

Horizontal Model



Size: 2.73 x 1.53 x 0.94in (69.5 x 39 x 24mm)

Chassis Mount ("A2" Suffix)



*With blue PCB
Size: 3.78 x 2.12 x 1.22in (96.1 x 54 x 31mm)

DIN Rail ("A4" Suffix)



*With blue PCB
Size: 3.78 x 2.12 x 1.40in (96.1 x 54 x 35.6mm)

OPTIONS

- Case Type
 - Horizontal Package
 - Chassis Mount
 - DIN Rail

FEATURES

- Ultra-Wide Input Voltage Range 85~305VAC (100~430VDC)
- High Efficiency
- Compact Size, High Power Density
- RoHS Compliant
- High I/O Isolation Test Voltage up to 4200VAC
- 5000m Altitude Application
- Short Circuit, Over Current, and Over Voltage Protection
- OVC III (Meets EN62477, 5000m Altitude)
- Meets Emissions Class B and Surge ±2KV Without Additional Circuits
- IEC/UL62368-1, EN62368-1, and BS EN 62368-1 Safety Approvals
- Design Refers to IEC/EN60335-1, IEC/EN62477-1, EN61558-1

APPLICATIONS

- Industrial
- Home Appliances
- Instrumentation
- Communication
- Civil Applications

DESCRIPTION

The PSDAL40 series of AC/DC converters offers up to 40 watts of output power in either a horizontal, chassis mount, or DIN rail package. This series consists of single output models with an ultra-wide 85-305VDC (100~430VDC) input range. Features of this series include short circuit, over current, and over voltage protection and high efficiency. This series is RoHS compliant, has IEC/UL62368-1, EN62368-1, and BS EN 62368-1 safety approvals, and it is designed to meet IEC/EN60335-1, IEC/EN62477-1, EN61558-1 safety approvals.

MODEL SELECTION TABLE

Model Number ⁽¹⁾	Input Voltage Range	Output Voltage	Output Current	Maximum Capacitive Load	Typ. Efficiency	Output Power	Max. Ripple & Noise	Certification
PSDAL40-05S	85~305VAC (100~430VDC)	5V	7000mA	6600µF	86%	35W	150mV	IEC/UL/EN
PSDAL40-12S		12V	3330mA	4400µF	89%	40W		
PSDAL40-15S		15V	2666mA	3000µF	90%	40W		
PSDAL40-24S		24V	1670mA	1500µF	89%	40W		
PSDAL40-48S		48V	833mA	470µF	90%	40W		

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				Unit
		Min	Typ	Max	
INPUT SPECIFICATIONS					
Input Voltage Range	AC Input	85		305	VAC
	DC Input	100		430	VDC
Input Frequency		47		63	Hz
Input Current	115VAC			1.0	A
	230VAC			0.6	
Inrush Current	115VAC		30		A
	230VAC		60		
Leakage Current	277VAC/50Hz	0.1mA RMS max.			
Recommended External Input Fuse		3.15A/300V, slow-blow, required			
Hot plug		Unavailable			

SPECIFICATIONS

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SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit	
OUTPUT SPECIFICATIONS						
Output Voltage		See Table				
Voltage Accuracy			±2		%	
Line Regulation	Full Load		±0.5		%	
Load Regulation	0%-100% Load	5V	±2		%	
		12V/15V/24V/48V	±1			
Output Power		See Table				
Output Current		See Table				
Minimum Load		0			%	
Maximum Capacitive Load		See Table				
Ripple & Noise ⁽²⁾	20MHz Bandwidth (peak-to-peak value)		100	150	mV	
Stand-by Power Consumption			0.3	0.55	W	
Hold-Up Time	115VAC Input		8		ms	
	230VAC Input		50			
Temperature Coefficient			±0.02		%/°C	
PROTECTION						
Short Circuit Protection		Hiccup, Continuous, Self-Recovery				
Over Current Protection		≥130%Io, self-recovery				
Over Voltage Protection	Hiccup or Clamp	5VDC	≤6.3		VDC	
		12VDC	≤16			
		15VDC	≤25			
		24VDC	≤35			
		48VDC	≤60			
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature		-40		+85	°C	
Storage Temperature		-40		+85	°C	
Storage Humidity				95	%RH	
Soldering Temperature	Wave-Soldering	260±5°C; time: 5-10s				
	Manual-Welding	360±10°C; time: 3-5s				
Power Derating	-40°C to -25°C (85-200VAC Input)	4			% / °C	
	+50°C to 70°C	2.5				
	+70°C to +85°C	1.67				
	85VAC-100VAC	1.33				% / VAC
	277VAC-305VAC	0.71				
Altitude Derating	2000-5000m	6.67			% / Km	
MTBF	MIL-HDBK-217F @25°C		≥500,000		h	
GENERAL SPECIFICATIONS						
Efficiency	230VAC	See Table				
Isolation	Input-Output, Electric Strength Test for 1min, leakage current <5mA	4200			VAC	
Insulation Resistance	Input-Output, at 500VDC	100			MΩ	
PHYSICAL SPECIFICATIONS						
Weight	Horizontal Package	3.5oz (100g)				
	Chassis Mount Package ("A2" Suffix)	5.19oz (147g)				
	DIN Rail Mount Package ("A4" Suffix)	6.7oz (190g)				
Dimensions (L x W x H)	Horizontal Package	2.74in x 1.54in x 0.95in (69.5mm x 39mm x 24mm)				
	Chassis Mount Package ("A2" Suffix)	3.78in x 2.13in x 1.22in (96.1mm x 54mm x 31mm)				
	DIN Rail Mount Package ("A4" Suffix)	3.78in x 2.13in x 1.40in (96.1mm x 54mm x 35.6mm)				
Cooling Method		Free Air Convection				
Case Material		Black Plastic, Flame-Retardant and Heat-Resistant (UL94V-0)				

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.

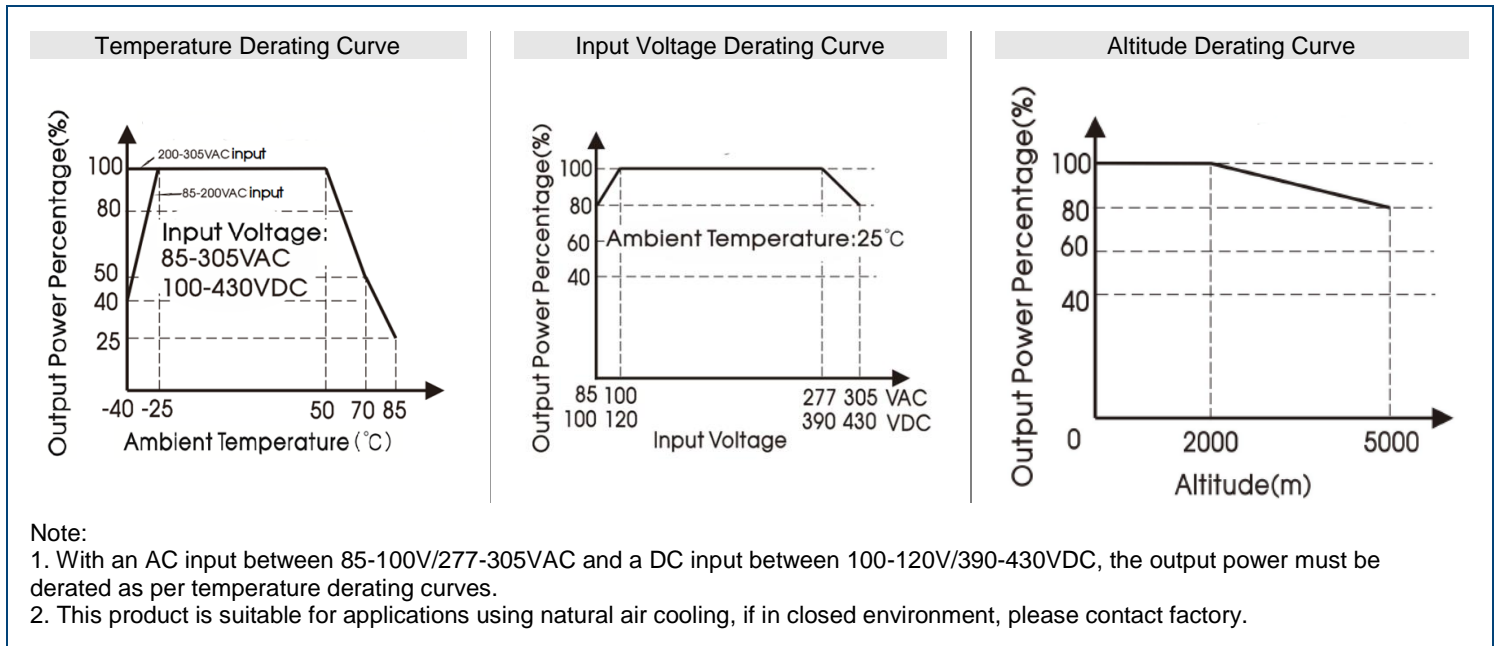
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
SAFETY CHARACTERISTICS						
Safety Standards ⁽²⁾	Approved to		IEC/UL62368-1, EN62368-1 & BS EN 62368-1			
	Design refers to		IEC/EN60335-1, IEC/EN62477-1, EN61558-1			
Safety Class			Class II			
EMI	CE	CISPR32/EN55032	Class B			
	RE	CISPR32/EN55032	Class B			
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV /Air ±8KV		Perf. Criteria A	
	RS	IEC/EN61000-4-3	10V/m		Perf. Criteria A	
	EFT	IEC/EN61000-4-4	±2kV		Perf. Criteria A	
		IEC/EN61000-4-4	±4kV ⁽²⁾		Perf. Criteria A	
	Surge	IEC/EN61000-4-5	Line to Line ±2kV		Perf. Criteria A	
		IEC/EN61000-4-5	line to line ±2KV/line to PE ±4KV ⁽²⁾		Perf. Criteria A	
	CS	IEC/EN61000-4-6	10Vr.m.s		Perf. Criteria A	
Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11	0%, 70%		Perf. Criteria B		

NOTES

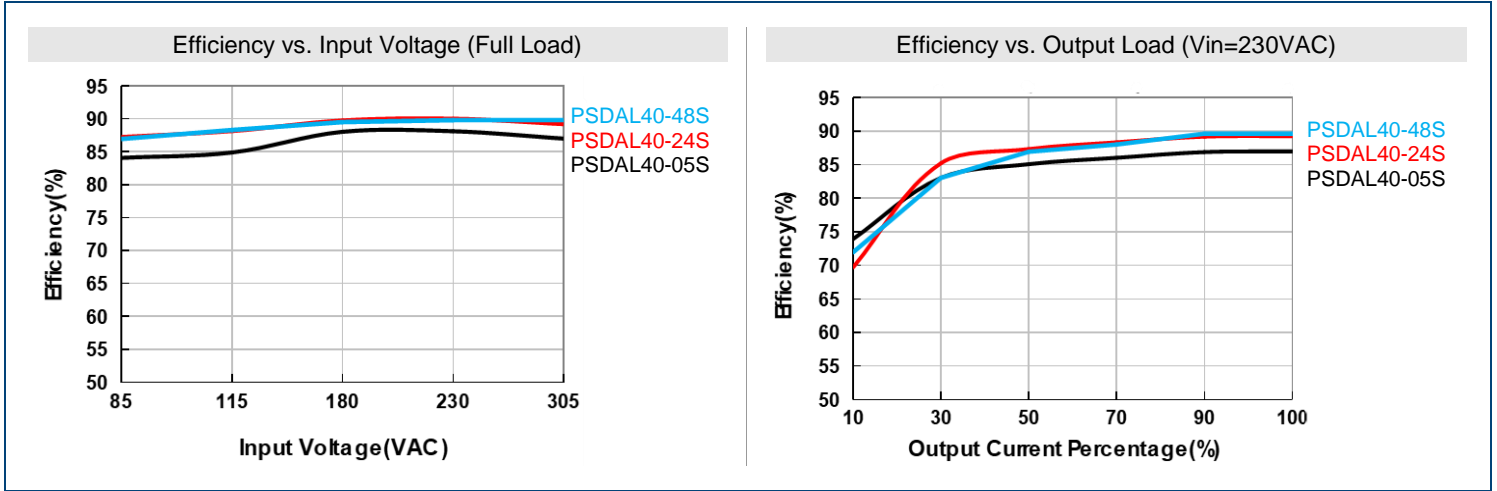
1. Chassis mount and DIN rail models are available for this series. To indicate chassis mount model, add "A2" to product model number. To indicate DIN Rail model, add "A4" to product model number.
2. Parallel cable method is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor, please contact factory for more information.
3. See Fig. 2 for recommended circuit.
4. If product is not operated within required load range, it is not guaranteed that the product performance will comply with all parameters in the datasheet.
5. Products classified according to ISO14001 and related environmental laws and regulations. It should be handled by qualified units.
6. Customization available.

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

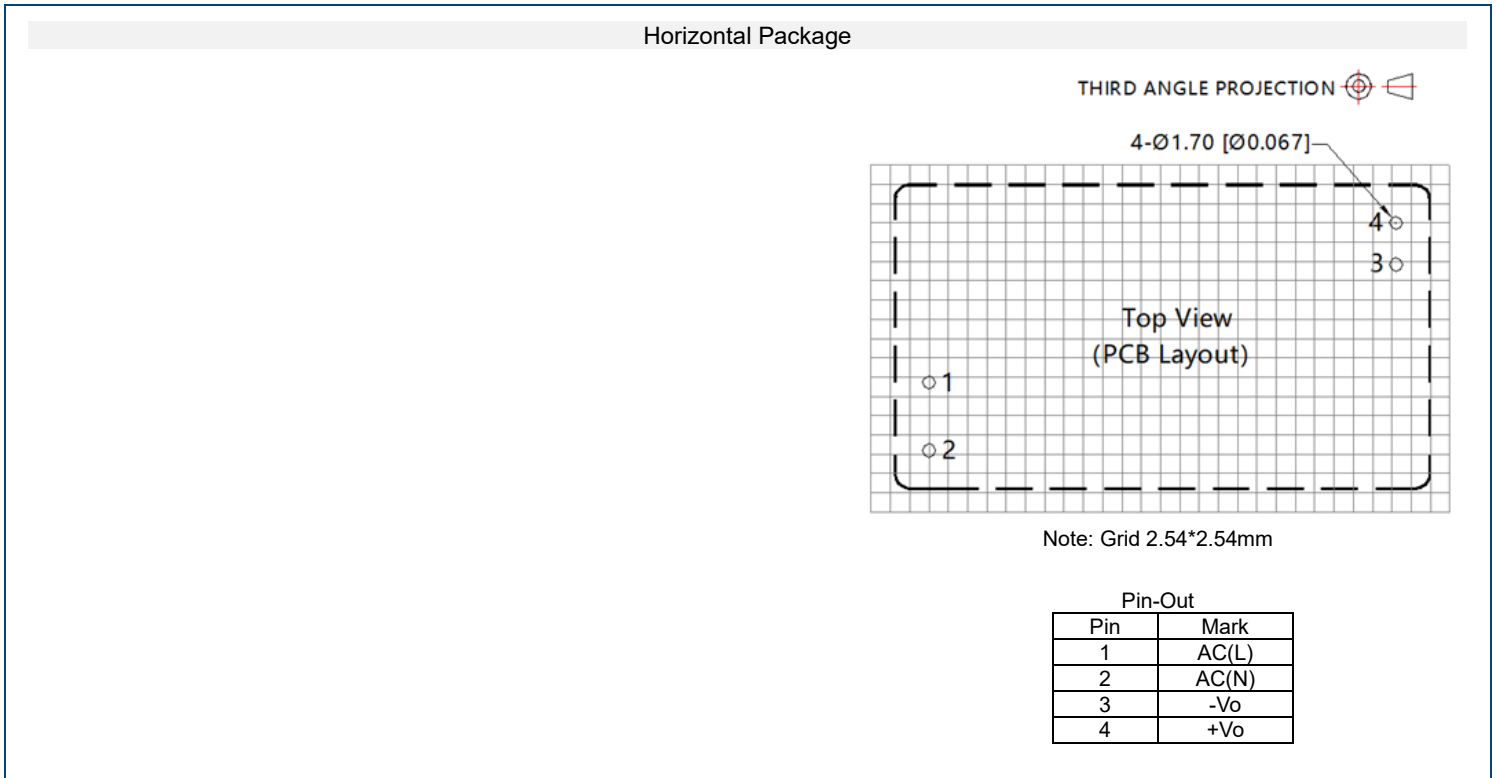
DERATING CURVES

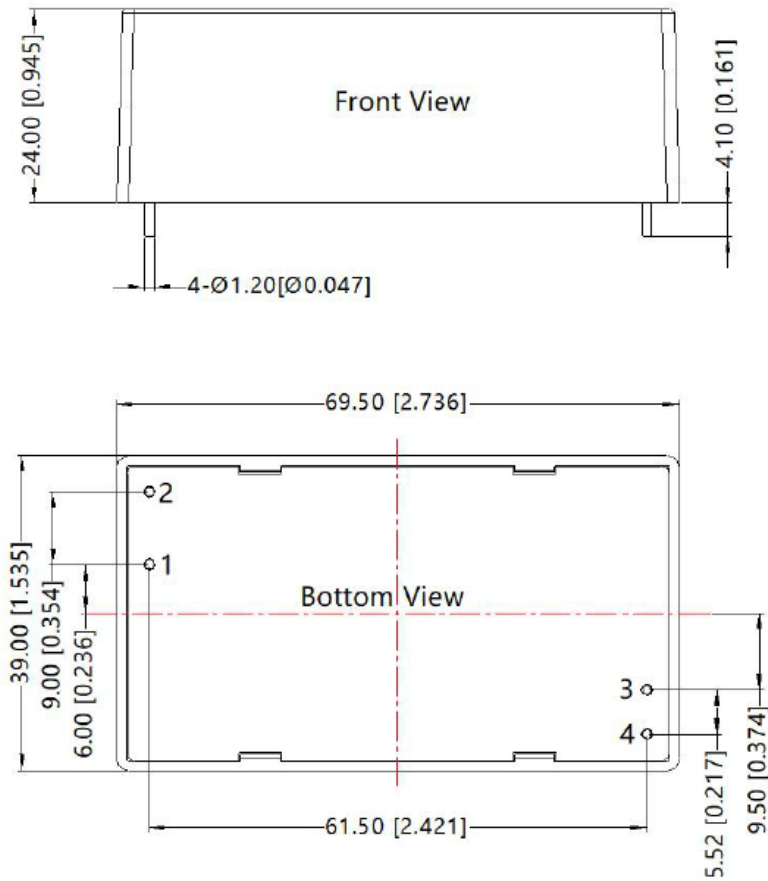


EFFICIENCY GRAPHS



MECHANICAL DRAWINGS





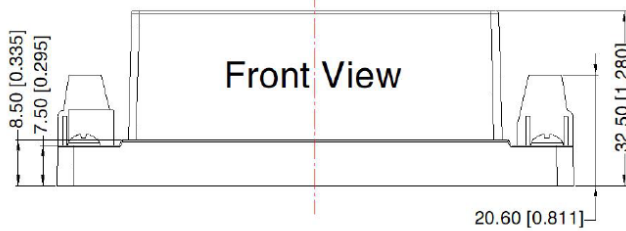
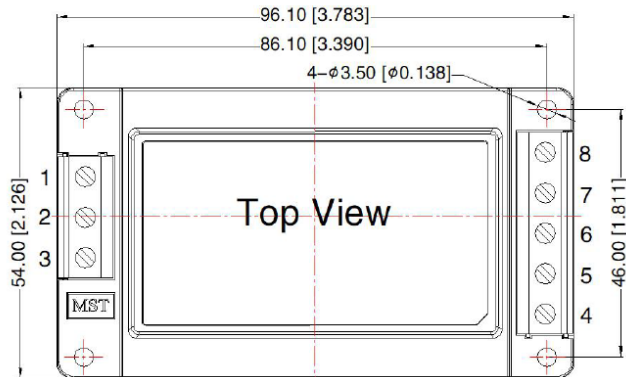
Note:
Unit: mm [inch]
Pin diameter tolerances: ± 0.10 [± 0.004]
General tolerances: ± 0.50 [± 0.020]

Chassis Mount Package ("A2" Suffix)

THIRD ANGLE PROJECTION

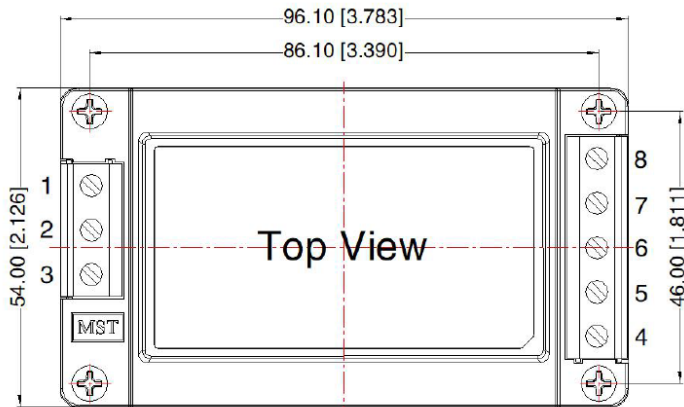
Pin-Out

Pin	Function
1	NC
2	AC(N)
3	AC(L)
4	+Vo
5	NC
6	NC
7	NC
8	-Vo



Note:
Unit: mm [inch]
Wire Range: 24-12AWG
Tightening Torque: Max 0.4N·m
General tolerances: ±1.00 [±0.039]

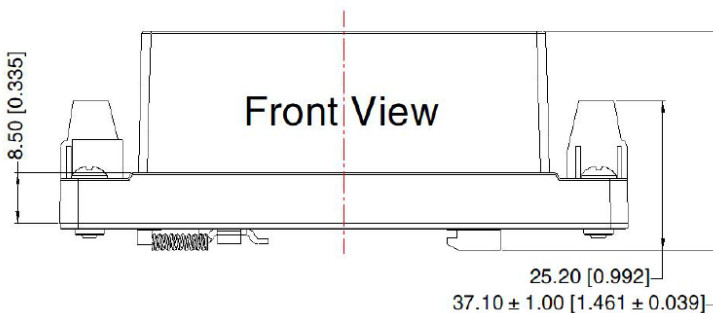
DIN Rail Mount Package ("A4" Suffix)



THIRD ANGLE PROJECTION

Pin-Out

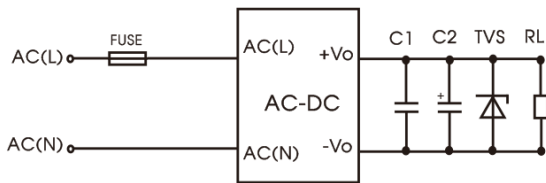
Pin	Function
1	NC
2	AC(N)
3	AC(L)
4	+Vo
5	NC
6	NC
7	NC
8	-Vo



Note:
Unit: mm [inch]
Mounting Rail: TS35, rail needs to connect safety ground
Wire Range: 24-12AWG
Tightening Torque: Max 0.4N·M
General tolerances: ±1.00 [±0.039]

DESIGN REFERENCE

1. Typical Application



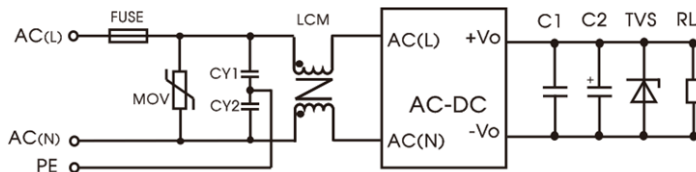
Part No.	FUSE	C1	C2	TVS
PSDAL40-05S	3.15A/300V slow-blow, required	1uF/50V	330uF/16V	SMBJ7.0A
PSDAL40-12S			330uF/16V	SMBJ20A
PSDAL40-15S			220uF/25V	SMBJ20A
PSDAL40-24S			100uF/35V	SMBJ30A
PSDAL40-48S			47uF/63V	SMBJ64A

Fig. 1 Typical Circuit Diagram

Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (see data sheet). Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

2. EMC Compliant Recommended Circuit



Component	Recommended value
FUSE	3.15A/300V, slow-blow, required
MOV	S14K350
CY1/CY2	1nF/400VAC
CX	684K/310V
LCM	10mH, contact factory for recommendation

Fig. 2 EMC Application Circuit with Higher Requirements

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.

Contact **Wall Industries** for further information:

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