 <sup>(7)</sup>
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 <sup>(7)</sup>
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 <sup>(7)</sup>

Notes

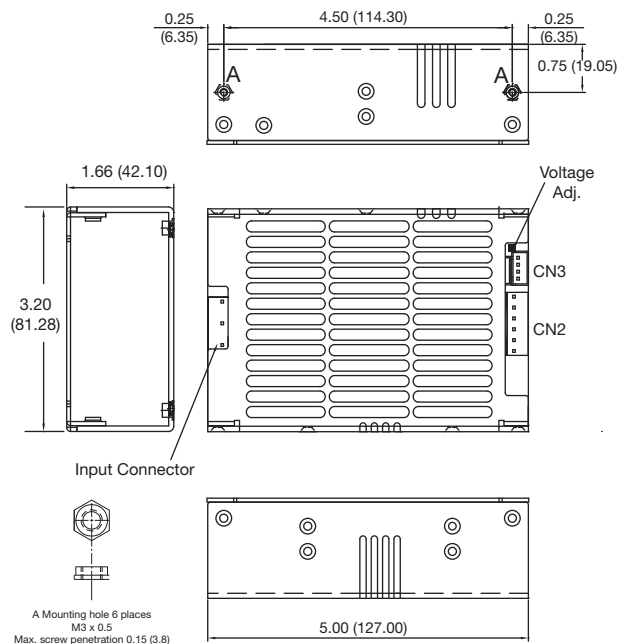
- Ripple & noise is measured using a 0.1 μF ceramic capacitor in parallel with 22 μF electrolytic and 20 MHz bandwidth
- Peak load can be taken for 500 μs. Average power not to exceed max power.
- Add suffix '-C' for vented cover option e.g. SDF300PS24-C
- Add suffix 'D' for optional output terminal 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<sup>(7)</sup>
- 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.<sup>(7)</sup>
- Add suffix 'H' for optional molex output terminal on dual output models used in convection applications.<sup>(7)</sup>
- Available for OEM quantities, contact Sales.

Mechanical Details

U-Channel



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

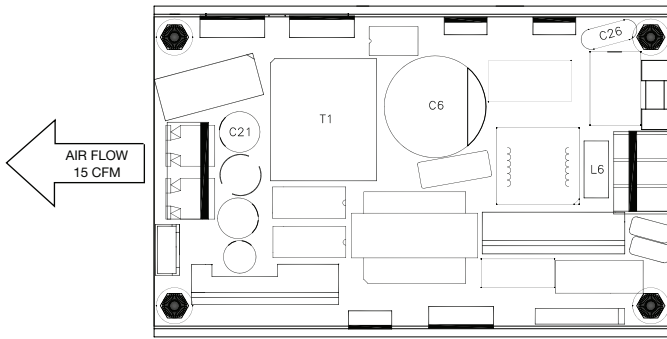


Notes

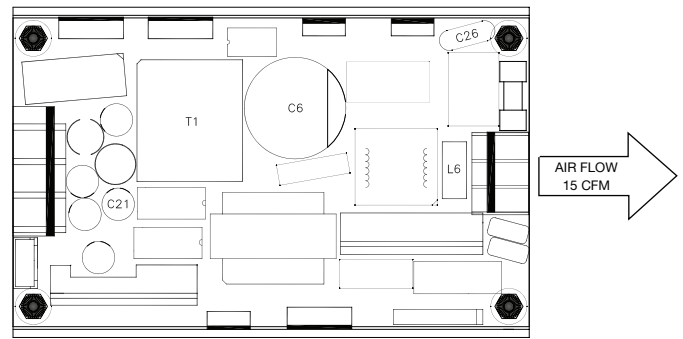
- All dimensions are in inches (mm)
- Tolerance: ±0.012 (±0.3)
- Weight: U-Channel: 1.08 lbs (490 g)  
U-Channel with cover (option '-C'): 1.12 lbs (510 g)
- Mounting holes and mating half connectors common to all models.

# Application Notes

## Thermal Considerations - U Channel



Single Output Models

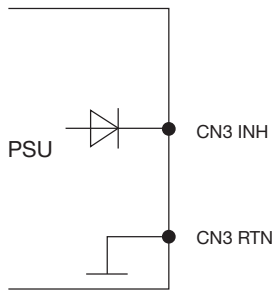


Dual Output Models

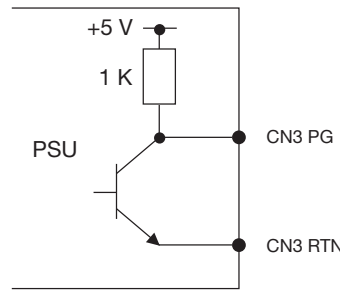
In order to ensure safe operation of the PSU in the end-use equipment, the temperature of the components listed in the table (right) must not be exceeded. See drawing above for component locations. The temperature should be monitored using K type thermocouples placed on the hottest part of the component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

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

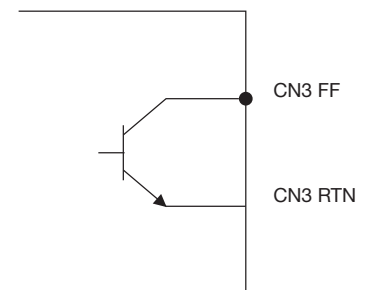
### Remote On/Off (INH)



### Power Good (PG)

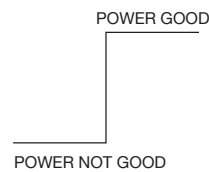


### Fan Fail (FF)

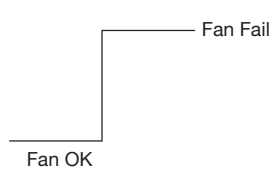


**Note:**

- Applying <0.3 V or short between pins INH and RTN turns the output OFF.
- Applying >4.5 V or open circuit between pins INH and RTN turns output ON.



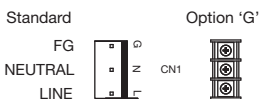
**Note:**  
Sink current = 6 mA, Source current = 1 mA  
Power is good 100-500 ms after output is in regulation.  
Power not good at least 1 ms before loss of regulation.



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

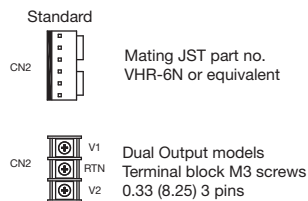
## Connectors

### INPUT CONNECTORS



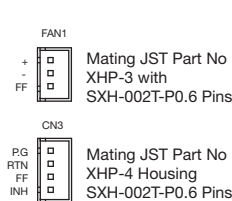
Mating JST part no. VHR-5N or equivalent (5 pin, 3 used)  
Crimp contacts for JST VHR Series:  
SVH-21T-P1.1 - 22-18awg  
SVH-41T-P1.1 - 20-16awg

### OUTPUT CONNECTORS



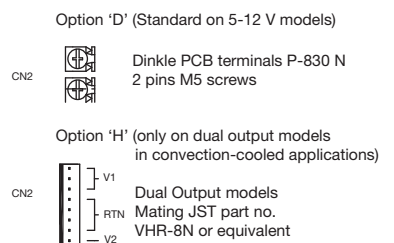
Mating JST part no. VHR-6N or equivalent  
Dual Output models Terminal block M3 screws 0.33 (8.25) 3 pins

### 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<sup>(1)</sup>



Option 'D' (Standard on 5-12 V models)  
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.

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