c UL us CE Report CB RoHS

UL62368-1 EN62368-1 IEC62368-1
ES60601-1 EN60335-1
EN61558-1
EN60601-1

Size: 3in x 2in x 1.22in (76.2mm x 50.8mm x 31mm)

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
- High Efficiency

DESCRIPTION

The PSSW120 series of open frame switching power supplies offers up to 120 watts of output power in a very compact 3” x 2” x 1.22” 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 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)	Nominal Output Voltage	Nominal Output Current	Nominal Output Power	Transient Output Power 10S(2)	Output Voltage Adjustable Range	Ripple & Noise	Efficiency	Maximum Capacitive Load	Certification
PSSW120-12S	12V	9.5A	114W	141.6W	11.4-12.6V	60mV	94%	6000µF	UL/EN
PSSW120-15S	15V	7.6A	114W	142.5W	14.3-15.8V	100mV	94%	5000µF	
PSSW120-19S	19V	6.3A	119.7W	149W	17.3-19.8V	100mV	93%	4500µF	EN
PSSW120-24S	24V	5A	120W	150W	22.8-25.2V	100mV	95%	3200µF	UL/EN/IEC
PSSW120-27S	27V	4.44A	119.9W	149.8W	25.6-28.4V	100mV	95%	2400µF	
PSSW120-36S	36V	3.33A	120W	149.76W	35.28-37.8V	100mV	94%	2000µF	UL/EN
PSSW120-48S	48V	2.5A	120W	150W	45.6-50.4V	100mV	94.5%	1600µF	UL/EN/IEC
PSSW120-54S	54V	2.22A	120W	149.58W	51.3-55.5V	200mV	94%	1300µF	EN

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				2	A
	230VAC				1	
Inrush Current	115VAC, Cold Start			40		A
	230VAC, Cold Start			75		
Power Factor	115VAC, Full Load		0.98			
	230VAC, Full Load		0.94			
Leakage Current	240VAC		<0.1mA: Single Fault <0.5mA			
Hot Plug			Unavailable			
OUTPUT SPECIFICATIONS(3)						
Output Voltage			See Table			
Voltage Accuracy(4)	Full Load Range	12V/15V		±2.0		%
		19V/24V/27V/36V/48V/54V		±1.0		
Line Regulation	Rated Load			±0.5		%
Load Regulation	0%-100% Load			±1.0		%
Output Power			See Table			
Output Current			See Table			
Minimum Load			0			%
Maximum Capacitive Load			See Table			
Output Ripple & Noise(5)	20MHz Bandwidth (Peak-to-Peak Value)	12V/15V			120	mV
		19V/24V/27V			150	
		36V/48V/54V			200	
Hold Up Time	230VAC, 25°C		15			ms
Stand By Power Consumption				0.5		W
Temperature Coefficient				±0.03		%/°C

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SPECIFICATION	TEST CONDITIONS			Min	Typ	Max	Unit
PROTECTION[3]							
Short Circuit Protection	Recover time <3s after the short circuit disappears			Hiccup, Continuous, Self-Recovery			
Over Current Protection	Hiccup, Self-Recovery				≥130		%Io
Over Voltage Protection	Output voltage turn off, re-power on for recover		12V		≤16		VDC
			15V		≤25		
			19V		≤25		
			24V		≤32		
			27V		≤35		
			36V		≤50		
			48V		≤60		
			54V		≤60		
Over Temperature Protection	Output voltage turn off, re-power on for recover after abnormality is removed						
ENVIRONMENTAL SPECIFICATIONS							
Operating Temperature				-40		+85	°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	+50°C to +85°C	2.0			%/°C
		10CFM	+55°C to +85°C				
		-40°C to -30°C		2.0			
	Input Voltage Derating	Air Cooling	85VAC – 115VAC	1.0			%/VAC
		10CFM	85VAC – 100VAC	2.0			
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 – ⏚	1500			VAC
			Input – Output	4000			
			Output -⏚	1500			
Insulation Resistance	Ambient Temperature: 25±5°C Relative Humidity: <70%RH, non-condensing Testing Voltage: 500VDC		Input - ⏚	100			MΩ
			Input – Output	100			
			Output -⏚	100			
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				4.41oz (125g)			
Dimensions (L x W x H)				3in x 2in x 1.22in (76.2mm x 50.8mm x 31mm)			
Cooling Method	See typical characteristic curve for cooling method and power derating			Air Cooling/10CFM			
Case Material				Open Frame			
SAFETY CHARACTERISTICS							
Safety Standard[9]	12V/15V/24V/27V/48V		Approved To	IEC/UL62368-1, ES60601-1 Safety Approved & EN62368-1, EN60335-1, EN61558-1, EN60601-1 (Report)			
			Design Refers To[10]	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			
	36V		Approved To	ES60601 safety approved & EN60601-1 (Report)			
			Design Refers To[10]	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			
	19V/54V		Approved To	EN62368-1 (Report)			
			Design Refers To[10]	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			

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SPECIFICATION		TEST CONDITIONS		Min	Typ	Max	Unit
SAFETY CHARACTERISTICS (Cont.)							
Safety Class			With PE and Must be Connected				Class I
			Without PE				Class II
Emissions[10]		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
		Voltage Flicker	IEC/EN61000-3-3				
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	±2KV				Perf. Criteria A
	Surge	IEC/EN61000-4-5	Line to Line ±2KV/Line to Ground ±4KV				Perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s				Perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%				Perf. Criteria B

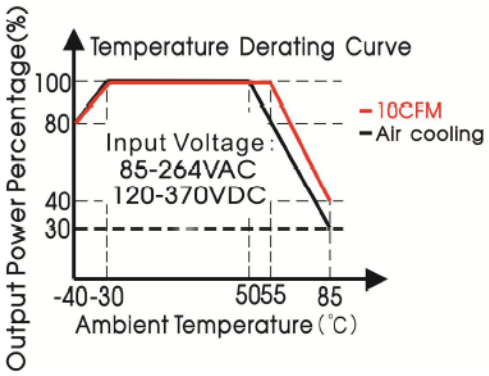
NOTES

1. Products with shell also available. To indicate product with shell, add -C to end of model number.
2. If the total output power exceeds the nominal output power, it can be maintained for a maximum of 10s. The power supply cannot exceed the transient power. When the output voltage is increased, the total output power cannot exceed the nominal output power.
3. Except for special instructions, the above data is measured at full operating temperature range and humidity <75%
4. Maximum transient output power interval must be greater than 30 minutes
5. Output voltage accuracy: including setting error, line regulation, load regulation.
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. For test items in this section, please contact factory for specific test specifications and methods.
8. When the product works at light load (≤15% IO), in order to improve the efficiency to reach at green working mode, the value of ripple and noise will be double.
9. This product is Listed to applicable standards and requirements by UL.
10. Models are designed to meet these standards, but have not reached approval at this time.
11. 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.
12. Category I products with PE (which must be connected), category II products without PE.
13. 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.
14. Product customization service is available. Contact factory for more information.
15. Products should be classified according to ISO 14001 and related environmental laws and regulations and should be handled by qualified units.
16. Power supply is considered a component which will be installed into terminal equipment. All EMC test should be confirmed with final equipment. Contact factory for more information.
17. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.

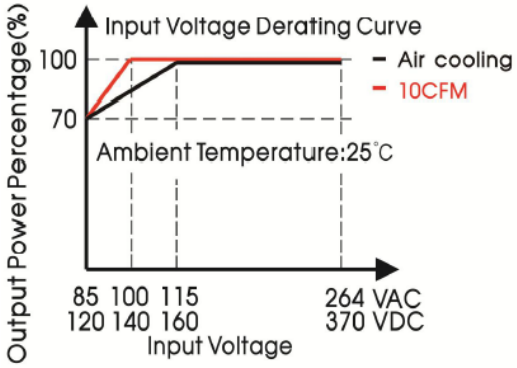
**Due to advances in technology, specifications subject to change without notice.*

CHARACTERISTIC CURVES

Temperature Derating Curve

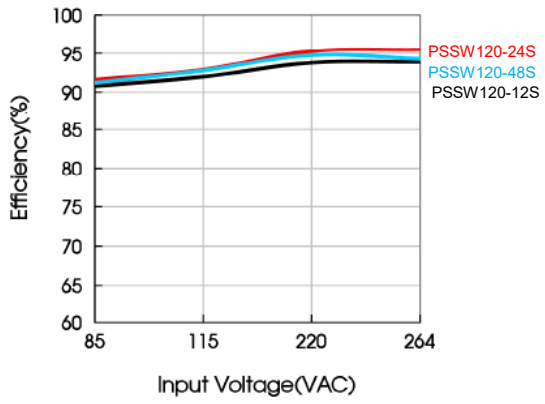


Input Voltage Derating Curve

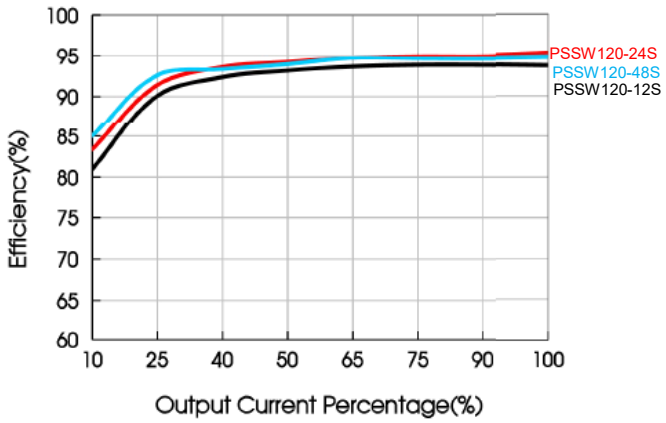


Note: With an AC input voltage between 85 – 115VAC and a DC input between 120-160VDC the output power must be derated as per the temperature derating curves.

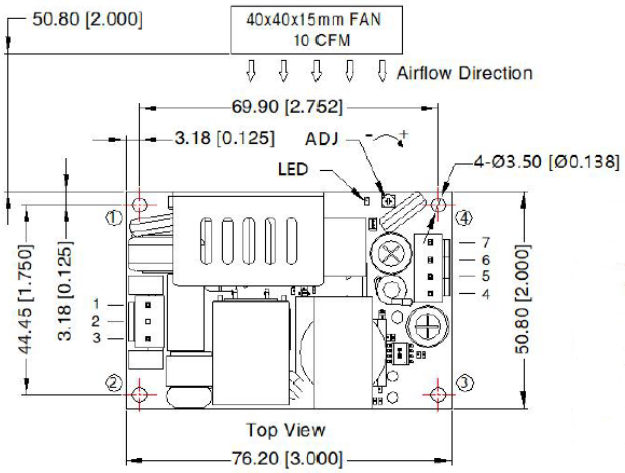
Efficiency vs. Input Voltage (Full Load)

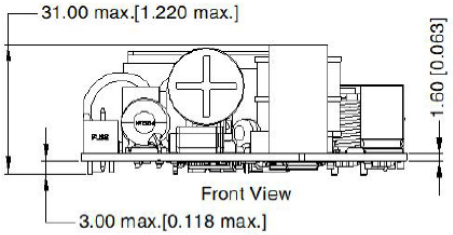


Efficiency vs. Output Load (Vin=230VAC)



MECHANICAL DRAWINGS



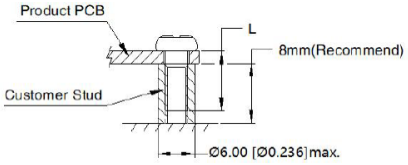


THIRD ANGLE PROJECTION

Pin Out

Pin	Function	Product Connector	Customer Connector
1	AC (N)	JST BP-VH or equivalent	Housing: JST VHR Contact: JST SVH-21T-P1.1 or equivalent
2	NC		
3	AC (L)		
4,5	-Vo	JST B4P-VH or equivalent	Housing: JST VHR Contact: JST SVH-21T-P1.1 or equivalent
6,7	+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]
5.The layout of the device is for reference only, please refer to the actual product.
6. Reserved safety distance between PCB edge and customer components, recommended 10mm.
7. Class I system ①,④ positions must be connected to the earth (⏚)
8. Class II system ①,④ positions must be connected together.

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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