



Size: 4 x 2 x 1in
(101.6 x 50.8 x 25.4mm)



Size: 4.07 x 2.44 x 1.46in
(103.4 x 62 x 37mm)



FEATURES

- Universal 85-264VAC (120~370VDC) Input Range
- Active PFC
- High I/O Isolation Test Voltage up to 4000VAC
- Low Leakage Current
- Compact Size
- 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
- Cooling by Air or 13CFM

DESCRIPTION

The PSSW225 series of open frame switching power supplies offers up to 225 watts of output power in a very compact 4" x 2" x 1" package. This series consists of single output models with a universal input range of 85~264VAC (120~370VDC) 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 is RoHS compliant. Safety approvals vary by model, see data sheet for details.

MODEL SELECTION TABLE

Model Number ⁽¹⁾	Cooling Method	Nominal Output Voltage	Nominal Output Current	Output Power ⁽²⁾	Output Voltage Adjustable Range	Ripple & Noise	Efficiency	Maximum Capacitive Load	Certification	
									Open Frame	Enclosed Case
PSSW225-12S	Air Cooling	12V	11.67A	140W	11.8-12.6V	60mV	93%	6000µF	UL/EN/CCC/IEC	IEC/UL/EN
	13CFM	12V	18.75A	225W						
PSSW225-15S	Air Cooling	15V	9.33A	140W	14.7-15.8V	100mV	93%	5000µF	IEC/UL/EN	-
	13CFM	15V	15A	225W						
PSSW225-18S	Air Cooling	18V	7.78A	140W	17.6-18.79V	100mV	93%	3200µF	-	-
	13CFM	18V	12.5A	225W						
PSSW225-19S	Air Cooling	19V	7.37A	140W	18.80-20V	100mV	93%	3200µF	-	-
	13CFM	19V	11.84A	225W						
PSSW225-24S	Air Cooling	24V	5.83A	140W	23.5-25.2V	100mV	94%	3200µF	IEC/UL/EN	IEC/UL/EN
	13CFM	24V	9.4A	225W						
PSSW225-27S	Air Cooling	27V	4.81A	130W	26.5-28.4V	100mV	94%	2400µF	IEC/UL/EN	-
	13CFM	27V	8.35A	225W						
PSSW225-36S	Air Cooling	36V	3.88A	140W	35.28-37.8V	100mV	94%	2000µF	IEC/UL/EN	-
	13CFM	36V	6.25A	225W						
PSSW225-48S	Air Cooling	48V	2.91A	140W	47.1-50.4V	100mV	94%	1600µF	IEC/UL/EN	-
	13CFM	48V	4.7A	225W						
PSSW225-54S	Air Cooling	54V	2.59A	140W	52.5-55.5V	200mV	94%	1000µF	IEC/UL/EN	UL/EN
	13CFM	54V	4.17A	225W						

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
INPUT SPECIFICATIONS							
Input Voltage Range	AC Input			85		264	VAC
	DC Input			120		370	VDC
Input Voltage Frequency				47		63	Hz
Input Current	115VAC					3	A
	230VAC					12	
Inrush Current	115VAC, Cold Start				40		A
	230VAC, Cold Start				75		
Power Factor	115VAC, Full Load			0.99			
	230VAC, Full Load			0.95			
Leakage Current	240VAC			<0.1mA: Single Failure <0.5mA			
Hot Plug				Unavailable			
OUTPUT SPECIFICATIONS⁽³⁾							
Output Voltage				See Table			
Voltage Accuracy ⁽⁴⁾	Full Load Range				±1		%
Line Regulation	Rated Load				±0.5		%
Load Regulation	0%-100% Load				±0.5		%
Output Power				See Table			
Fan Power	15V			Offer Output Power of 24V/0.25A with output voltage accuracy ±15%			
	12V/18V/19V/24V/27V/36V/48V/54V			Offer output power of 12V/0.5A with output voltage accuracy ±15%			
Output Current				See Table			
Minimum Load				0			%
Maximum Capacitive Load				See Table			
Output Ripple & Noise ⁽⁵⁾⁽⁶⁾	20MHz Bandwidth (Peak-to-Peak Value)	12V				60	mV
		15V/18V/19V/24V/27V/36V/48V				100	
		54V				200	
Hold Up Time	230VAC, 25°C	Air Cooling			16		ms
		13CFM			12		
Stand By Power Consumption					0.5		W
Temperature Coefficient					±0.03		%/°C
PROTECTION⁽³⁾							
Short Circuit Protection	Recover time <3s after the short circuit disappears			Hiccup, Continuous, Self-Recovery			
Over Current Protection	Hiccup, Self-Recovery				≥110		%Io
Over Voltage Protection	Output voltage turn off, re-power on for recover	12V			≤16		VDC
		15V			≤20		
		18/19V			≤25		
		24V			≤32		
		27V			≤35		
		36V			≤50		
48V/54V			≤60				
Over Temperature Protection	Output voltage turn off, re-power on for recover after abnormality is removed						
ENVIRONMENTAL SPECIFICATIONS							
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	Air Cooling	+45°C to +70°C	2.0			% / °C
		13CFM	-50°C to +70°C	2.5			
	Input Voltage Derating	-40°C to -30°C	2.0				
			85VAC – 115VAC	1.0			%/VAC
Altitude						5000	m
MTBF	MIL-HDBK-217F@25°C				≥300,000		h
GENERAL SPECIFICATIONS							
Typ. Efficiency	@230VAC			See Table			
Isolation Test	Electric Strength Test for 1min. Leakage Current <10mA	Input – Output		4000			VAC
		Input – \perp		1500			
		Output – \perp		1500			
Insulation Resistance	Ambient Temperature: 25±5°C Relative Humidity: <95%RH, non-condensing Testing Voltage: 500VDC	Input – \perp		50			MΩ
		Input – Output		50			
		Output – \perp		50			

SPECIFICATIONS

All specifications are based on Ta=25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
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SPECIFICATION		TEST CONDITIONS		Min	Typ	Max	Unit
GENERAL SPECIFICATIONS (CONT.)							
Isolation Level	Input – Output				2 x MOPP		
	Input –				1 x MOPP		
	Output –				1 x MOPP		
Stand-by Power Consumption				0.5			W
Warranty	Ambient Temperature: <50°C				5 Years		
PHYSICAL SPECIFICATIONS							
Weight	Open Frame				6.17oz (175g)		
	Enclosed Case (-C Suffix)				9.17oz (260g)		
Dimensions (L x W x H)	Open Frame				4 x 2 x 1in (101.6 x 50.8 x 25.4mm)		
	Enclosed Case (-C Suffix)				4.07 x 2.44 x 1.46in (103.4 x 62 x 37mm)		
Cooling Method	See typical characteristic curve for cooling method & power derating				Air Cooling/13CFM		
Case Material	Open Frame				Open Frame		
	Enclosed Case (-C Suffix)				Metal (AL1100, SUS304)		
SAFETY CHARACTERISTICS							
Safety Standard ⁽⁷⁾	Open Frame	12V	Approved To	IEC/UL62368-1, GB4943.1, ES60601-1, IEC60335-1, IEC60950-1 Safety Approved & EN62368-1, EN60335-1, EN61558-1, EN60601-1			
			Design Refers To ⁽⁸⁾	IEC61558-1, ES60601-1 (3.1 Version), EN60601-1-2 Edition4, CAN/CSA-C22.2 No. 60601-1:14-Edition 3			
		15V/24V/27V/36V/48V	Approved To	IEC/UL62368-1, ES6001-1, IEC60335-1 Safety Approved & EN62368-1, EN60335-1, EN61558-1, EN60601-1			
			Design Refers To ⁽⁸⁾	IEC61558-1, GB4943.1, ES60601-1 (3.1 version), CAN/CSA-C22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4			
		54V	Approved To	UL62368-1, IEC60335-1 Safety Approved & EN62368-1, EN61558-1, EN60335-1			
			Design Refers To ⁽⁸⁾	IEC62368-1, IEC61558-1, GB4943.1, IEC/EN60601-1, ES60601-1 (3.1 version), CAN/CSA-C22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4			
	18V/19V	Design Refers To ⁽⁸⁾	IEC/EN/UL62368-1, EN60335-1, IEC/EN61558-1, GB4943.1, IEC/EN60601-1, ES60601-1 (3.1 Version), CAN/CSA-C22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4				
		Enclosed Case	12V/15V/24V/27V/36V/48V	Approved To	IEC/UL62368-1, ES60601-1 safety approved & EN60335-1, EN61558-1, EN60601-1, EN62368-1		
	Design Refers To ⁽⁸⁾			IEC61558-1, GB4943.1, ES60601-1(3.1 version), CAN/CSA-C22.2, No.60601-1:14-Edition 3, EN60601-1-2 Edition 4			
	54V		Approved To	UL62368-1 safety approved & EN62368-1, EN61558-1, EN60335-1			
			Design Refers To ⁽⁸⁾	IEC62368-1, IEC61558-1, GB4943.1, IEC/EN60601-1, ES60601-1(3.1 version), CAN/CSA-C22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4			
	54V		Design Refers To ⁽⁸⁾	IEC/EN/UL62368-1, EN60335-1, IEC/EN61558-1, GB4943.1, IEC/EN60601-1, ES60601-1(3.1 version), CAN/CSA-C22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4			
Design Refers To ⁽⁸⁾			IEC/EN/UL62368-1, EN60335-1, IEC/EN61558-1, GB4943.1, IEC/EN60601-1, ES60601-1(3.1 version), CAN/CSA-C22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4				
Safety Class	With PE and Must be Connected					Class I	
	Without PE					Class II	
Emissions ⁽⁸⁾	CE	CISPR32/EN55032		Class B			
	RE	CISPR32/EN55032		Category I, Class B; Category II, Class A			
	Harmonic Current	IEC/EN61000-3-2		Class A and Class D			
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV		Perf. Criteria A		
	RS	IEC/EN61000-4-3	10V/m		Perf. Criteria A		
	EFT	IEC/EN61000-4-4	±4KV		Perf. Criteria A		
	Surge	IEC/EN61000-4-5	±2KV/±4KV		Perf. Criteria A		
	CS	IEC/EN61000-4-6	10 Vr.m.s		Perf. Criteria A		
	Voltage dips, short interruptions & voltage variations immunity	IEC/EN61000-4-11	0%, 70%		Perf. Criteria B		

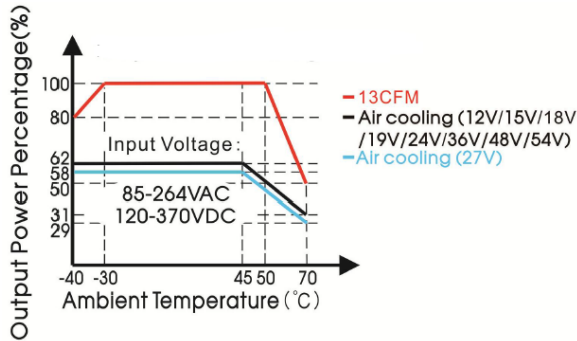
NOTES

1. Products with shell also available. To indicate product with shell, add -C to end of model number.
2. Under any conditions, the total power of the product should not exceed the rated power of 225W and the output current should not exceed the rated output current.
3. For test items in this section, please contact factory for specific test specifications and methods.
4. Output voltage accuracy: including setting error, line regulation, load regulation.
5. Standard Case: 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.
Enclosed Case: The "tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor. Please contact factory for more information.
6. When the product works at light load ($\leq 15\%$ IO), in order to improve the efficiency to reach at green working mode, the value of ripple and noise will be double.
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. The power supply is considered a component as part of a system. All EMC items are tested on a metal plate with a thickness of 1mm and a length of 360mm x 360mm. Power supply must be combined with terminal equipment for electromagnetic confirmation.
10. Category I products with PE (which must be connected), category II products without PE.
11. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability.
12. Product customization service is available. Contact factory for more information.
13. Products should be classified according to ISO 14001 and related environmental laws and regulations and should be handled by qualified units.
14. Output voltage can be adjusted by the ADJ, clockwise to decrease.
15. For enclosed case models, the out case needs to be connected to PE (⊕) of system when the terminal equipment is operating.
16. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.

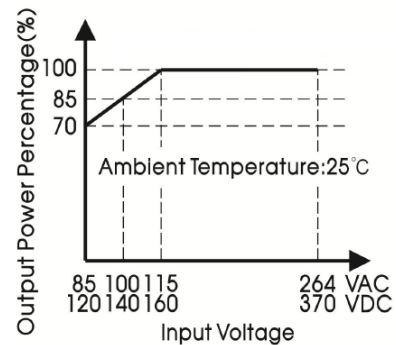
**Due to advances in technology, specifications subject to change without notice.*

CHARACTERISTIC CURVES

Temperature Derating Curve

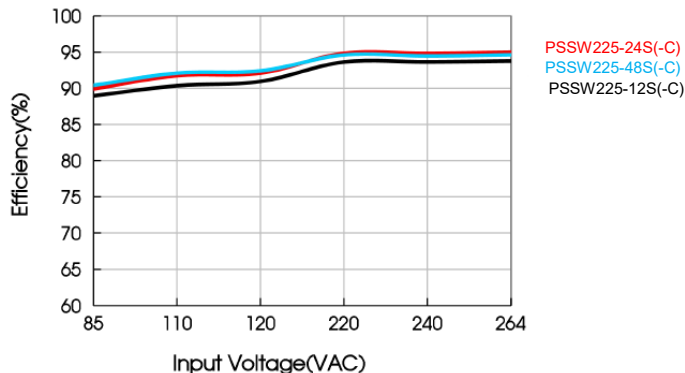


Input Voltage Derating Curve

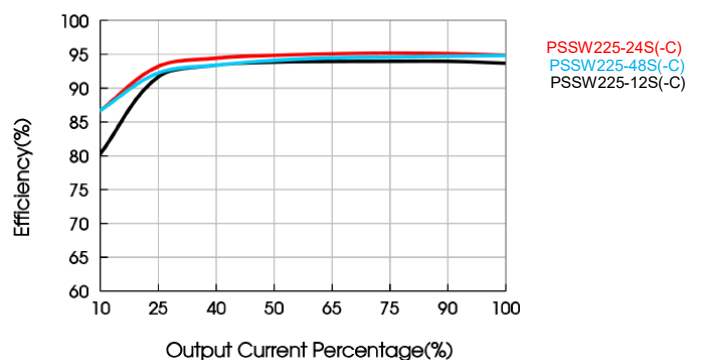


Note: With an AC input voltage between 85 – 115VAC and a DC input between 120-160VDC the output power must be derated as per the temperature derating curves.

Efficiency vs. Input Voltage (Full Load)




Efficiency vs. Output Load (Vin=230VAC)



MECHANICAL DRAWINGS

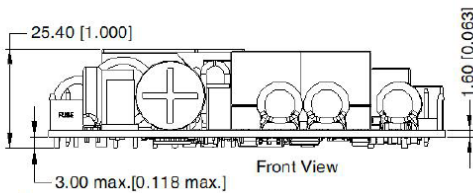
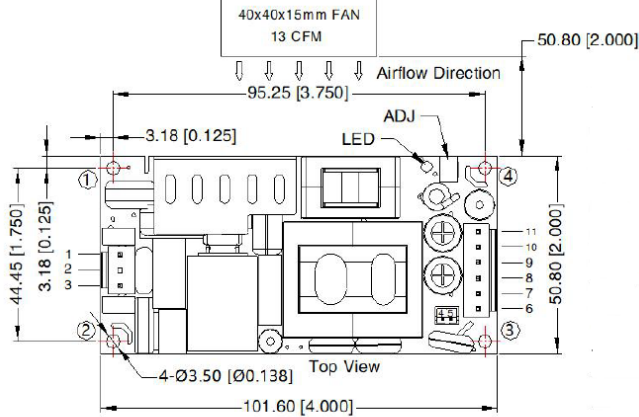
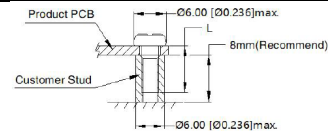
Open Frame Model (Standard)

THIRD ANGLE PROJECTION 

Pin Out

Pin	Function	Product Connector	Customer Connector
1	AC (N)/DC-	JST BP-VH or equivalent	Housing: JST VHR
2	NC		Terminal: JST SVH-21T-P1.1 or equivalent
3	AC (L)/DC+		
4	Fan-	JST B2B-PH-K-S or equivalent	Housing: JST PHR-2
5	Fan+		Terminal: JST SPH-002T-P0.5S or equivalent
6,7,8	-Vo	JST B6P-VH or equivalent	Housing: JST VHR
9,10,11	+Vo		Terminal: JST SVH-21T-P1.1 or equivalent

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



Note:

- Unit: mm [inch]
- ADJ: Output adjustable resistor
- General tolerances: ±1.00 [±0.039]
- Do not use fan power to power other devices.
- The layout of the device is for reference only, please refer to the actual product.
- Reserved safety distance between PCB edge and customer components, recommended 10mm.
- Class I system ①,③ positions must be connected to the earth (≡)
- Class II system ①,③ positions must be connected together.

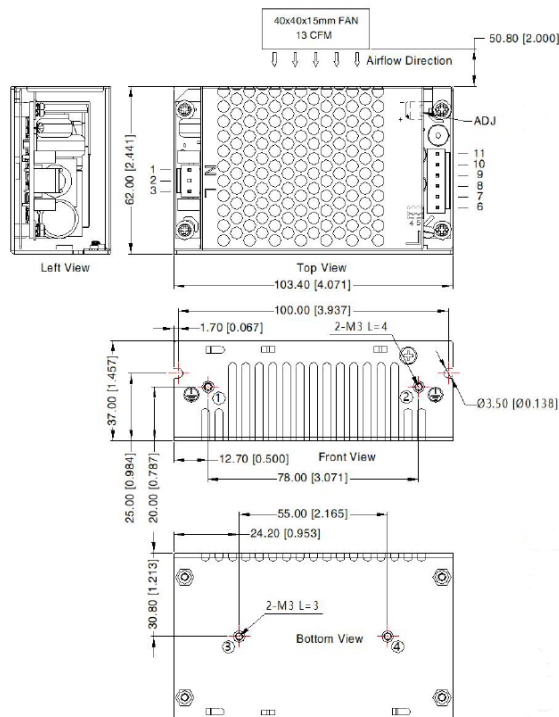
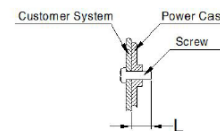
Enclosed Case (-C Suffix)

THIRD ANGLE PROJECTION 

Pin Out

Pin	Function	Product Connector	Customer Connector
1	AC (N)/DC-	JST BP-VH or equivalent	Housing: JST VHR
2	NC		Terminal: JST SVH-21T-P1.1 or equivalent
3	AC (L)/DC+		
4	Fan-	JST B2B-PH-K-S or equivalent	Housing: JST PHR-2
5	Fan+		Terminal: JST SPH-002T-P0.5S or equivalent
6,7,8	-Vo	JST B6P-VH or equivalent	Housing: JST VHR
9,10,11	+Vo		Terminal: JST SVH-21T-P1.1 or equivalent

Position	Screw Spec	L (Recommend)	Torque (Max)
①-②	M3	4mm	0.4N·m
③-④	M3	3mm	0.4N·m



Note:

- Unit: mm [inch]
- ADJ: Output adjustable resistor
- General tolerances: ±1.00 [±0.039]
- Do not use fan power to power other devices.
- The layout of the device is for reference only, please refer to the actual product.
- The out case needs to be connected to the earth of the system when the terminal equipment is operating.

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.

Contact **Wall Industries** for further information:

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