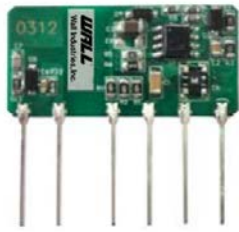


SIP



Size: 1.38in x 0.66in x 0.43in  
(35mm x 16.85mm x 11mm)

SIP with 90° Bend



Size: 1.38in x 0.71in x 0.43in  
(35mm x 18mm x 11mm)



**FEATURES**

- Ultra Wide Input Voltage Range of 85~264VAC/70~400VDC
- Low Power Consumption
- High Efficiency
- High Power Density
- RoHS Compliant
- Over Current and Short Circuit Protection
- Industrial Grade
- Has IEC60950, EN60950, UL60950, UL and CE Safety Approvals

**DESCRIPTION**

This PLS03 series of AC/DC converters offers up to 3 watts of output power in either a SIP model or SIP model with a 90° bend. This series consists of single output models with an ultra-wide input voltage range of 85-264VAC. 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 and CE safety approvals.

**MODEL SELECTION TABLE**

Model Number <sup>(1)</sup>	Input Voltage Range	Nominal Output Voltage	Output Current	Ripple & Noise	Output Power	Maximum Capacitive Load	Efficiency
PSLS03-15B03SR2S(-F)	85-264VAC (70-400VDC)	3.3V	500mA	70mV	1.65W	470uF	63%
PSLS03-15B05SR2S(-F)		5V	500mA	70mV	2.5W	470uF	68%
PSLS03-15B09SR2S(-F)		9V	333mA	50mV	3W	150uF	75%
PSLS03-15B12SR2S(-F)		12V	250mA	50mV	3W	100uF	77%
PSLS03-15B15SR2S(-F)		15V	200mA	50mV	3W	100uF	78%
PSLS03-15B24SR2S(-F)		24V	125mA	50mV	3W	100uF	80%

**SPECIFICATIONS**

All specifications are based on 25°C, Nominal Input Voltage, <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
<b>INPUT SPECIFICATIONS</b>					
Input Voltage Range	AC Input	85		264	VAC
	DC Input	70		400	VDC
Input Frequency		47		440	Hz
Input Current	@115VAC			0.12	A
	@230VAC			0.06	A
Inrush Current	@115VAC		13		A
	@230VAC		23		A
<b>OUTPUT SPECIFICATIONS</b>					
Output Voltage		See Table			
Voltage Accuracy <sup>(2)</sup>	3.3V Model			±8	%
	5-24V Models			±5	%
Line Regulation	Full Load		±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 <sup>(3)</sup>	20MHz bandwidth (peak to peak value)	3-5V Models	70	150	mV
		9-24V Models	50	150	
Stand-By Power				0.5	W
Temperature Coefficient			±0.15		%/°C
<b>PROTECTION</b>					
Short Circuit Protection		Continuous, Self-Recovery			
Over Current Protection		≥110% Io, Self-Recovery			
<b>ENVIRONMENTAL SPECIFICATIONS</b>					
Operating Temperature		-40		+85	°C
Storage Temperature		-40		+105	°C
Storage Humidity				85	%RH
Power Derating	-40~20°C	2			%°C
	+55~85°C	1.33			
MTBF	MIL-HDBK-217F@25°C	300,000			Hours

**SPECIFICATIONS**

All specifications are based on 25°C, Nominal Input Voltage, <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
<b>GENERAL SPECIFICATIONS</b>						
Efficiency			See Table			
Isolation Voltage	Input-Output, 1 minute Test Time		3000			VAC
Switching Frequency					60	kHz
<b>PHYSICAL SPECIFICATIONS</b>						
Weight			0.21oz (6g)			
Dimensions (L x W x H)	SIP Model		1.38in x 0.66in x 0.43in (35mm x 16.85mm x 11mm)			
	SIP Model with 90° Bend		1.38in x 0.71in x 0.43in (35mm x 18mm x 11mm)			
Cooling			Free Convection			
<b>SAFETY CHARACTERISTICS</b>						
Safety Regulated Certification			IEC60950, EN60950, UL60950, UL, CE			
Safety Class			Class II			
EMI	CE	CISPR22/EN55022 CISPR22/EN55022			Class A Class B	
	RE	CISPR22/EN55022 CISPR22/EN55022			Class A Class B	
ESD	IEC/EN61000-4-2	±4kV			Perf. Criteria B	
RS	IEC/EN61000-4-3	10V/m			Perf. Criteria A	
EFT	IEC/EN61000-4-4	±2kV			Perf. Criteria B	
	IEC/EN61000-4-4	±4kV			Perf. Criteria B	
Surge	IEC/EN61000-4-5	±1kV			Perf. Criteria B	
	IEC/EN61000-4-5	±1kV/2kV			Perf. Criteria B	
PFM	IEC/EN61000-4-8	10A/m			Perf. Criteria A	
Voltage Dips, Short Interruptions and Voltage Variations Immunity	IEC/EN61000-4-11	0-70%			Perf. Criteria B	

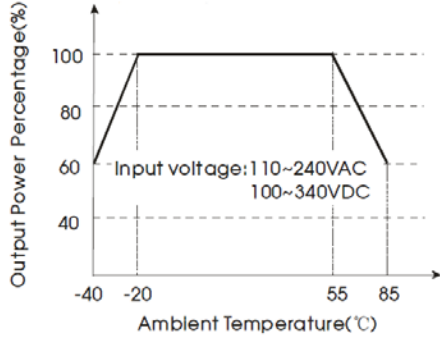
**NOTES**

1. Add -F to model name to indicate 90° corner model.
2. When working in -20-40°C and 55-85°C temperature range output filter capacitor C2 needs 270µF/16V solid-state capacitor.
3. Ripple & Noise are measured by "parallel cable" method.
4. External electrolytic capacitors are required to use modules.
5. 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.
6. 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.
7. Module requires dispensing fixed after assembly.
8. It is recommended to place the insulation sheet between the bottom of the curved legs module and the PCB board. Recommended materials for the FR700, thickness is more than 0.4mm.
9. Product customization available.

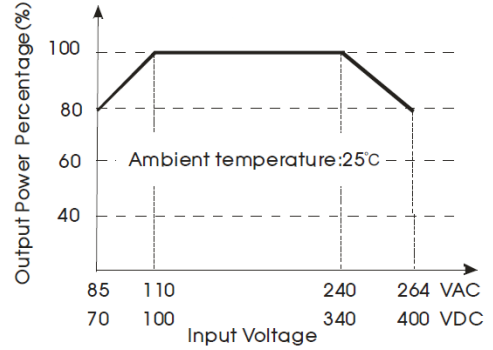
*\*Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES

Temperature Derating Curve



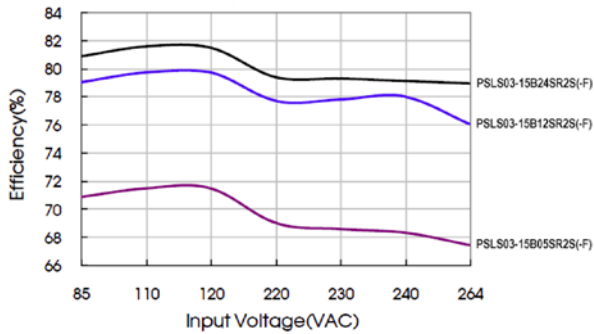
Input Voltage Derating Curve



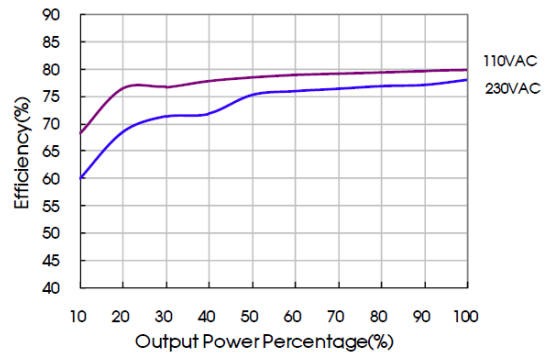
Input voltage should be derated based on temperature derating when it is 85-110VAC/240~264VAC/70~100VDC/340~400VDC. This product is suitable for use in natural air cooling environments, if in a closed environment, please contact factory.

EFFICIENCY GRAPHS

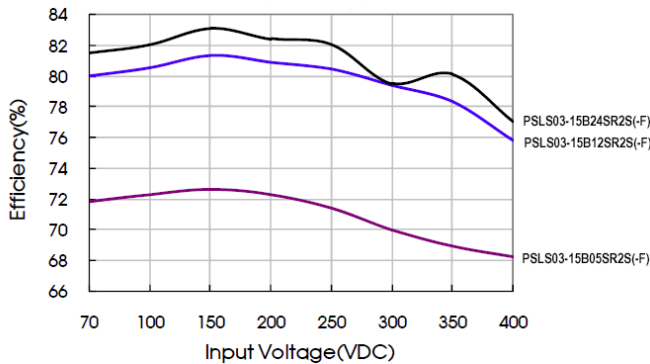
PSLS03-15BXXSR2S(-F) AC Input Efficiency vs. Input Voltage (Full Load)



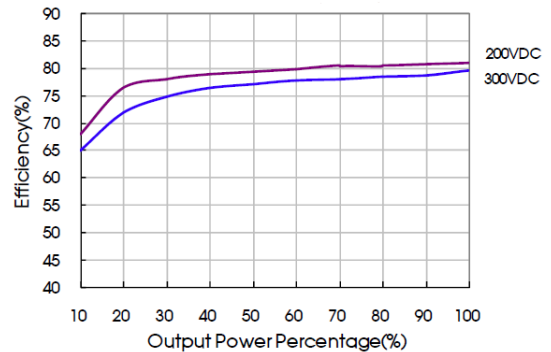
PSLS03-15B12SR2S(-F) AC Input Efficiency vs. Output Load



PSLS03-15BXXSR2S(-F) DC Input Efficiency vs. Input Voltage (Full Load)

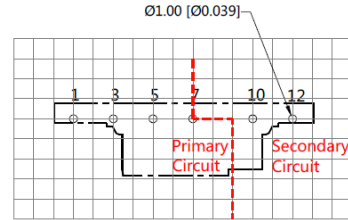
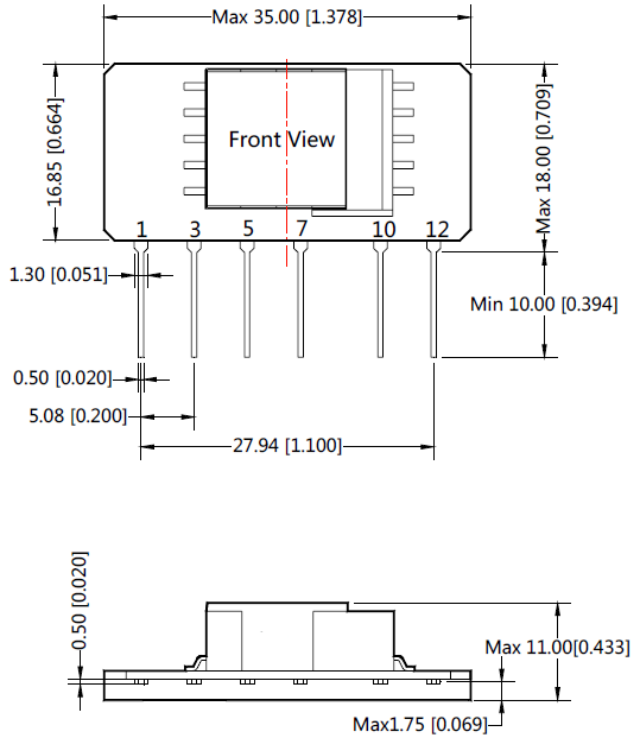


PSLS03-15B12SR2S(-F) DC Input Efficiency vs. Output Load



MECHANICAL DRAWINGS

SIP Package



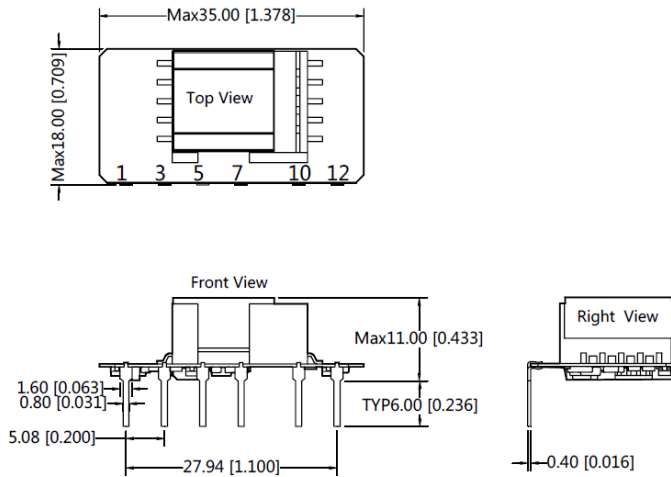
Note: Grid 2.54\*2.54mm

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

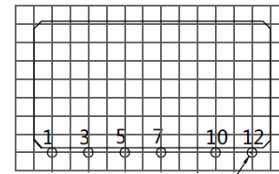
1. It is necessary to add C1 between pin5 and pin 7
2. It is necessary to add pi-type filter circuit to the output, such as the typical application in Fig 1.
3. It is necessary to have distance  $\geq 6.4\text{mm}$  for safety between external components in primary circuit and secondary circuit.

Note:  
Units in mm [inch]  
Pin diameter tolerances:  $\pm 0.10[\pm 0.004]$   
General Tolerances:  $\pm 0.50[\pm 0.020]$

SIP Package with 90°C Bend



THIRD ANGLE PROJECTION



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:  $\pm 0.10[\pm 0.004]$   
General Tolerances:  $\pm 0.50[\pm 0.020]$

DESIGN REFERENCE

1. Typical Application Circuit

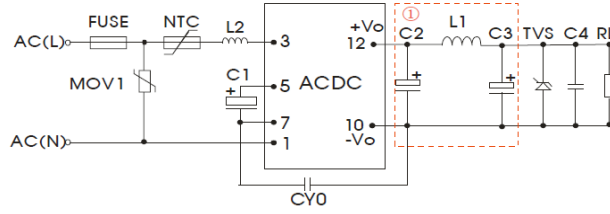


Fig. 1

Note: 1 is Pi filter circuit

Model	FUSE (Required)	C1 (Required)	L2	C2 (Required)	L1 (Required)	C3 (Required)	C4	CY0	TVS
PSLS03-15B03SR2S(-F)	1A/250V	10μF/400V	4.7mH	330μF	2.2μGH	120μF/25V	0.1μF/50V	1nF/400VAC	SMBJ7.0A
PSLS03-15B05SR2S(-F)						68μF/35V			SMBJ12A
PSLS03-15B09SR2S(-F)									SMBJ20A
PSLS03-15B12SR2S(-F)									SMBJ30A
PSLS03-15B15SR2S(-F)									
PSLS03-15B24SR2S(-F)			100μF/35V						

**Note:**  
C1: AC Input, C1 is input filter capacitor (required)  
DC Input is a filtering capacitor in EMC filter, the value of C1 is 10μF/400V (when input voltage is above 370VDC, and the value of C1 is 10μF/450V). C2 and C3 are output filter 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. Voltage derating of capacitors should be 80% or above. 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% or above. 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 use S14K320.

2. EMC Solution-Recommended Circuit

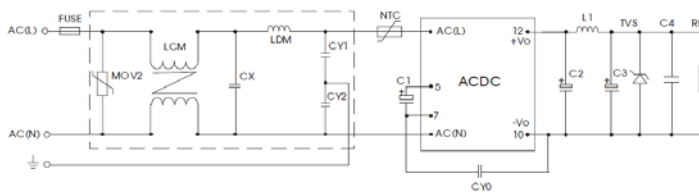


Fig 2

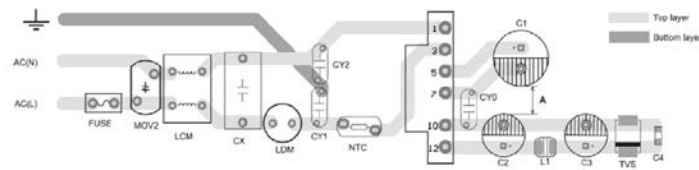


Fig 3

Suggestions for safety regulation and wiring width: wire width ≥3mm, distance between wires ≥6mm, and distance between wire and ground ≥6mm, A≥6.4mm

Components	Recommended Parameter
MOV2	S14K320
CY1	1nF/400VAC
CY2	1nF/400VAC
CX	0.1μF/275VAC
LCM	3.5mH
LDM	0.33mH
NTC	13D-5
FUSE (Required)	1A/250V, 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 ISO9001-2008 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:

Phone: ☎ (603)778-2300  
Toll Free: ☎ (888)597-9255  
Fax: ☎ (603)778-9797  
E-mail: [sales@wallindustries.com](mailto:sales@wallindustries.com)  
Web: [www.wallindustries.com](http://www.wallindustries.com)  
Address: 37 Industrial Drive  
Exeter, NH 03833