DESCRIPTIONS



RoHS

CE Report EN62368-1

UK CA Report BS EN62368-1

c UL us UL62368-1

FEATURES

- Universal 85-305VAC or 100-430VDC input voltage
- Operating ambient temperature range: -40℃ to +85℃
- High I/O isolation test voltage up to 4200VAC
- Up to 90% efficiency
- Compact size, high power density
- Output short circuit, over-current, over-voltage protection
- OVC III (meet EN62477, 5000m altitude)
- 5000m altitude application
- Meets Emissions CLASS B and surge ±2KV without additional circuits

APPLICATIONS

- Industrial
- Electric power
- Home appliances
- Instrumentation
- Communication
- Civil applications
- AC pile

Selection Guide

Certification	Part No.	Output Power (W)	nominal Output Voltage and Current(vo/Io)	Efficiency at 230VAC (%) Typ.	Capacitive Load (uF) Max.
EN/BS EN	APD40-05	35	5V/7000mA	86	6600
EN/BS EN/UL	APD40-12	40	12V/3330mA	89	4400
EN/BS EN	APD40-15		15V/2666mA	90	3000
EN/BS EN/UL	APD40-24		24V/1670mA	89	1500
EN/BS EN	APD40-48		48V/833mA	90	470

Note: 1. APD40-12E2S use suffix "E2S" for chassis mounting and APD40-12D4S suffix " D4S" for Din-Rail mounting.
2.The product picture is for reference only. For details, please refer to the actual product.

Specifications

Product Specifications	Item		Operating Conditions		Min.	Typ.	Max.	Unit
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	--	
			230VAC		--	60	--	
	Contact Leakage Current		277VAC/50Hz		0.1mA RMS Max.			
	Recommended External input Fuse				3.15A/300V, slow-blow, required			
	Hot Plug				Unavailable			
Output Specifications	Output Voltage Accuracy				--	±2	--	%
	Line Regulation		Full load		--	±0.5	--	
	Load Regulation		0% -100% load	5V	--	±2	--	
				12V/15V/24V/48V	--	±1	--	
	Ripple & Noise*		20MHz bandwidth (peak-to-peak value)		--	100	150	mV
	Temperature Coefficient				--	±0.02	--	%/℃
	Stand-by Power Consumption				--	0.3	0.55	W
	Short Circuit Protection				Hiccup, continuous, self-recovery			
	Over-current Protection				≥130% Io,Hiccup self-recovery			
	Over-voltage Protection		5 VDC output		≤6.3 VDC (Hiccup or clamp) Shutdown, restart, and restore			
			12 VDC output		≤16 VDC (Hiccup or clamp) Shutdown, restart, and restore			
			15 VDC output		≤25 VDC (Hiccup or clamp) Shutdown, restart, and restore			
			24 VDC output		≤35 VDC (Hiccup or clamp) Shutdown, restart, and restore			
			48 VDC output		≤60 VDC (Hiccup or clamp) Shutdown, restart, and restore			
	Minimum Load				0	--	--	%
	Hold-up Time		115VAC input		--	8	--	ms
			230VAC input		--	50	--	
	Isolation	Input-output	Electric Strength Test for 1min.,		4200	--	--	VAC

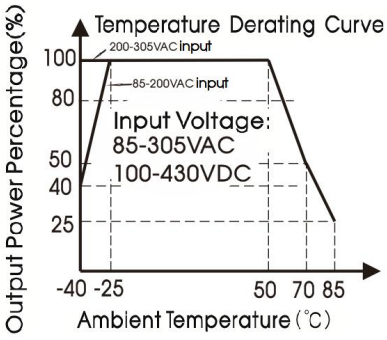
General Specifications			leakage current <5mA				
	Insulation Resistance	Input - output	At 500VDC	100	--	--	MΩ
	Operating Temperature			-40	--	+85	℃
	Storage Temperature			-40	--	+85	
	Storage Humidity			--	--	95	%RH
	Soldering Temperature		Wave-soldering	260 ± 5℃; time: 5 - 10s			
			Manual-welding	360 ± 10℃; time: 3 - 5s			
	Power Derating		-40℃ to -25℃ (85-200VAC Input)	4	--	--	%/℃
			+50℃ to +70℃	2.5	--	--	
			+70℃ to +85℃	1.67	--	--	
			85VAC - 100VAC	1.33	--	--	%/VAC
			277VAC - 305VAC	0.71	--	--	
	Altitude Derating		2000m - 5000m	6.67	--	--	%/Km
	Safety Class			CLASS I I			
	MTBF		MIL-HDBK-217F@25℃	≥500,000 h			
Mechanical Specifications	Case Material		Black plastic, flame-retardant and heat-resistant (UL94V-0)				
	Dimension		Horizontal package	69.50 x 39.00 x 24.00 mm			
			A2S chassis mounting	96.10 x 54.00 x 32.50 mm			
			A4S Din-Rail mounting	96.10 x 54.00 x 37.10 mm			
	Weight		Horizontal package	100g (Typ.)			
			A2S chassis mounting	147g (Typ.)			
			A4S Din-Rail mounting	190g (Typ.)			
	Cooling Method		Free air convection				

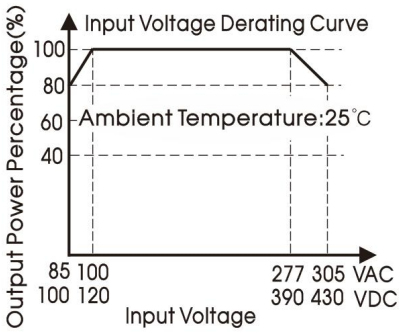
Note: *The "parallel cable" method is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor,

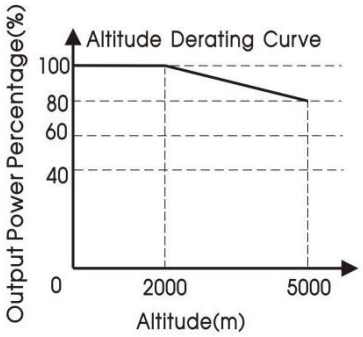
Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions (EMI)	CE	CISPR32/EN55032 CLASS B	
		RE	CISPR32/EN55032 CLASS B	
	Immunity (EMS)	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 (See Fig. 2 for recommended circuit)	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 (See Fig. 2 for recommended circuit)	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

Characteristic Curve

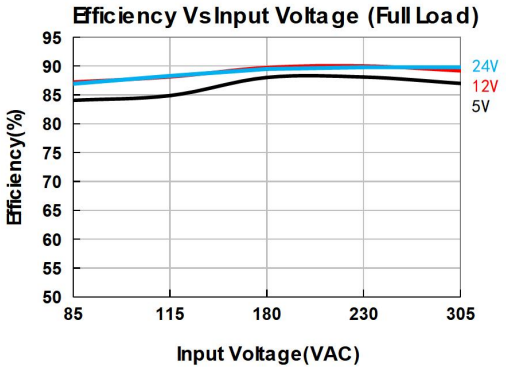


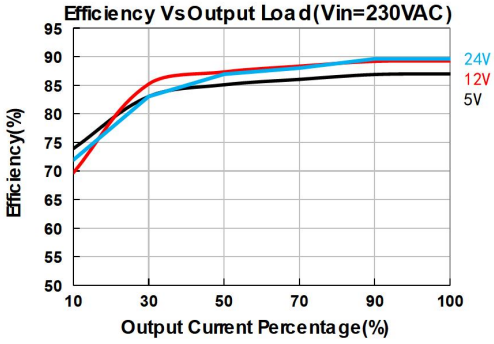




Note: ① With an AC input between 85-100VAC/277-305VAC and a DC input between 100-120VDC/390-430VDC, the output power must be derated as per temperature derating curves;

② This product is suitable for applications using natural air cooling.





Design Reference

1. Typical application

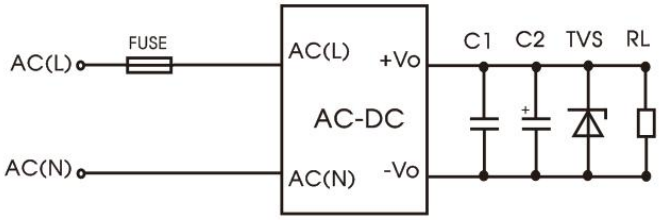


Fig. 1: Typical circuit diagram

Part No.	FUSE	C1	C2	TVS
APD40-05	3.15A/300V, slow-blow, required	1uF/50V	330uF/16V	SMBJ7.0A
APD40-12			330uF/16V	SMBJ20A
APD40-15			220uF/25V	SMBJ20A
APD40-24			100uF/35V	SMBJ30A
APD40-48			47uF/63V	SMBJ64A

Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). 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 compliance recommended circuit

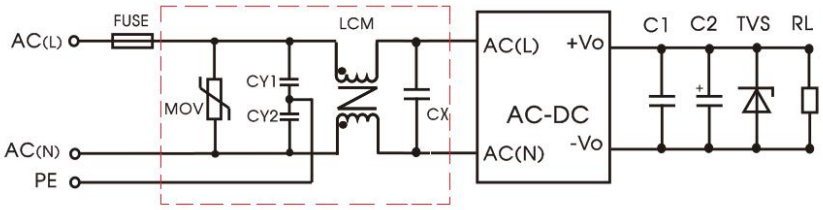
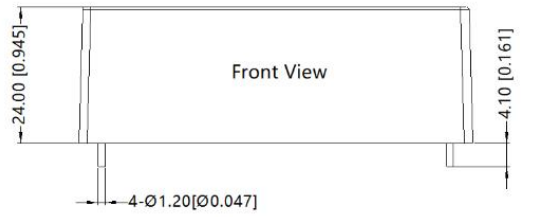
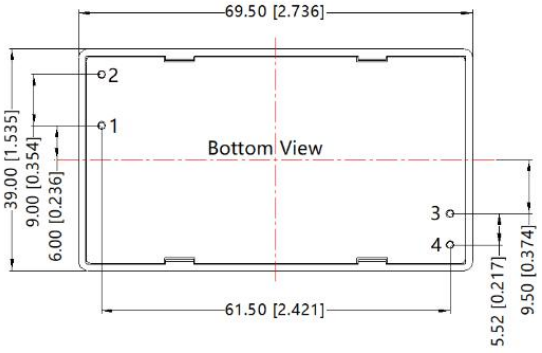


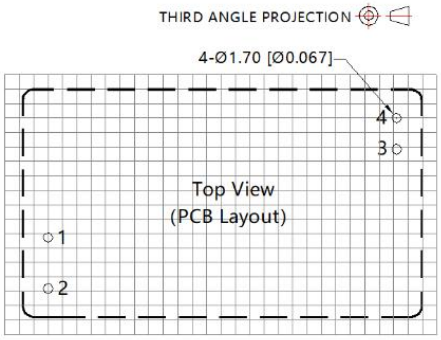
Fig. 2: EMC application circuit with higher requirements

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

Dimensions and Recommended





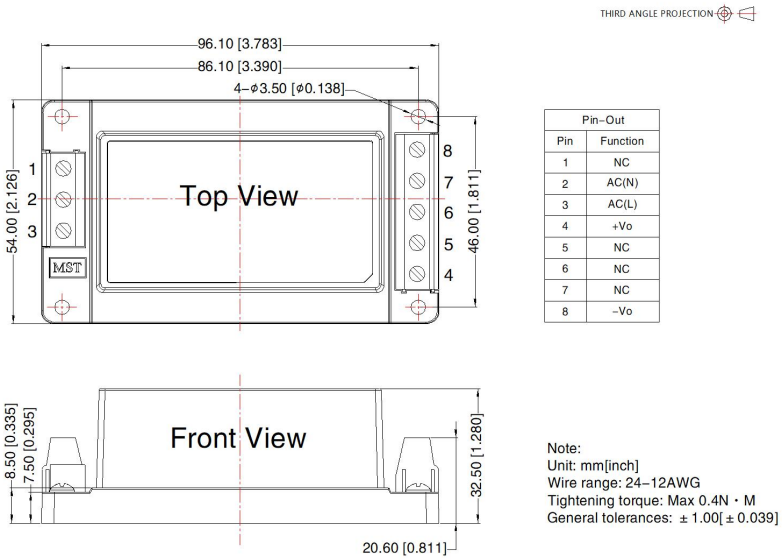


Note: Grid 2.54*2.54mm

Pin-Out	
Pin	Mark
1	AC(L)
2	AC(N)
3	-Vo
4	+Vo

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

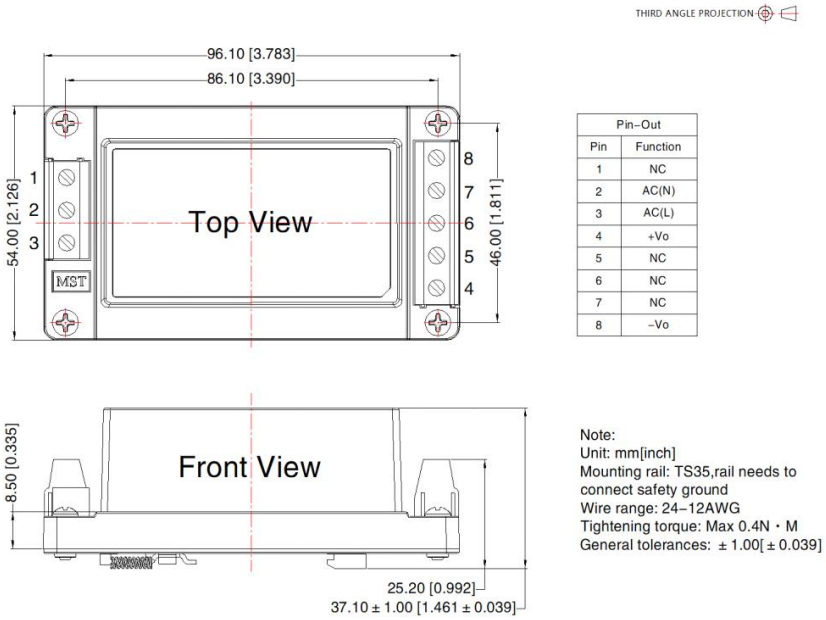
E2S Dimension



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]

D4S Dimension



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]

Note:

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.
7. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.