DESCRIPTIONS

10W, AC/DC Converter

RoHS

3 Years Warranty

CE Report EN62368-1

UKCA Report BS EN 62368-1

FEATURES

- Ultra-wide 85 - 305VAC and 100 - 430VDC input voltage range
- Operating ambient temperature range: -40℃ to +80℃
- High I/O isolation voltage up to 4200VAC
- Output short circuit, over-current, over-voltage protection
- Plastic case meets UL94V-0 flammability
- OVC III (meet EN62477-1)
- EMI performance meets CISPR32/EN55032 CLASS B

APPLICATIONS

- Industrial
- Electric automation
- Home appliances
- EV charging applications

Selection Guide

Certification	Part No.	Output Power	Nominal Output Voltage and Current(Vo/Io)	Efficiency at 230VAC (%) Typ.	Capacitive Load (uF) Max.
EN/BS EN	APD10-03-RC	8.6W	3.3V/2600mA	74	10000
	APD10-05-RC	10W	5V/2000mA	80	8000
	APD10-12-RC		12V/830mA	84	1500
	APD10-15-RC		15V/660mA	84	1000
	APD10-24-RC		24V/410mA	85	470

Note: The product picture is for reference only. For details, please refer to the actual product.

Specifications

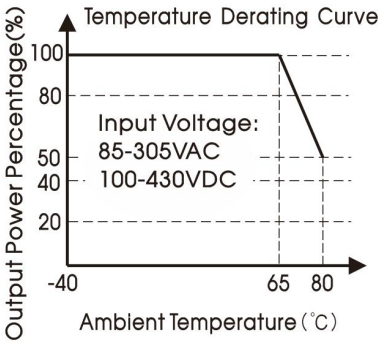
Product Specifications	Item		Operating Conditions	Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range		AC input	85	--	305	VAC
			DC input	100	--	430	VDC
	Input Frequency			47	--	63	Hz
	Input Current		115VAC	--	--	0.23	A
			230VAC	--	--	0.15	
Input Specifications	Inrush Current		115VAC	--	15	--	A
			230VAC	--	30	--	
	Leakage Current		277VAC/50Hz	0.1mA RMS Max.			
	Recommended External Input Fuse			2A/300V, slow-blow, required			
	Hot Plug			Unavailable			
Output Specifications	Output Voltage Accuracy			--	±2	--	%
	Line Regulation		Full load	--	±0.5	--	
	Load Regulation		0% - 100% load	--	±1	--	
	Ripple & Noise*		20MHz bandwidth (peak-to-peak value)	--	--	100	mV
	Stand-by Power Consumption		230VAC	--	--	0.25	W
	Temperature Coefficient			--	±0.02	--	%/℃
	Short Circuit Protection			Hiccup, continuous, self-recover			
	Over-current Protection			≥150% Io, self-recover			
	Over-voltage Protection		3.3V/5V output	≤7.5VDC (Output voltage clamp)			
			12V/15V output	≤20VDC (Output voltage clamp)			
			24V output	≤30VDC (Output voltage clamp)			
	Minimum Load			0	--	--	%
	Hold-up Time		115VAC input	--	10	--	ms
			230VAC input	--	60	--	
General Specifications	Isolation	Input-output	Electric Strength Test for 1min., leakage current <5mA	4200	--	--	VAC
	Insulation Resistance	Input-output	At 500VDC	100	--	--	MΩ
	Operating Temperature			-40	--	+80	℃
	Storage Temperature			-40	--	+85	
	Storage Humidity			--	--	95	%RH
	Soldering Temperature		Wave-soldering	260 ± 5℃; time: 5 - 10s			
			Manual-welding	360 ± 10℃; time: 3 - 5s			
	Switching Frequency			--	65	--	kHz
	Power Derating		+65℃ to +80℃	3.33	--	--	%/℃
			85VAC - 90VAC	2	--	--	%/VAC
			2000m - 5000m	6.67	--	--	%/Km

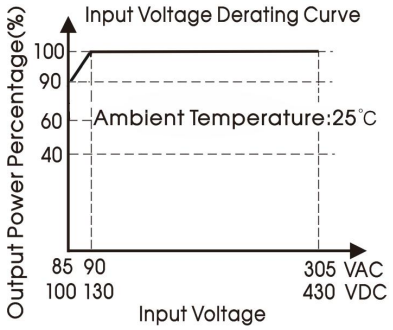
	Safety Class		CLASS I I
	MTBF	MIL-HDBK-217F@25℃	≥1,000,000 h
Mechanical Specifications	Case Material	Black plastic, flame-retardant and heat-resistant (UL94V-0)	
	Dimension	52.40 x 27.20 x 24.00 mm	
	Weight	50g (Typ.)	
	Cooling method	Free air convection	
Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor,			

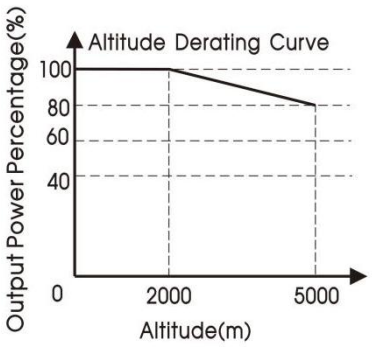
Electromagnetic Compatibility (EMC)

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 ±1KV	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
		PFMF	IEC/EN6100-4-8 10A/m	perf. Criteria A
		Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11 0%, 70%	perf. Criteria B

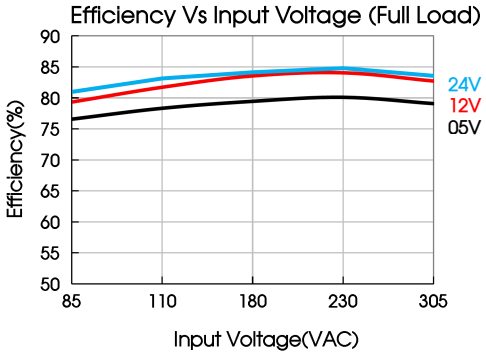
Characteristic Curve

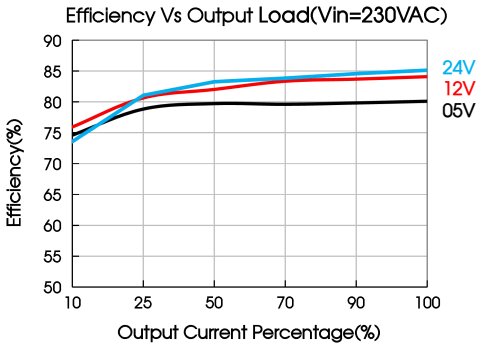






Note: ① With an AC input between 85-90VAC and a DC input between 100-130VDC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using natural air cooling.





Design Reference

1. Typical application

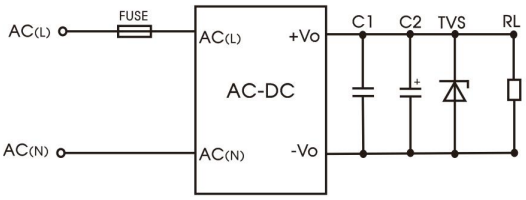


Fig.1: Typical circuit diagram

Part No.	FUSE	C1	C2	TVS
APD10-03-RC	2A/300V, slow-blow, required	1uF/50V	220uF/16V	SMBJ7.0A
APD10-05-RC			220uF/16V	SMBJ7.0A
APD10-12-RC			100uF/25V	SMBJ20A
APD10-15-RC			100uF/25V	SMBJ20A
APD10-24-RC			100uF/35V	SMBJ30A

Output Filter Components:

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

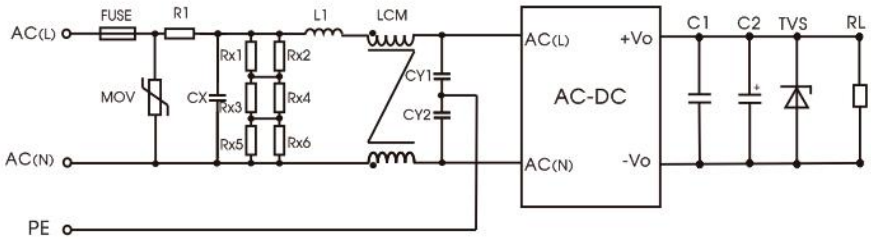


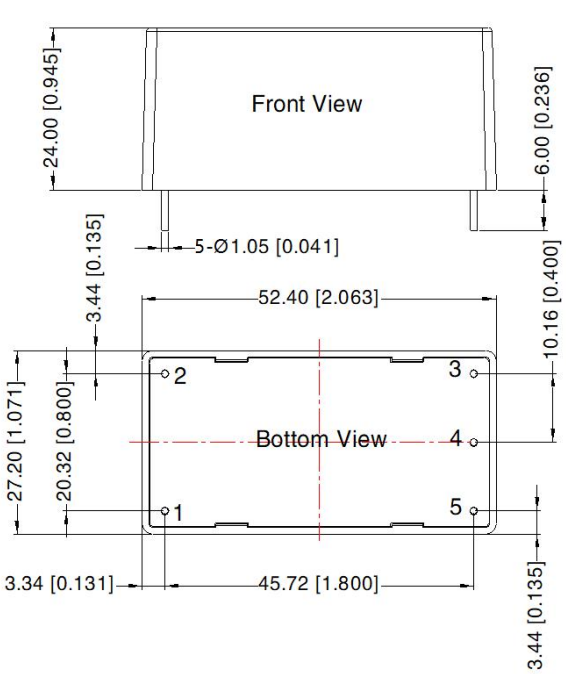
Fig. 2: EMC application circuit with higher requirements (Class I)

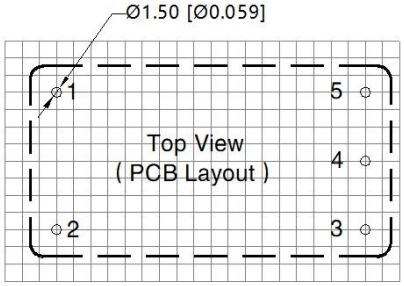
Component	Recommended value
FUSE	2A/300V, slow-blow, required
MOV	S14K350
R1	12Ω/5W (wire-wound resistor, required)

CX	0.1uF/310VAC
L1	4.7uH/2A
LCM	10mH
CY1/CY2	1000pF/400VAC
Note: Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleeder resistance of CX, and the recommended resistance value is	

Dimensions and Recommended

THIRD ANGLE PROJECTION





Note: Grid 2.54*2.54mm

Pin-Out	
Pin	Mark
1	AC(N)
2	AC(L)
3	No Pin
4	-Vo
5	+Vo

Note:
Unit: mm[inch]
PIN1/2/3/4/5: ϕ 1.0mm
Pin diameter tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]

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.