



**FEATURES**

- Universal 90~264VAC (127~370VDC) Input Range
- Accepts AC or DC Input (Dual-Use of Same Terminal)
- Built-In Active PFC Function
- High I/O Isolation Test Voltage up to 4000VAC
- Extremely Low Leakage Current
- Base Plate with Conformal Coating
- Output Short Circuit, Over Current, Over Voltage, and Over Temperature Protection
- Installing in System of Safety Class I/II is Available
- Suitable for BF Applications
- IEC611558, IEC/EN60601, and GB4943.1 Safety Approval

**DESCRIPTION**

The PSSW350 series of open frame switching power supplies offers 350 watts of output power in a very compact 5" x 3" x 1" package. This series consists of single output models with a universal input range of 90~264VAC (127~373VDC) and accepts AC or DC input. This series features built-in active PFC, high I/O isolation test voltage, low leakage current, and base plate with conformal coating. It is also protected against short circuit, over current, over voltage, and over temperature conditions and has IEC611558, IEC/EN60601, and GB4943.1 safety approvals.

UL62368-1    EN62368-1    IEC62368-1    BS EN 62368-1    GB4943.1  
 ES60601-1    EN60335-1    BS EN 60335-1  
 EN61558-1

Size: 5in x 3in x 1in (127mm x 76.2mm x 25.4mm)

**MODEL SELECTION TABLE**

Model Number <sup>(1)</sup>	Cooling Method	Nominal Output Voltage	Nominal Output Current	Output Power <sup>(2)</sup>	Output Voltage Adjustable Range	Ripple & Noise	Efficiency <sup>(3)</sup>	Maximum Capacitive Load	Certification
PSSW350-12S	Air Cooling	12V	15A	180W	11.4-12.6V	120mV	92%	6000µF	UL/EN IEC/BS/CCC
	20.5CFM	12V	25A	300W					
PSSW350-15S	Air Cooling	15V	12A	180W	14.25-15.75V	120mV	92%	5000µF	UL/EN IEC/BS
	20.5CFM	15V	21.67A	325W					
PSSW350-18S	Air Cooling	18V	10A	180W	17.1-19.9V	120mV	92.5%	4000µF	BS
	20.5CFM	18V	18A	324W					
PSSW350-19S	Air Cooling	19V	9.5A	180.5W	17.1-19.9V	120mV	92.5%	4000µF	
	20.5CFM	19V	17.1A	324.9W					
PSSW350-24S	Air Cooling	24V	8.33A	199.9W	22.8-25.2V	150mV	93%	3200µF	UL/EN IEC/BS
	20.5CFM	24V	14.6A	350.4W					
PSSW350-27S	Air Cooling	27V	7.4A	199.8W	25.65-28.35V	200mV	93%	2600µF	
	20.5CFM	27V	13A	351W					
PSSW350-36S	Air Cooling	36V	5.56A	200.16W	34.2-37.8V	200mV	93%	2000µF	
	20.5CFM	36V	9.73A	350.28W					
PSSW350-48S	Air Cooling	48V	4.17A	200.1W	45.6-50.4V	250mV	94%	2000µF	
	20.5CFM	48V	7.3A	350.4W					
PSSW350-54S	Air Cooling	54V	3.7A	199.8W	51.3-56.7V	250mV	94%	2000µF	EN
	20.5CFM	54V	6.5A	351W					

**SPECIFICATIONS**

All specifications are based on Ta=25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.  
 We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
<b>INPUT SPECIFICATIONS</b>						
Input Voltage Range	AC Input		90		264	VAC
	DC Input		127		370	VDC
Input Voltage Frequency			47		63	Hz
Input Current	115VAC				4	A
	230VAC				2	
Inrush Current	115VAC, Cold Start			50		A
	230VAC, Cold Start			75		
Power Factor	115VAC, Full Load		0.98			
	230VAC, Full Load		0.95			
Leakage Current			<0.1mA: Single Fault <0.5mA			
Hot Plug			Unavailable			
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage			See Table			
Voltage Accuracy <sup>(4)</sup>	Full Load Range	12V/15V/18V/19V		±3		%
		24V/27V/36V/48V/54V		±2		
Line Regulation	Rated Load			±0.5		%
Load Regulation	0%-100% Load			±1		%
Output Power			See Table			
Fan Power <sup>(5)</sup>	12V/15V/24V/36V/48V/54V		Offer Output Power of 12V/0.5A with output voltage accuracy ±15%			
	18V/19V		Offer output power of 12V/0.5A with output voltage accuracy -15% - +25%			
	27V		Offer output power of 12V/0.5A with output voltage accuracy -25% - +15%			
Output Current			See Table			
Minimum Load			0			%
Maximum Capacitive Load			See Table			
Output Ripple & Noise <sup>(6)</sup>	20MHz Bandwidth (Peak-to-Peak Value)	12V/15V/18V/19V			120	mV
		24V			150	
		27V/36V			200	
		48V/54V			250	
Hold Up Time	230VAC, Full Load	Air Cooling	12	14		ms
		20.5CFM	6	8		
Stand By Power Consumption	230VAC				1.0	W
Temperature Coefficient				±0.03		%/°C
<b>PROTECTION</b>						
Short Circuit Protection	Recover time <5s after the short circuit disappears		Constant Current, Continuous, Self-Recover			
Over Current Protection	Self-Recover			≥110		%
Over Voltage Protection	Output voltage turn off, re-power on for recover	12V		≤15		V
		15V		≤18.5		
		18V		≤23.7		
		19V		≤23.7		
		24V		≤30		
		27V		≤33.5		
		36V		≤45		
		48V		≤59.5		
54V		≤63				
Over Temperature Protection	Output voltage turn off, re-power on for recover after the temperature drops					
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Operating Temperature			-40		+70	°C
Storage Temperature			-40		+85	°C
Storage Humidity	Non-Condensing		10		95	%RH
Operating Humidity	Non-Condensing		20		90	%RH
Power Derating	Operating Temperature Derating	+50°C to +70°C	2.5			%/°C
		-40°C to +50°C	0			
	Input Voltage Derating	90VAC – 100VAC	1.00			%/VAC
		100VAC – 264VAC	0			
Operating Altitude					5000	m
MTBF	MIL-HDBK-217F@25°C			≥300,000		h

**SPECIFICATIONS**

All specifications are based on Ta=25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.  
 We reserve the right to change specifications based on technological advances.

SPECIFICATION		TEST CONDITIONS		Min	Typ	Max	Unit	
<b>GENERAL SPECIFICATIONS</b>								
Typ. Efficiency		@230VAC		See Table				
Isolation Test	Electric Strength Test for 1min. Leakage Current <10mA		Input - $\perp$	2000			VAC	
			Input - Output	4000				
			Output - $\perp$	1500				
Insulation Resistance	Environment Temperature: 25±5°C Relative Humidity: <95%RH, non-condensing Testing Voltage: 500VDC		Input - $\perp$	100			MΩ	
			Input - Output	100				
			Output - $\perp$	100				
Isolation Level	Input - Output			2 x MOPP				
	Input - $\perp$			1 x MOPP				
	Output - $\perp$			1 x MOPP				
<b>PHYSICAL SPECIFICATIONS</b>								
Weight				10.41oz (295g)				
Dimensions (L x W x H)				5in x 3in x 1in (127mm x 76.2mm x 25.4mm)				
Cooling Method		See product characteristic curve for cooling method and power derating		Air Cooling (180W/200W) 20.5CFM (300W325W//350W)				
Case Material				Open Frame				
<b>SAFETY CHARACTERISTICS</b>								
Safety Standard <sup>(7)</sup>	12V	Approved To		IEC/UL62368-1, ES60601-1, GB4943.1 safety approved & EN60335-1, EN61558-1, EN62368-1, BS EN 62368-1 (Report)				
		Design Refers To <sup>(8)</sup>		IEC61558-1, IEC/EN60601-1				
	15V/24V/27V/48V	Approved To		IEC/UL62368-1, ES60601-1 safety approved & EN60335-1, EN61558-1, EN62368-1, BS EN 62368-1 (Report)				
		Design Refers To <sup>(8)</sup>		IEC61558-1, GB4943.1, IEC/EN60601-1				
	18V/19V	Approved To		BS EN 62368-1 (Report)				
		Design Refers To <sup>(8)</sup>		IEC/EN/UL62368-1, EN60335-1, IEC/EN61558-1, GB494.1, IEC/EN/ES60601-1				
	36V	Approved To		UL60601-1, ES60601-1 safety approved & EN60335-1, EN61558-1, BS EN 62368-1 (Report)				
		Design Refers To <sup>(8)</sup>		IEC/EN/UL62368-1, EN60335-1, IEC/EN61558-1, GB4943.1, IEC/EN/ES60601-1				
	54V	Approved To		EN61558-1, EN60335-1, BS EN 62368-1 (Report)				
		Design Refers To <sup>(8)</sup>		IEC/EN/UL62368-1, EN60335-1, IEC/EN61558-1, GB4943.1, IEC/EN/ES60601-1				
	Safety Class				CLASS I (with PE and must be connected) Class II (Without PE)			
	EMI <sup>(8)</sup>	CE		CISPR32/EN55032	150kHz-30MHz		Class B	
RE		CISPR32/EN55032	30MHz-1GHz		Class B (Category I, Class B; Category II, Class A)			
Harmonic Current				IEC/EN61000-3-2		Class A and Class D		
Flicker				IEC/EN61000-3-3				
EMS <sup>(8)</sup>	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV		Perf. Criteria A			
	RS	IEC/EN61000-4-3	80MHz-1GHz 10V/m		Perf. Criteria A			
	EFT	IEC/EN61000-4-4	±4KV (5 or 100)KHz		Perf. Criteria A			
	Surge	IEC/EN61000-4-5	Line to Line ±2KV, Line to Ground ±4KV		Perf. Criteria A			
	CS	IEC/EN61000-4-6	0.15MHz-80MHz 10 Vr.m.s		Perf. Criteria A			
	DIP	IEC/EN61000-4-11	70% U <sub>n</sub> <sup>(9)</sup> , 25/30 periods (50/60Hz) 40% U <sub>n</sub> <sup>(9)</sup> , 10/12 periods (50/60Hz) 0% U <sub>n</sub> <sup>(9)</sup> , 1 period		Perf. Criteria B			

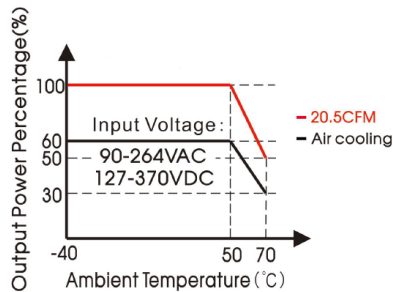
**NOTES**

1. Products with a shell are also available. To indicate a product with shell, add "-C" suffix to model number.
2. Under any conditions, the total power of the product should not exceed the rated power. When the output voltage is increased, the total output power cannot exceed the rated output power, when the output voltage is decreased, the output current cannot exceed the rated output current.
3. When measuring the full load efficiency, the fan should be connected to an external power supply. Fan loss is not included in the input power.
4. Output voltage accuracy: including setting error, line regulation, load regulation.
5. For fan power connection method, please refer to pin 6, 7 of the dimension drawing.
6. The "tip and barrel method" is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 0.1uF ceramic capacitor. Please contact factory for more information.
7. This product is Listed to applicable standards and requirements by UL.
8. Models are designed to meet these standards, but have not reached approval at this time.
9.  $U_n$  is the maximum input nominal voltage.
10. The power supply is considered a component as part of a system. All EMC items are tested on a metal plate (360mm x 360mm x 1mm). Power supply should be combined with final equipment for EMC confirmation.
11. Category I products with PE, category II products without PE.
12. Perf. Criteria
  - A. The equipment shall continue to operate as intended without operator intervention.
  - B. After the test, the equipment shall continue to operate as intended without operator intervention.
  - C. Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with manufacturers instructions.
13. Ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m
14. In order to improve the efficiency at light load, there will be audible noise generated, but it does not affect product performance and reliability
15. Product customization service is available. Contact factory for more information.
16. The output voltage can be adjusted by the ADJ, clockwise to decrease.
17. Warning: Use double fuses, please disconnect the power before maintenance and replacement
18. Products should be classified according to ISO 14001 and related environmental laws and regulations and should be handled by qualified units.
19. Power supply is considered a component which will be installed into final equipment. All EMC tests should be confirmed with final equipment. Contact factory for more information.
20. The surface of the product should be kept a safe distance from the customer system (recommended  $\geq 3\text{mm}$ ), if not please contact factory.

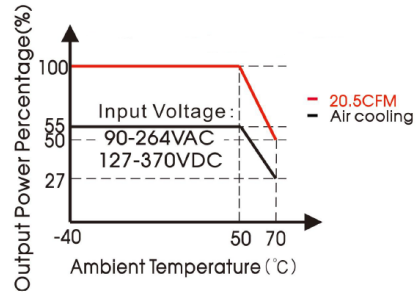
\*Due to advances in technology, specifications subject to change without notice.

**CHARACTERISTIC CURVES**

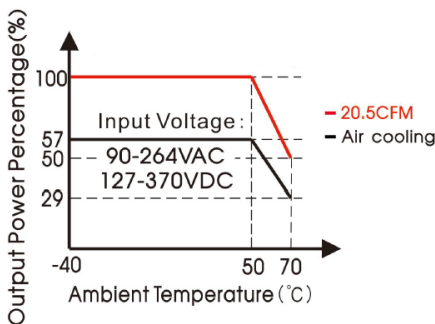
PSSW350-12S (Full Load 300W with 20.5CFM)



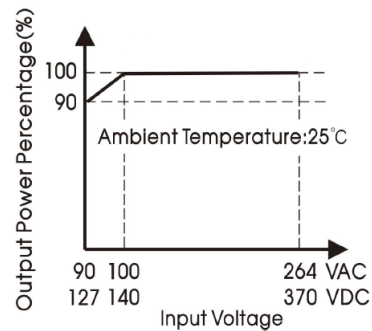
PSSW350-15S/18S/19S (Full Load 325W with 20.5CFM)



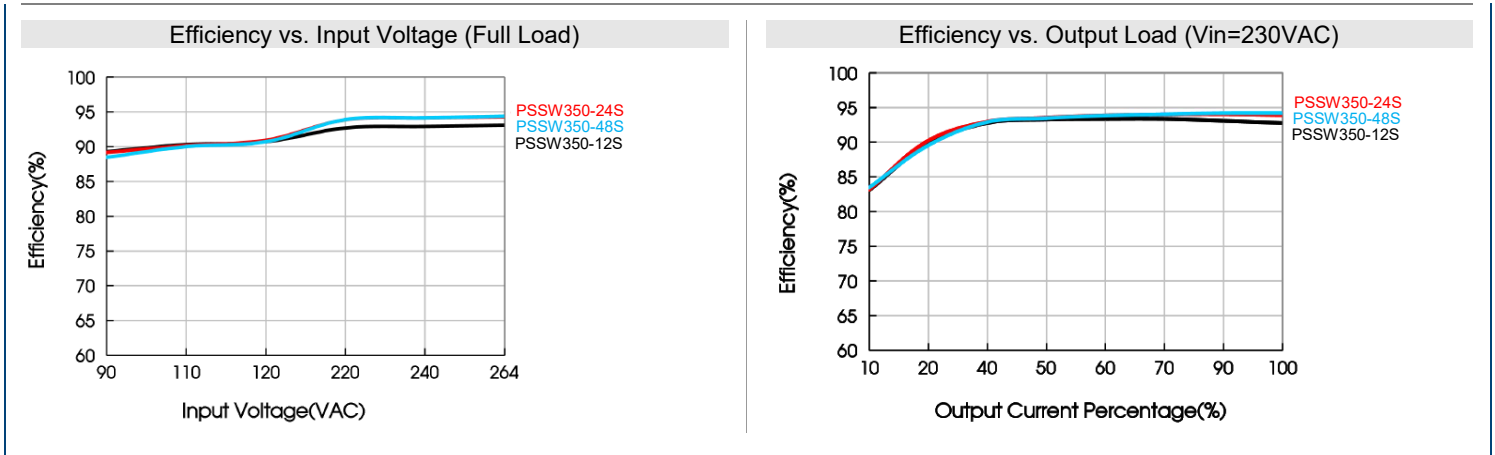
PSSW350-24S/27S/36S/48S/54S (Full Load 350W with 20.5CFM)



PSSW350-xxS Input Voltage Derating Curve



- Note:
1. With an AC input voltage between 90 – 100VAC and a DC input between 127-140VDC the output power must be derated as per the temperature derating curves.
  2. This product is suitable for applications using natural air cooling; for applications in closed environment, please contact factory.



**MECHANICAL DRAWINGS**

THIRD ANGLE PROJECTION

**Top View**

**Front View**

**Pin Out**

Pin	Mark	Product Connector	Customer Connector
1	AC (L)	JST B5P-VH or equivalent	Housing: JST VHR Contact: JST SVH-21T-P1.1
2	NC		
3	AC (N)		
4	NC		
5	⊕	KANGDAO 2.5XHS-2A or equivalent	Housing: KANGDAO 2.5XHS-2Y Contact: KANGDAO 2.5XH-TE
6	FAN-		
7	FAN+		
8	-Vo		
9	+Vo		

Position	Screw Spec	L (Recommend)	Torque (Max)
①-④	M3	6mm	0.4N·m

**Note:**

1. Unit: mm [inch]
2. ADJ: Output adjustable resistor
3. General tolerances: ±1.00 [±0.039]
4. Connector tightening torque: M3.5, 0.8N·m (Max)
5. Wire range: 18-14AWG
6. The layout of the device is for reference only, please refer to the actual product.
7. 10mm distance between the PCB and other components is recommended for safety purposes.
8. Class I system ①,②,④ positions must be connected to the earth (⊕)
9. Class II system ①,②,④ positions must be connected together.

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**COMPANY INFORMATION**

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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