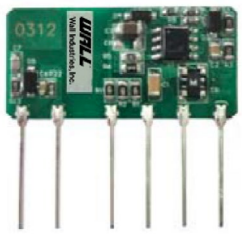
SIP



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

SIP with 90º Bend

Size: 1.38in x 0.71in x 0.43in
(35mm x 18mm 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
- 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 either a SIP model or SIP model with a 90º bend. 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	Ripple & Noise	Output Power	Maximum Capacitive Load	Efficiency
PSLS03-15B03S(-F)	85-305VAC (70-430VDC)	3.3V	600mA	70mV	1.98W	820uF	65%
PSLS03-15B05S(-F)		5V	600mA	70mV	3W	680uF	70%
PSLS03-15B09S(-F)		9V	333mA	50mV	3W	470uF	73%
PSLS03-15B12S(-F)		12V	250mA	50mV	3W	470uF	74%
PSLS03-15B15S(-F)		15V	200mA	50mV	3W	330uF	75%
PSLS03-15B24S(-F)		24V	125mA	50mV	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			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy(2)	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			±2.5		%
Output Power			See Table			
Output Current			See Table			
Min. Load			10			%
Maximum Capacitive Load			See Table			
Ripple & Noise(3)	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, 1 minute Test Time		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)			
	SIP Model with 90º Bend		1.38in x 0.71in x 0.43in (35mm x 18mm x 11mm)			
Cooling			Free Convection			
SAFETY CHARACTERISTICS						
Safety Standards & Certifications	IEC60950, EN60950, UL60950[11]					
Safety Class	Class II					
EMI	CE	CISPR32/EN55032[4] CISPR32/EN55032[5]	Class A Class B			
	RE	CISPR32/EN55032[4] CISPR32/EN55032[5]	Class A Class B			
ESD	IEC/EN61000-4-2	±4kV	Perf. Criteria B			
RS	IEC/EN61000-4-3	10V/m[5]	Perf. Criteria A			
EFT	IEC/EN61000-4-4 IEC/EN61000-4-4	±2kV[4] ±4kV[5]	Perf. Criteria B Perf. Criteria B			
Surge	IEC/EN61000-4-5 IEC/EN61000-4-5	Line to line ±1kV[4] Line to line ±1kV/line to ground ±2kV[5]	Perf. Criteria B Perf. Criteria B			
CS	IEC/EN61000-4-6	10Vr.m.s[5]	Perf. Criteria A			
Voltage Dips, Short Interruptions and Voltage Variations Immunity	IEC/EN61000-4-11	0%, 70%[5]	Perf. Criteria B			

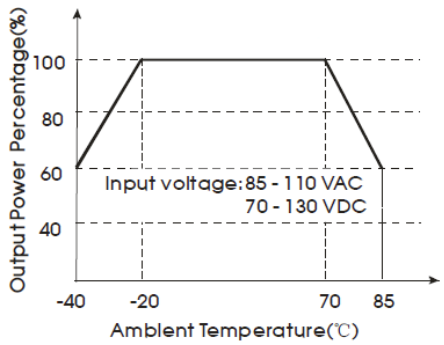
NOTES

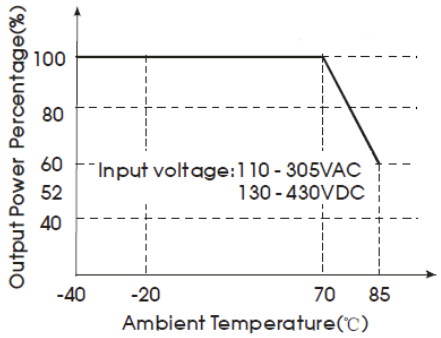
1. Add -F to model name to indicate 90º corner model.
2. When 3.3V/5V/9V/12V models are working in -20-40ºC temperature range output filter capacitor C2 needs 270μF/16V solid-state capacitor.
3. Ripple & Noise are measured by “parallel cable” method.
4. See Fig. 1 for typical application circuit.
5. See Fig. 2 for recommended circuit.
6. External electrolytic capacitors are required to use modules.
7. 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.
8. 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.
9. Module requires dispensing fixed after assembly.
10. Product customization available.
11. This product is Listed to applicable standards and requirements by UL.

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

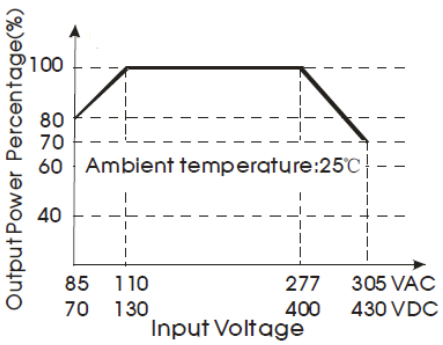
DERATING CURVES

Temperature Derating Curves





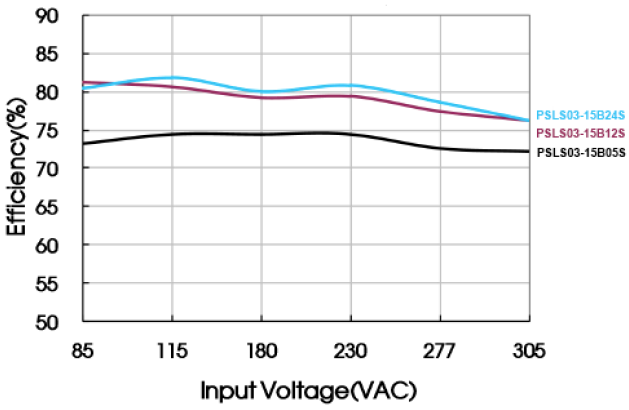
Input Voltage Derating Curve



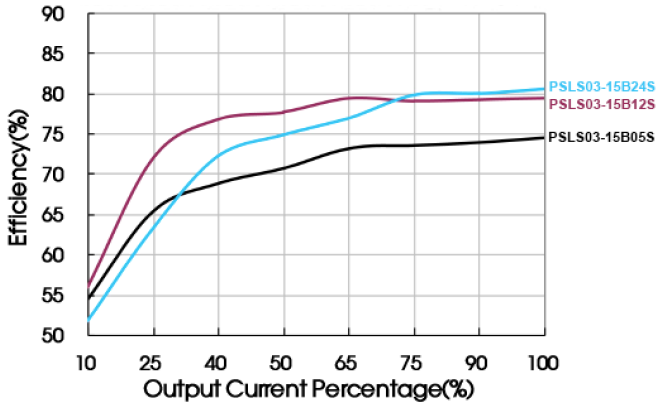
1. Input voltage should be derated based on temperature derating when it is 85-110VAC/277~305VAC/70~130VDC/400~430VDC
2. This product is suitable for use in natureal air cooling environments, if in a closed environment, please contact factory.

EFFICIENCY GRAPHS

Efficiency vs. Input Voltage (Full Load)

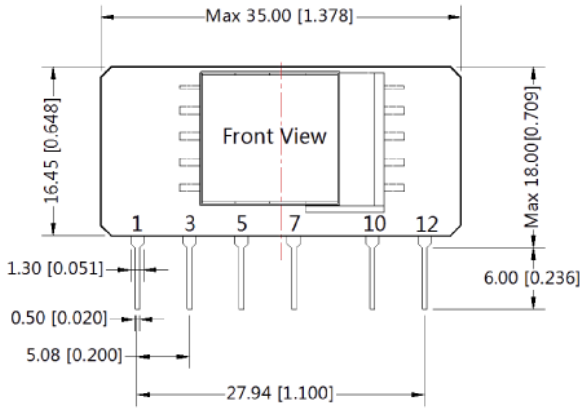


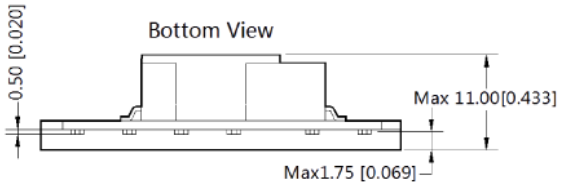
Efficiency vs. Output Load (Vin=230VAC)

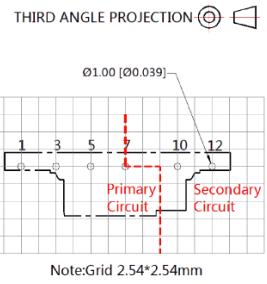


MECHANICAL DRAWINGS

SIP Package







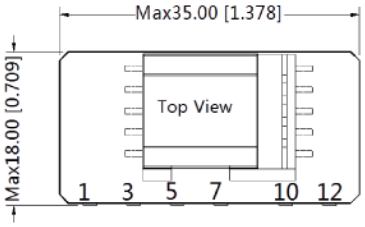
Note:Grid 2.54*2.54mm

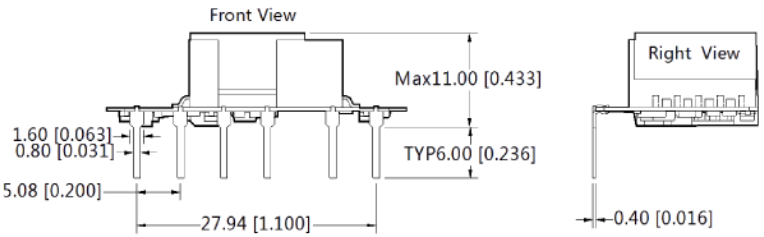
Pin-Out	
Pin	Function
1	AC (N)
3	AC (L)
5	+V (cap)
7	-V (cap)
10	-Vo
12	+Vo

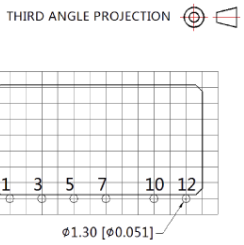
1. It is necessary to add C1 between pin5 and pin 7
2. It is necessary to add pi-type filter circuit to the output, such as the typical application in Fig 1.
3. It is necessary to have distance ≥6.4mm for safety between external components in primary circuit and secondary circuit.

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.

SIP Package with 90ºC Bend







Note: Grid 2.54*2.54mm

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.

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

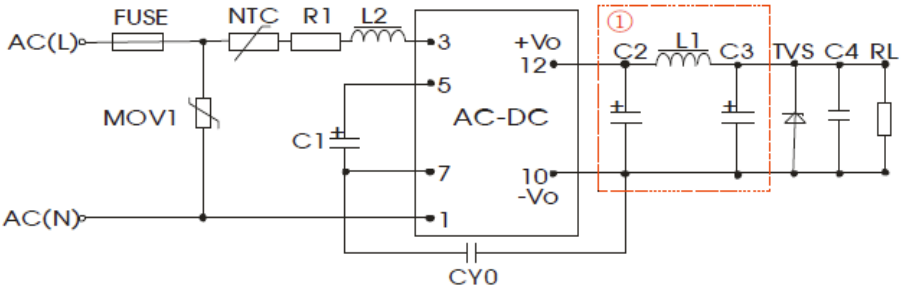


Fig. 1

Note: ①Is PI filter circuit.

Model	FUSE (Necessary)	C1 (Necessary)	L2	NTC	C2 (Necessary)	L1 (Necessary)	C3 (Necessary)	C4	CY0	TVS
PSLS03-15B03S(-F)	1A/300V	10μF/400V (-20 to +85°C) 22μF/450V (-40 to +85°C)	4.7mH	13D-5	270μF16V (Solid Capacitor)	4.7μH	120μF/25V	0.1μF/ 50V	1nF/400 VAC	SMBJ7.0A
PSLS03-15B05S(-F)							68μF/35V			SMBJ12A
PSLS03-15B09S(-F)										
PSLS03-15B12S(-F)										SMBJ20A
PSLS03-15B15S(-F)					470μF/35V		47μF/35V			
PSLS03-15B24S(-F)					220μF/35V					SMBJ30A

Note:

C1: AC Input, C1 is input filer capacitor (required)
DC Input is a filtering capacitor in EMC filter (required)

R1: Limit current resistance, the value of R1 is 12Ω, 2W; if the capacitance value of C1≥22μF, you cannot take.

C2 and C3 are output flier capacitors (required), C2, C3 and L1 form a pi-type filter circuit, they are recommended to be high frequency and low impedance electrolytic capacitors. Capacitance and rated ripple current of capacitors refer to the data sheets provided by factory. Capacitor voltage reduced to at least 80%. C4 is a ceramic capacitor, which is used to filter high frequency noise. Current of L1 and L2 refer to the data sheets provided by factory. Current rating should be 80%. TVS is a recommended component to protect post-circuit (if converter fails). External input NTC model is recommended to use 13D-5. External input MOV model is recommended to us S14K350.

2. EMC Solution-Recommended Circuit

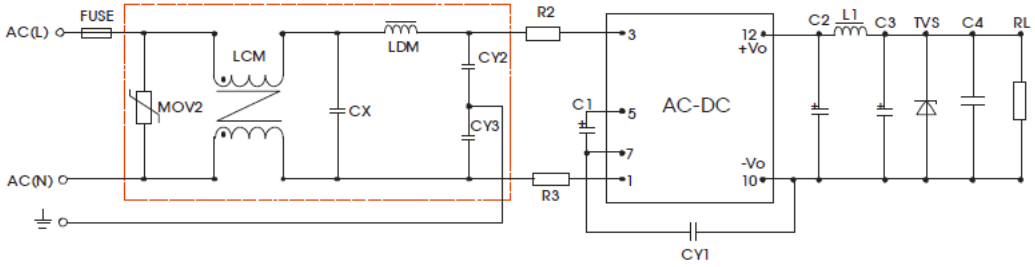


Fig 2

Components	Recommended Parameter
MOV2	S14K350
CY1	2.2nF/400VAC
CY2/CY3	1nF/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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