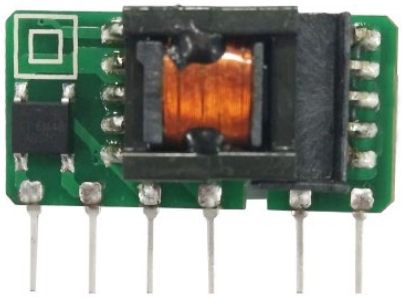


Size: 1.38in x 0.65in x 0.43in
(35mm x 16.45mm x 11mm)

FEATURES

- Ultra Wide Input Voltage Range of 85~305VAC/70~430VDC
- Low Power Consumption, Green Power
- High Efficiency & High Power Density
- Flexible Design of Peripheral Circuit Reduces Layout Problems
- RoHS Compliant
- Over Current and Short Circuit Protection
- Industrial Grade
- See PSLSF03 for 90 Degree Bent Pin Models
- IEC60950, EN60950, UL60950, UL, CE, and CB Approvals

DESCRIPTION

This PSLS03 series of AC/DC converters offers up to 3 watts of output power in a 1.38” x 0.65” x 0.43” SIP model. This series consists of single output models with an ultra-wide input voltage range of 85-305VAC. Each model in this series has low power consumption, high efficiency and high power density, as well as over current and short circuit protection. This series has IEC60950, EN60950, UL60950, UL, CE, and CB approvals.

MODEL SELECTION TABLE

Model Number(1)	Input Voltage Range	Nominal Output Voltage	Output Current	Max. Ripple & Noise	Output Power	Maximum Capacitive Load	Efficiency
PSLS03-15B03S	85-305VAC (70-430VDC)	3.3V	600mA	150mV	1.98W	820uF	65%
PSLS03-15B05S		5V	600mA		3W	680uF	70%
PSLS03-15B09S		9V	333mA		3W	470uF	73%
PSLS03-15B12S		12V	250mA		3W	470uF	74%
PSLS03-15B15S		15V	200mA		3W	330uF	75%
PSLS03-15B24S		24V	125mA		3W	100uF	77%

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage (115V and 230V), <75% Humidity 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		305	VAC
	DC Input		70		430	VDC
Input Frequency			47		63	Hz
Input Current	@115VAC				0.12	A
	@277VAC				0.06	
Inrush Current	@115VAC			13		A
	@277VAC			23		
Recommended External Input Fuse			1A, slow fusing, necessary			
Hot Plug			Unavailable			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy(1)	3.3V Model				±6	%
	5-24V Models				±5	
Line Regulation	Full Load	3.3V Model		±2.5		%
		5-24V Models		±1.5		
Load Regulation	10%-100% Load	3.3-15V Models		±3.0		%
		24V Models		±6.0		
Output Power			See Table			
Output Current			See Table			
Min. Load			10			%
Maximum Capacitive Load			See Table			
Ripple & Noise(2)	20MHz bandwidth (peak to peak value)			80	150	mV
Stand-By Power Consumption	230VAC Input			0.15	0.25	W
Temperature Coefficient				±0.15		%/ºC
PROTECTION						
Short Circuit Protection			Continuous, Self-Recovery			
Over Current Protection	Self-Recovery		110		500	%Io
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature			-40		+85	ºC
Storage Temperature			-40		+105	ºC
Storage Humidity					85	%RH
Power Derating	-40 ~ -20ºC (85-110VAC)		2.0			%/ºC
	+70~85ºC		2.67			
MTBF	MIL-HDBK-217F@25ºC		300,000			Hours

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage (115V and 230V), <75% Humidity 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
GENERAL SPECIFICATIONS						
Efficiency				See Table		
Isolation Voltage	Input-Output, Electric Strength Test for 1 minute		3000			VAC
Switching Frequency					65	kHz
PHYSICAL SPECIFICATIONS						
Weight				0.21oz (6g)		
Dimensions (L x W x H)	SIP Model			1.38in x 0.65in x 0.43in (35mm x 16.45mm x 11mm)		
Cooling				Free Convection		
SAFETY CHARACTERISTICS						
Safety Standards & Certifications		IEC60950, EN60950, UL60950[12]				
Safety Class		Class II				
EMI	CE	CISPR32/EN55032[3] CISPR32/EN55032[4]				Class A Class B
	RE	CISPR32/EN55032[3] CISPR32/EN55032[4]				Class A Class B
ESD	IEC/EN61000-4-2	Contact ±4kV				Perf. Criteria B
RS	IEC/EN61000-4-3	10V/m[4]				Perf. Criteria A
EFT	IEC/EN61000-4-4 IEC/EN61000-4-4	±2kV[3] ±4kV[4]				Perf. Criteria B Perf. Criteria B
Surge	IEC/EN61000-4-5 IEC/EN61000-4-5	Line to line ±1kV[3] Line to line ±1kV/line to ground ±2kV[4]				Perf. Criteria B Perf. Criteria B
CS	IEC/EN61000-4-6	10Vr.m.s[4]				Perf. Criteria A
Voltage Dips, Short Interruptions and Voltage Variations Immunity	IEC/EN61000-4-11	0%, 70%[4]				Perf. Criteria B

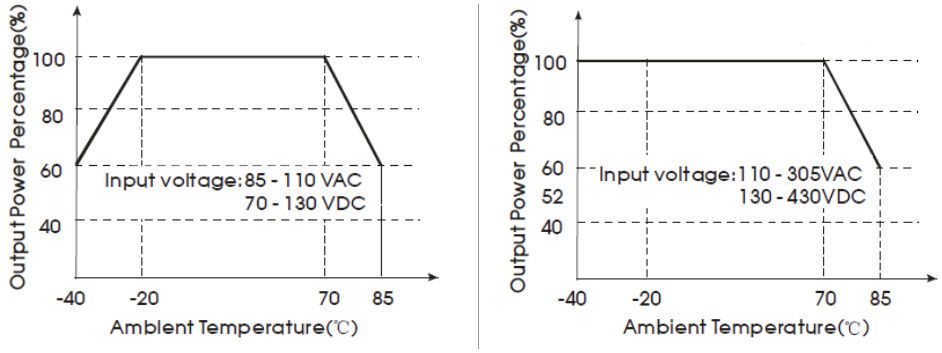
NOTES

1. Used solid-state 270µF/16V for output filter capacitor C2 when operating 3.3V/5V/9V/12V models, especially at temperatures in -20-40ºC range.
2. Ripple & Noise measured by “parallel cable” method.
3. See Fig. 1 for typical application circuit.
4. See Fig. 2 for recommended circuit.
5. External electrolytic capacitors are required to use modules.
6. This part is open frame, at least 6.4mm safety distance between the primary and secondary external components of the module is needed to meet safety requirement.
7. In order to increase the conversion efficiency of the product with light load in the design, the product will have audio noise when it is operating, but it will not affect the product’s reliability and performance.
8. Module requires dispensing fixed after assembly.
9. Product customization available.
10. Products should be classified according to ISO14001 and related environmental laws and regulations and should be handled by qualified units.
11. This product is only suitable for safe use in areas under 2000m above sea level.
12. This product is Listed to applicable standards and requirements by UL.

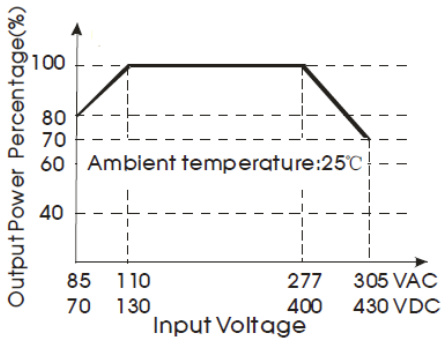
**Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES

Temperature Derating Curves



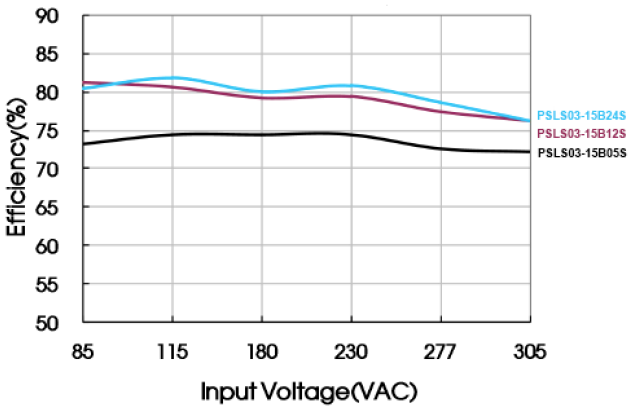
Input Voltage Derating Curve



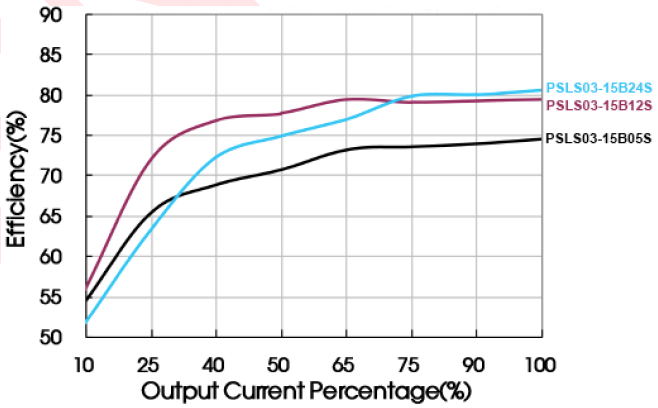
1. Input voltage should be derated based on temperature derating when AC input is between 85-110VAC/277~305VAC and DC input is between 70~130VDC/400~430VDC.
2. This product is suitable for use in natural air cooling environments, if in a closed environment, please contact factory.

EFFICIENCY GRAPHS

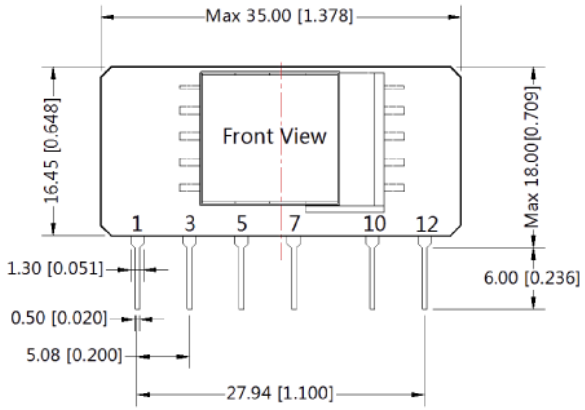
Efficiency vs. Input Voltage (Full Load)

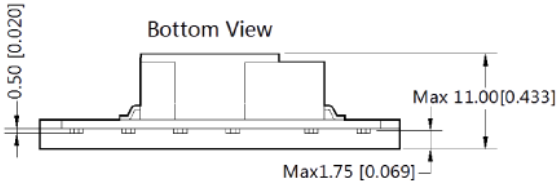


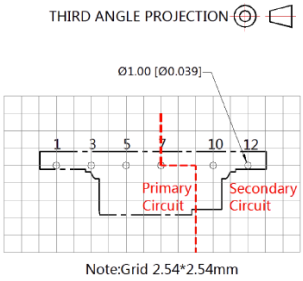
Efficiency vs. Output Load (Vin=230VAC)



MECHANICAL DRAWINGS







Pin-Out	
Pin	Function
1	AC (N)
3	AC (L)
5	+V (cap)
7	-V (cap)
10	-Vo
12	+Vo

1. It is necessary to add C1 between pin5 and pin 7
2. It is necessary to add pi-type filter circuit to the output, such as the typical application in Fig 1.
3. It is necessary to have distance ≥6.4mm for safety between external components in primary circuit and secondary circuit.

Note:
Units in mm [inch]
Pin diameter tolerances: ±0.10[±0.004]
General Tolerances: ±0.50[±0.020]
The layout of the device is for reference only, please refer to the actual product.

DESIGN REFERENCE

1. Typical Application Circuit

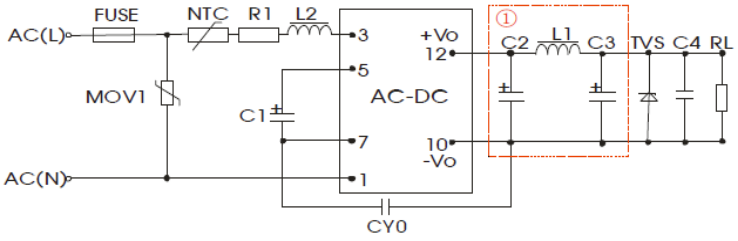


Fig. 1
Note: ①is PI filter circuit.

Model	FUSE (Necessary)	C1 (Necessary)	L2	NTC	C2 (Necessary)	L1 (Necessary)	C3 (Necessary)	C4	CY0	TVS
PSLS03-15B03S	1A/300V	10μF/450V (-20 to +85°C) 22μF/450V (-40 to +85°C)	4.7mH	13D-5	270μF/16V (Solid Capacitor)	4.7μH	120μF/25V	0.1μF/ 50V	1nF/400 VAC	SMBJ7.0A
PSLS03-15B05S							68μF/35V			SMBJ12A
PSLS03-15B09S										
PSLS03-15B12S										SMBJ20A
PSLS03-15B15S					470μF/35V		47μF/35V			
PSLS03-15B24S					220μF/35V					SMBJ30A

Note:
C1: C1 is used as filer capacitor with AC input and as EMC filter capacitor with DC input
R1: R1 is 12Ω/2W current limiting resistance.
An external input NTC (13D-5) is recommended for inrush current limitation and an external MOV (S14K350) for transient suppression.
Output filter: we recommend using an electrolytic capacitor with high frequency, high ripple current and low ESR rating for C2 and C3 refer to manufacturers data sheet. Combined with L1, they form a pi-type filter circuit. Choose a capacitor voltage rating with at least 20% margin (not exceeding 80%). C4 is a ceramic capacitor, used for filtering high frequency noise. A suppressor diode (TVS) is a recommended to protect the application in case of a converter failure.

2. EMC Solution-Recommended Circuit

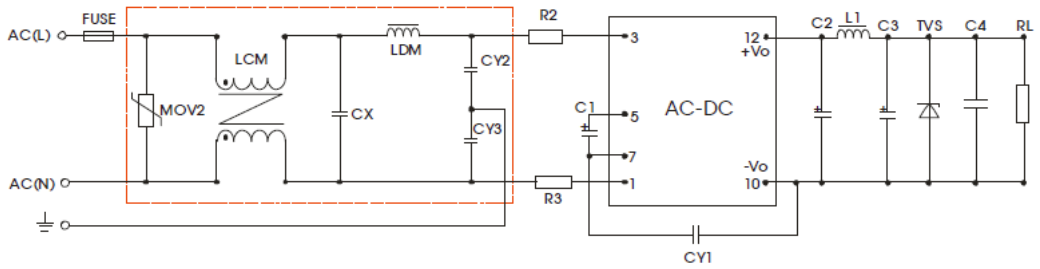


Fig 2

Components	Recommended Parameter
MOV2	S14K350
CY1	2.2nF/400VAC
CY2/CY3	561K/400VAC
CX	0.1μF/310VAC
LCM	3.5mH
LDM	0.33mH
R2/R3	12Ω/2W
FUSE (Required)	1A/300V, Slow Fusing

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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