APDW30-xx Series

DESCRIPTIONS

30W，AC/DC Converter



RoHS

UL62368-1 EN62368-1 BS EN62368-1

FEATURES

- Wide 176 - 528VAC and 248 - 746VDC input voltage range
- Working available with any two phases
- Operating ambient temperature range: -40℃ to +85℃
- High I/O isolation test voltage up to 4000VAC
- Up to 88% efficiency
- Output short circuit, over-current, over-voltage protection
- EMI performance meets CISPR32 / EN55032 CLASS B

APPLICATIONS

- Industrial
- Electric power
- Instrumentation
- Communications
- Charging 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	APDW30-03	19.8W	3.3V/6000mA	82	15000
	APDW30-05	30W	5V/6000mA	84	15000
	APDW30-09	30.06W	9V/3340mA	85	8200
UL/EN/ BS EN	APDW30-12	30W	12V/2500mA	85	4700
EN/BS EN	APDW30-15	30W	15V/2000mA	85	3300
	APDW30-24	30W	24V/1250mA	86	1500
	APDW30-48	30W	48V/625mA	88	820

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

Specifications

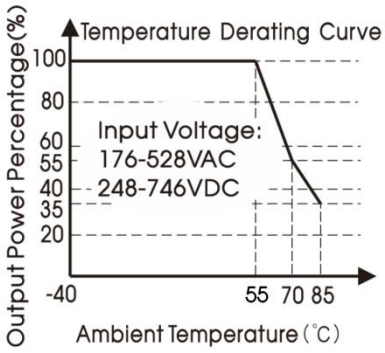
Product Specifications	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	AC input		176	--	528	VAC
		DC input		248	--	746	VDC
	Input Frequency			47	--	63	Hz
	Input Current	230VAC		--	--	0.5	A
		380VAC		--	--	0.35	
	Inrush Current	230VAC	Cold start	--	35	--	
		380VAC		--	60	--	
	Leakage Current	480VAC/50Hz		0.5mA RMS Max.			
	Recommended External Input Fuse			3.15A/500V, slow-blow, required			
	Hot Plug			Unavailable			
Output Specifications	Output Voltage Accuracy	3.3V		--	±3	--	%
		5V/9V/12V/15V/24V/48V		--	±2	--	
	Line Regulation	Full load	3.3V	--	±1	--	
			5V/9V/12V/15V/24V/48V	--	±0.5	--	
	Load Regulation	0% -100% load	3.3V	--	±2	--	
			5V/9V/12V/15V/24V/48V	--	±1	--	
	Ripple & Noise*	20MHz bandwidth (peak-to-peak value)		--	80	150	mV
	Temperature Coefficient			--	±0.02	--	%/℃
	Minimum Load			0	--	--	%
	Stand-by Power Consumption	230VAC		--	--	0.3	W
		380VAC		--	--	0.5	
	Hold-up Time	230VAC		--	45	--	ms
		380VAC		--	120	--	
	Short Circuit Protection			Hiccup, continuous, self-recovery			
	Over-current Protection			≥110% Io, self-recovery			
	Over-voltage Protection	3.3V/5Voutput		≤7.5VDC（Clamp or hiccup）			
		9V/12Voutput		≤16VDC（Clamp or hiccup）			
		15V output		≤25VDC（Clamp or hiccup）			
		24V output		≤35VDC（Clamp or hiccup）			
		48V output		≤60VDC（Clamp or hiccup）			
General Specifications	Isolation	Input-output	Electric Strength Test for 1min., leakage current <5mA	4000	--	--	VAC
	Operating Temperature			-40	--	+85	℃
	Storage Temperature			-40	--	+85	
	Storage Humidity		Non-condensing	--	--	95	%RH
	Soldering Temperature		Wave-soldering	260 ± 5℃; time: 5 - 10s			

General Specifications		Manual-welding	360 ± 10℃; time: 3 - 5s			
	Switching Frequency		--	65	--	KHz
	Power Derating	+55℃ to +70℃	3	--	--	%/℃
		+70℃ to +85℃	1.33	--	--	
	Safety Standard		CLASS II			
	MTBF	MIL-HDBK-217F@25℃	>950,000 h			
Mechanical Specifications	Case Material	Black plastic, flame-retardant and heat-resistant (UL94V-0)				
	Dimension	70.00 x 48.00 x 30.00 mm				
	Weight	152g (Typ.)				
	Cooling method	Free air convection				
Note: *The "parallel cable" method is used for ripple and noise test.						

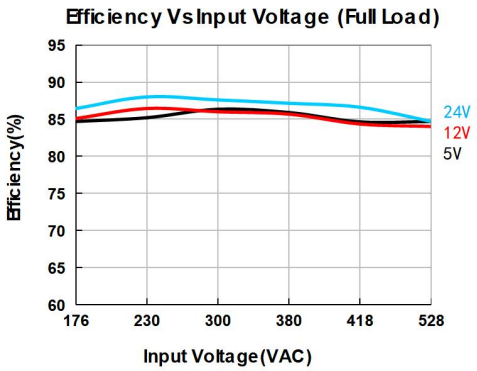
Electromagnetic Compatibility (EMC)

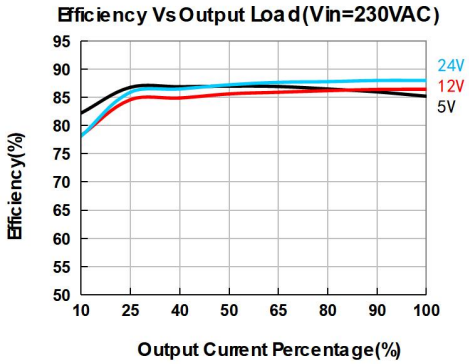
Electromagnetic Compatibility (EMC)	Emissions (EMI)	CE	CISPR32/EN55032 CLASS B	
		RE	CISPR32/EN55032 CLASS B	
	Immunity (EMS)	ESD	IEC/EN61000-4-2 Contact ±6KV / Air ±8KV	perf. Criteria A
		RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
		EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria A
			IEC/EN61000-4-4 ±4KV (See Fig. 1 for typical application circuit, See Fig. 2, Fig. 3 for recommended circuit)	perf. Criteria A
		Surge	IEC/EN61000-4-5 line to line ±2KV (See Fig. 1 for typical application circuit)	perf. Criteria A
			IEC/EN61000-4-5 line to line ±4KV (See Fig. 2 for recommended circuit)	perf. Criteria A
			IEC/EN61000-4-5 line to line ±2KV/line to PE ±4KV (See Fig. 3 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: This product is suitable for applications using natural air cooling;





Design Reference

1. Typical application

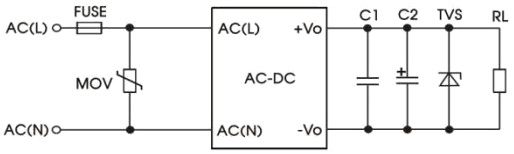


Fig. 1: Typical circuit diagram

Part No.	FUSE	MOV	C1	C2	TVS
APDW30-03	3.15A/500V, slow-blow, required	S14K550	1uF/50V	330uF/25V	SMBJ7.0A
APDW30-05				330uF/25V	SMBJ7.0A
APDW30-09				220uF/25V	SMBJ12A
APDW30-12				220uF/25V	SMBJ20A
APDW30-15				220uF/35V	SMBJ30A
APDW30-24				220uF/35V	SMBJ30A
APDW30-48				10uF/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

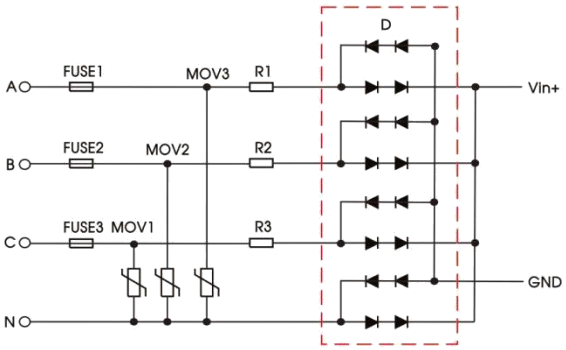


Fig. 2: Line to line ±4KV EMC application circuit with higher requirements

Recommended value	
Component	Recommended value
MOV1/MOV2/MOV3	S20K550
D	2A/1000V

R1/R2/R3	12Ω/5W (wire-wound resistor)
FUSE1/FUSE2/FUSE3	3.15A/500V, slow-blow, required

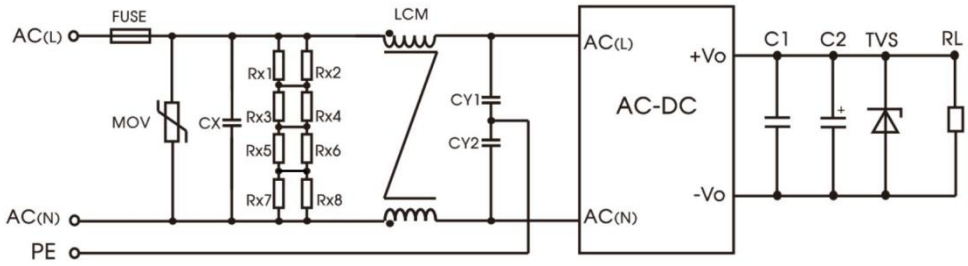
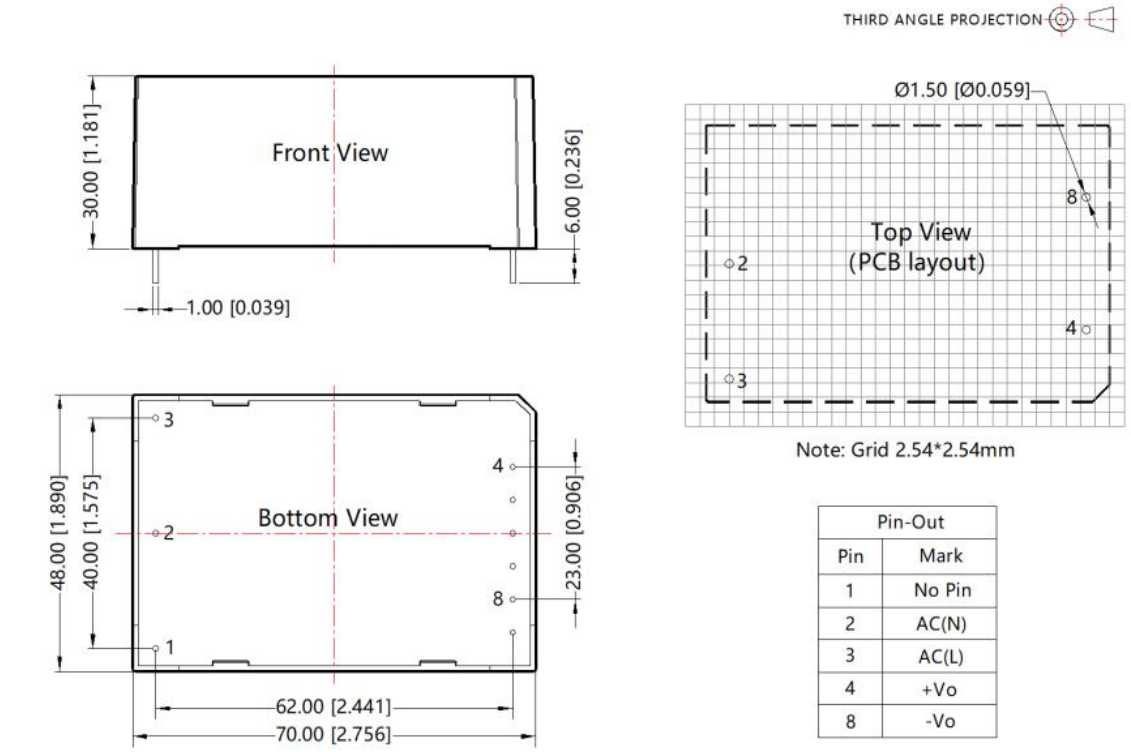


Fig. 3: Recommended circuit for class I equipment

Component	Recommended value
FUSE	3.15A/500V, slow-blow, required
MOV	S14K550
CX	0.1uF/480VAC
CY1/CY2	1nF/400VAC
LCM	10mH
Note: Rx1/Rx2/Rx3/Rx4/Rx5/Rx6/Rx7/Rx8 is the bleeder resistance of CX, and the recommended resistance value is <2.5MΩ.	

Dimensions and Recommended



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

Note:
Unit: mm[inch]
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.
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.