

PCB Mount



Size: 3.50 x 2.5 x 0.98in (89 x 63.5 x 25mm)

Chassis Mount



Size: 5.32 x 2.76 x 1.32in (135 x 70 x 33.5mm)

DIN-Rail Mount



Size: 5.32 x 2.76 x 1.36in (135 x 70 x 34.5mm)

OPTIONS

- Mounting Type
 - PCB Mount
 - Chassis Mount
 - DIN Rail Mount

FEATURES

- Wide Input Voltage Range of 85~264VAC (100~370VDC)
- Low Standby Power Consumption
- Conversion Efficiency up to 84%
- High Reliability
- High Safety Isolation
- Short Circuit, Over Current, and Over Voltage Protection
- High Efficiency
- RoHS Compliant
- 3 Year Warranty
- UL60950 & EN60950 Approvals

DESCRIPTION

The PSLH40 series of AC/DC converters offers up to 40 watts of output power in a PCB mount, Chassis Mount, or DIN rail mount package. This series consists of single and dual output models with a wide input voltage range of 85~264VAC (100~370VDC). Features of this series include high reliability, high efficiency, high safety isolation, as well as low standby power consumption. This series also has short circuit, over current, and over voltage protection, it is RoHS compliant, and UL60950 & EN60950 approvals. Please contact factory for order details.

MODEL SELECTION TABLE

Single Output Models

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage	Output Current	Maximum Capacitive Load	Efficiency	Output Power
PSLH40-03Sx	85~264VAC (100~370VDC)	3.3VDC	8000mA	60000µF	78%	26.4W
PSLH40-05Sx		5VDC	8000mA	40000µF	82%	
PSLH40-09Sx		9VDC	4444mA	12000µF	84%	
PSLH40-12Sx		12VDC	3333mA	9000µF	84%	
PSLH40-15Sx		15VDC	2666mA	7000µF	84%	
PSLH40-24Sx		24VDC	1667mA	2000µF	84%	

MODEL SELECTION TABLE

Dual Output Models

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage	Output Current	Maximum Capacitive Load	Efficiency	Output Power
PSLH40-0512Dx	85~264VAC (100~370VDC)	5VDC/12VDC	5000mA/1250mA	10000/470µF	82%	40W
PSLH40-0524Dx		5VDC/24VDC	5000mA/625mA	10000/400µF	82%	
PSLH40-05Dx		±5VDC	4000mA/4000mA	12000/400µF	82%	
PSLH40-12Dx		±12VDC	1666mA/1666mA	4400/4400µF	84%	
PSLH40-15Dx		±15VDC	1333mA/1333mA	1000/1000µF	84%	

SPECIFICATIONS

All specifications are based on 25°C, Humidity <75%, 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	100		370	VDC
Input Frequency		47		440	Hz
Input Current	115VAC			1.0	A
	230VAC			0.6	
Inrush Current	115VAC		30		A
	230VAC		50		
Hot Plug		Unavailable			
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Voltage Accuracy	Single Output Models, PSLH40-05Dx, PSLH40-12Dx, & PSLH40-15Dx		±2		%
	PSLH40-0512Dx & PSLH40-0524Dx	Primary Output	±2		
Line Regulation	Single Output Models, PSLH40-05Dx, PSLH40-12Dx, & PSLH40-15Dx		±0.5		%
	PSLH40-0512Dx & PSLH40-0524Dx	Primary Output	±0.5		
Load Regulation	Single Output Models		±1		%
	PSLH40-05Dx, PSLH40-12Dx, & PSLH40-15Dx (Balanced Load)		±2		
Trim	PSLH40-0512Dx & PSLH40-0524Dx	Primary Output	±2		%
		Secondary Output	±5		
Standby Power Consumption	Single Outputs			±10	W
Output Power		See Table			
Output Current		See Table			
Minimum Load	Single Output Models	0			%
	PSLH40-05Dx, PSLH40-12Dx, & PSLH40-15Dx	10			
	PSLH40-0512x & PSLH40-0524Dx	25			
Maximum Capacitive Load		See Table			
Ripple & Noise ⁽²⁾	20MHz bandwidth		50	100	mV
Cross Regulation	PSLH40-05Dx		±8		%
	PSLH40-12Dx & PSLH40-15Dx		±5		
	PSLH40-0512Dx & PSLH40-0524Dx	Primary Output	±1		
Hold-Up Time	115VAC		15		ms
	230VAC		80		
Temperature Coefficient	Primary Output		±0.02		%/°C
PROTECTION					
Short Circuit Protection		Continuous, Self-Recovery			
Over Current Protection	Self-Recovery		≥110		%Io
Over Voltage Protection	3.3V Output			5.5	V
	5V Output			9	
	9V Output			14	
	12V Output			16	
	15V Output			24	
	24V Output			35	
ENVIRONMENTAL SPECIFICATIONS					
Operating Temperature		-40		+70	°C
Storage Temperature		-40		+85	°C
Storage Humidity				95	%RH
Welding Temperature	Wave-Soldering	260±5°C; time: 5-10s			
	Manual-Welding	360±10°C; time: 3-5s			
Power Derating	-40°C to -30°C	PSLH40-03Sx & PSLH40-05Sx	4.0		%/°C
		PSLH40-09Sx, PSLH40-12Sx, & PSLH40-15Sx	3.0		
	+45°C to +70°C	Dual Output Models	5.0		
		PSLH40-03Sx & PSLH40-05Sx	3.0		
	+55°C to +70°C	PSLH40-09Sx, PSLH40-12Sx, & PSLH40-15Sx	3.7		
		PSLH40-24Sx	2.7		
	Dual Output Models	3.0			
MTBF	MIL-HDBK-217F @25°C	300,000			Hours

SPECIFICATIONS

All specifications are based on 25°C, Humidity <75%, Nominal Input Voltage, and Rated Output Load unless otherwise noted.
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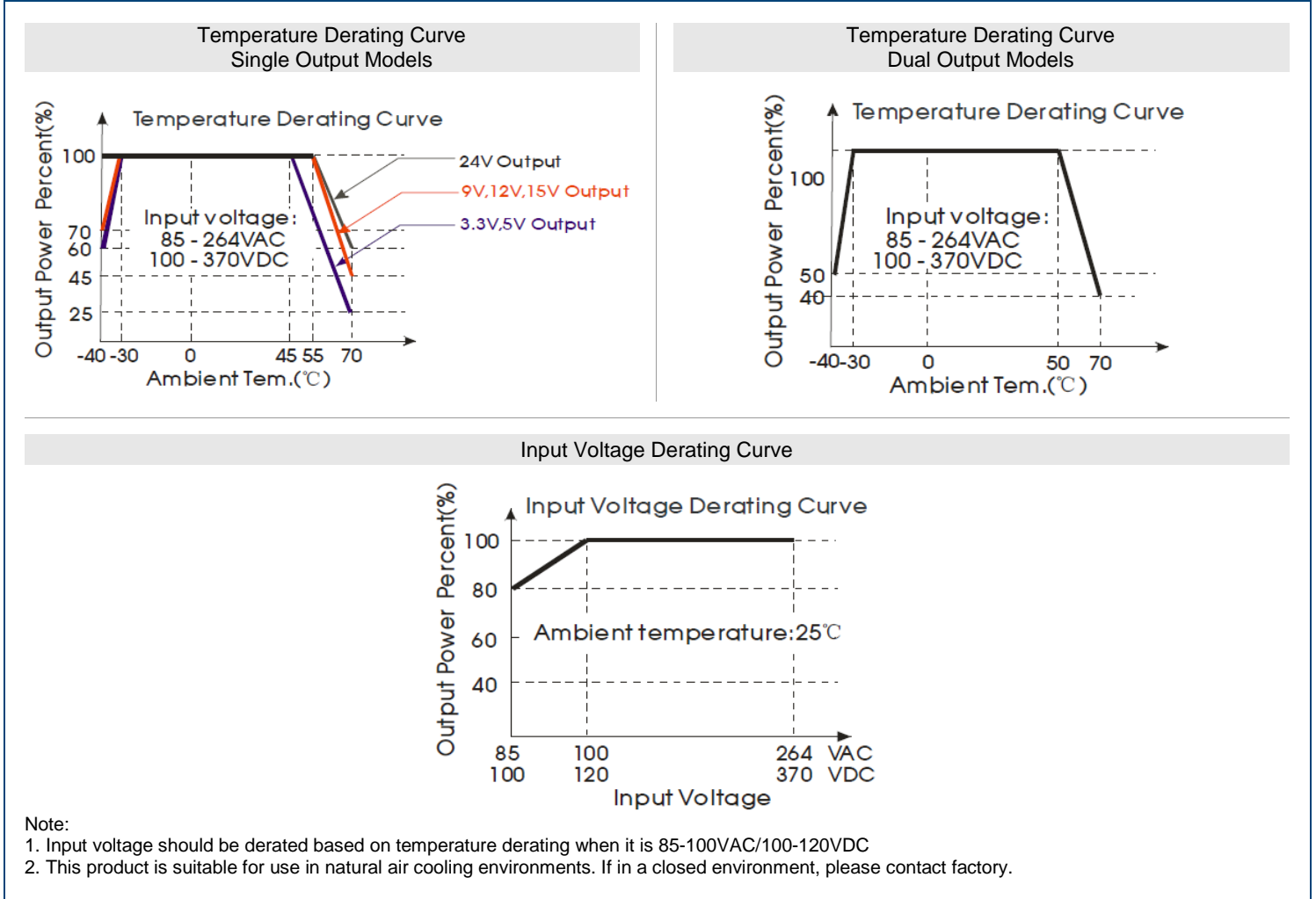
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
GENERAL SPECIFICATIONS						
Typ. Efficiency	230VAC		See Table			
Switching Frequency				65		kHz
Isolation Voltage (Test Time 1 min.)	Input to Output	All Models	3000			VAC
	Output-Output	PSLH40-0512Dx & PSLH40-0524Dx	500			
PHYSICAL SPECIFICATIONS						
Weight	PCB Mount		7.94oz (225g) Typ.			
	Chassis Mount		10.93oz (310g) Typ.			
	DIN-Rail Mount		13.05oz (370g) Typ.			
Dimensions (L x W x H)	PCB Mount		3.50in x 2.5in x 0.98in (89mm x 63.5mm x 25mm)			
	Chassis Mount		5.32in x 2.76in x 1.32in (135mm x 70mm x 33.5mm)			
	DIN-Rail Mount		5.32in x 2.76in x 1.36in (135mm x 70mm x 34.5mm)			
Case Material			Black Flame-Retardant & Heat-Resistant Plastic (UL94V-0)			
Cooling Method			Free Air Convection			
SAFETY CHARACTERISTICS						
Safety Standards			IEC60950/EN60950/UL60950			
Safety Certification			EN60950/UL60950			
Safety Class			Class II			
EMI	CE		CISPR/EN55022		Class B	
	RE		CISPR/EN55022		Class B	
EMS	ESD	IEC/EN61000-4-2	Contact±6kV/Air±8kV		Perf. Criteria B	
	RS	IEC/EN61000-4-3	10V/m		Perf. Criteria A	
	EFT	IEC/EN61000-4-4	±2kV		Perf. Criteria B	
			±4kV ⁽³⁾		Perf. Criteria B	
	Surge	IEC/EN61000-4-5	Line to Line ±1kV/line to ground ±2kV Line to Line ±2kV/line to ground ±4kV ⁽³⁾		Perf. Criteria B	
	CS	IEC/EN61000-4-6	10Vr.m.s		Perf. Criteria A	
	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

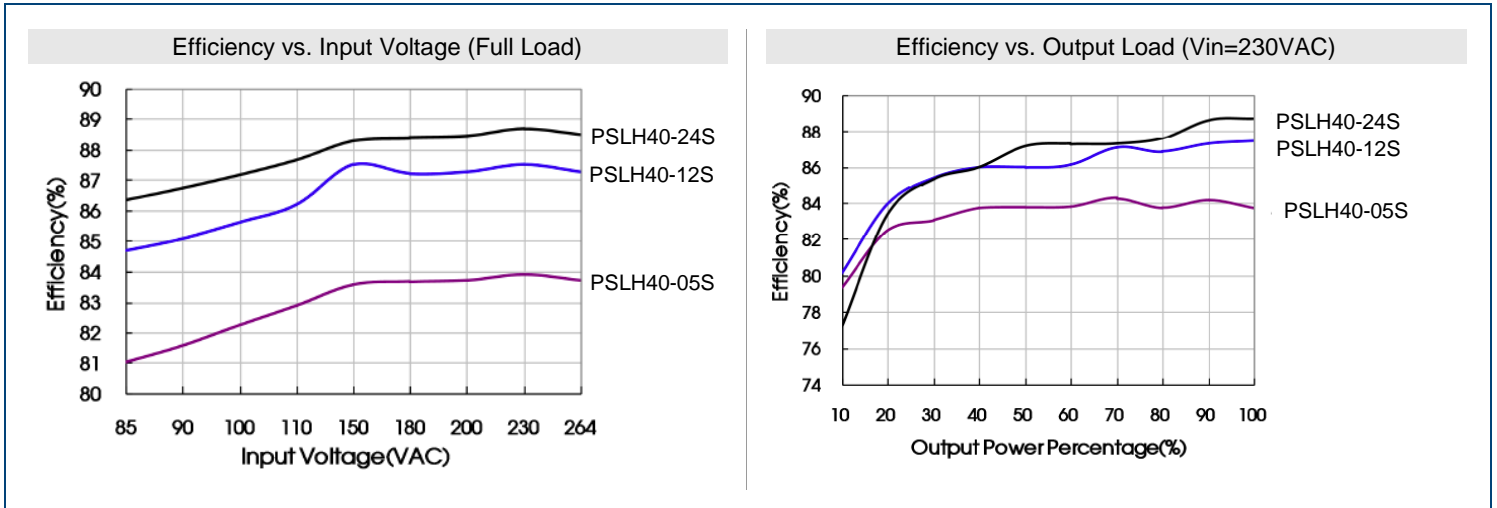
1. "X" in model number indicates package mount type. "X" can be "A1" for PCB Mount, "A2" for Chassis Mount, or "A4" for DIN Rail Mount.
2. Ripple and noise are measured by "parallel cable" method.
3. See EMC solution-recommended circuit for recommended circuit.
4. Customization available.

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

DERATING CURVES



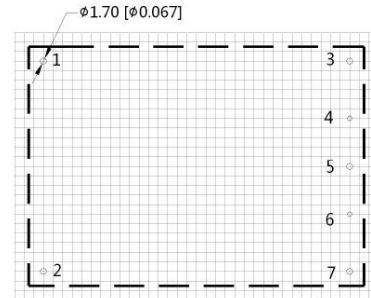
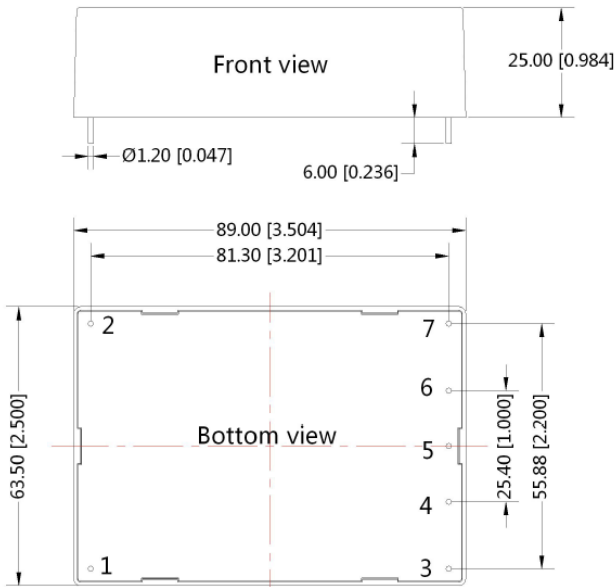
EFFICIENCY GRAPHS



MECHANICAL DRAWINGS

PCB Mount ("A1" Suffix)

THIRD ANGLE PROJECTION



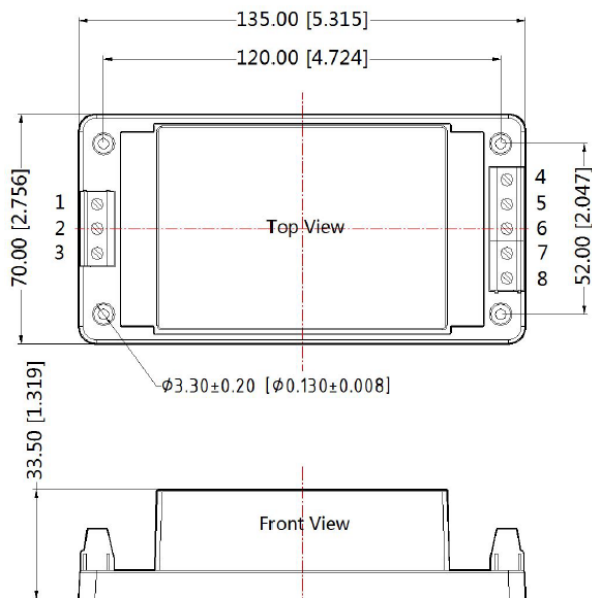
Pin-Out

Pin	Single Outputs	PSLH40-0512DA1, PSLH40-0524DA1	Other Dual Models
1	AC(L)	AC(L)	AC(L)
2	AC(N)	AC (N)	AC(N)
3	+Vo	+Vo2	+Vo
4	No Pin	+Vo1	No Pin
5	-Vo	-Vo2	COM
6	No Pin	-Vo1	No Pin
7	Trim	No Pin	-Vo

Note:
Unit: mm [inch]
Pin Diameter Tolerances: ± 0.10 [± 0.004]
General Tolerances: ± 0.50 [± 0.020]

Chassis Mount ("A2" Suffix)

THIRD ANGLE PROJECTION

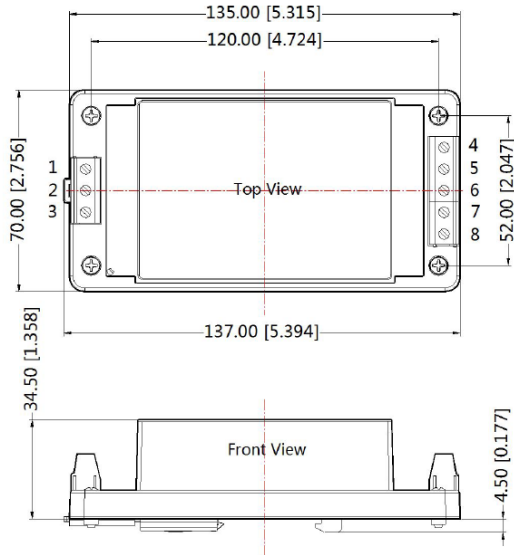


Pin-Out

Pin	Single Outputs	PSLH40-0512DA2, PSLH40-0524DA2	Other Dual Models
1	AC (L)	AC (L)	AC (L)
2	AC (N)	AC (N)	AC (N)
3	NC	NC	NC
4	+Vo	+Vo2	+Vo
5	NC	+Vo1	NC
6	-Vo	-Vo2	COM
7	NC	-Vo1	NC
8	Trim	NC	-Vo

Note:
Unit: mm [inch]
Wire range: 24-12AWG
Tightening Torque: Max 0.4 N·m
General Tolerances: ± 1.00 [± 0.040]

DIN-Rail Mount ("A4" Suffix)



THIRD ANGLE PROJECTION

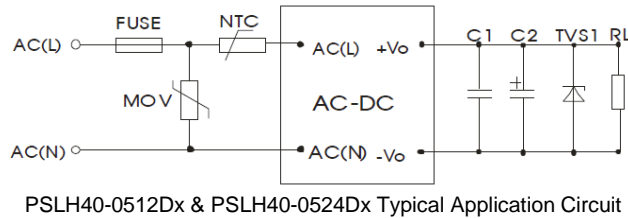
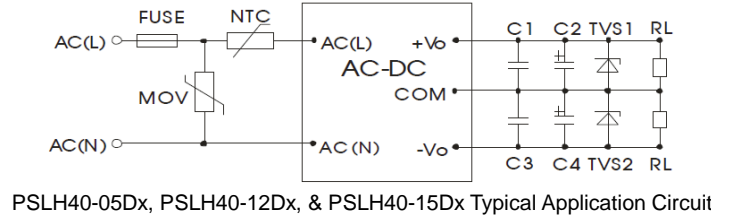
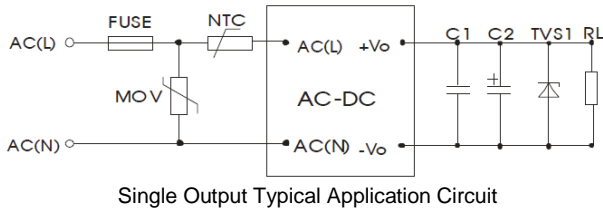
Pin-Out

Pin	Single Outputs	PSLH40-0512DA2, PSLH40-0524DA2	Other Dual Models
1	AC (L)	AC (L)	AC (L)
2	AC (N)	AC (N)	AC (N)
3	NC	NC	NC
4	+Vo	+Vo2	+Vo
5	NC	+Vo1	NC
6	-Vo	-Vo2	COM
7	NC	-Vo1	NC
8	Trim	NC	-Vo

Note:
Unit: mm[inch]
Wire Range: 24-12AWG
Tightening Torque: Max 0.4 N-m
Mounting Rail: TS35, Rail Needs to Connect Safety Ground
General Tolerances: ±1.00 [±0.040]

DESIGN REFERENCE

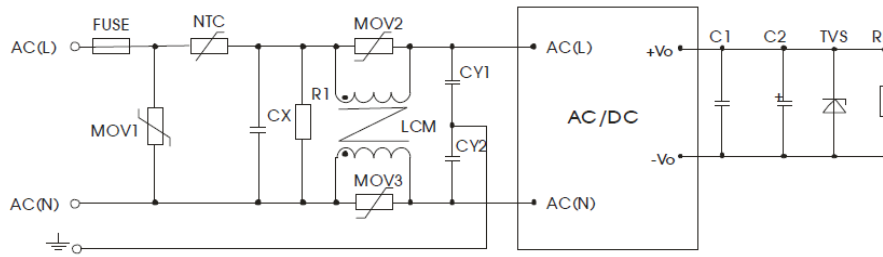
1. Typical Application Circuit



Model	C2 (uF)	C4 (uF)	C1, C3 (uF)	TVS1	TVS2
PSLH40-03Sx	680	-	1	SMBJ7.0A	-
PSLH40-05Sx	680	-	1	SMBJ7.0A	-
PSLH40-09Sx	330	-	1	SMBJ12A	-
PSLH40-12Sx	220	-	1	SMBJ20A	-
PSLH40-15Sx	220	-	1	SMBJ20A	-
PSLH40-24Sx	120	-	1	SMBJ30A	-
PSLH40-0512Dx	680	220	1	SMBJ7.0A	SMBJ20A
PSLH40-0524Dx	680	120	1	SMBJ7.0A	SMBJ30A
PSLH40-05Dx	680	680	1	SMBJ7.0A	SMBJ7.0A
PSLH40-12Dx	220	220	1	SMBJ20A	SMBJ20A
PSLH	220	2200	1	SMBJ20A	SMBJ20A

Note: Output filtering capacitor C2, C4 are electrolytic capacitors. It is recommended to apply electrolytic capacitor with high frequency and low resistance. For capacitance and current of capacitor, please refer to datasheet. Capacitance withstand voltage derating should be 80% or above. C1, C3 are ceramic capacitor, which is used to high-frequency noise. TVS is a recommended component to protect post-circuits if converter fails. For external input FUSE model, it is recommended to use 3.15A/250VAC, slow fusing. External input NTC model is recommended to use 5D-9. Recommended external input MOV model is S10K300.

2. EMC Solution-Recommended Circuit

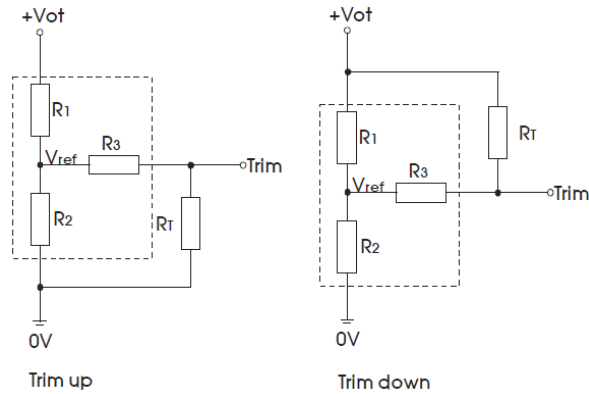


Output external circuit refer to the typical application circuit

Element Model	Recommended Value
MOV1	S14K350
MOV2, MOV3	S07K350
CX	0.15μF/300VAC
CY1	2.2nF/400VAC
CY2	2.2nF/400VAC
R1	1MΩ/2W
LCM	2.2mH*
NTC	5D-14
FUSE	3.15A/250V, slow fusing, necessary

*Contact factory for recommendation

3. Application of Trim and Calculation of Trim Resistance



Applied circuits of Trim (Part in broken line is the interior of models)

Calculation Formula of Trim Resistance:

Up: $R_T = \frac{aR_2}{R_2 - a} - R_3$ $a = \frac{V_{ref}}{V_{ot} - V_{ref}} \cdot R_1$

R_T is Trim resistance
 a is a self-defined parameter, with no real meaning.

Down: $R_T = \frac{aR_1}{R_1 - a} - R_3$ $a = \frac{V_{ot} - V_{ref}}{V_{ref}} \cdot R_2$

Vout	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref(V)	Vout(V)
3.3V	2	1.2	1	1.24	Output Voltage After Regulation, Variation $\leq \pm 10\%$
5V	3.3	3.3	1	2.5	
9V	4.7	1.8	1	2.5	
12V	3.83	1	1	2.5	
15V	4.99	1	1	2.5	
24V	8.66	1	1	2.5	

MODEL NUMBER SETUP

PSLH	40	-	05	S	X
Series Name	Output Power		Output Voltage	Output Quantity	Mount Option
			03: 3.3VDC 05: 5VDC 12: 12VDC 15: 15VDC 24: 24VDC 0512: 05VDC/12VDC 0524: 05VDC/24VDC 05: ±5VDC 12: ±12VDC 15: ±15VDC	S: Single D: Dual	A1: PCB Mount A2: Chassis Mount A4: DIN Rail Mount

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:

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