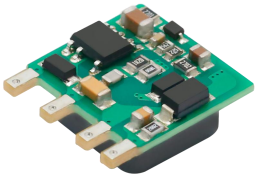
DESCRIPTIONS

5W, AC/DC Converter



FEATURES

- Ultra-wide 85 - 305VAC and 70 - 430VDC input voltage range
- Operating ambient temperature range: -40℃ to +85℃
- Compact size, open frame
- Up to 77% efficiency
- Green power
- Industrial-grade design
- Flexible selection of EMC additional circuits, simplify customer PCB layout
- Output short circuit, over-current protection

APPLICATIONS

- Industrial control
- Instrumentation
- Electric power
- Smart home applications

Selection Guide

Certification	Part No.	Output Power	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 230VAC (%) Typ.	Capacitive Load (uF) Max.
--	APSK05-12	4W	12V/330mA	75	160
	APSK05-15	5W	15V/330mA	76	
	APSK05-18	5W	18V/280mA	77	
Warning: Non-isolated power supply, there is no insulation protection between output and input dangerous voltage, beware of electric shock!					

Specifications

Product Specifications	Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	AC input	85	--	305	VAC
		DC input	70	--	430	VDC
	Input Frequency		47	--	63	Hz
	Input Current	115VAC	--	--	0.2	A
		230VAC	--	--	0.14	
	Inrush Current	115VAC	--	25	--	
		230VAC	--	40	--	
	Recommended External Input Fuse		1A/300V, slow-blow, required			
	Hot Plug		Unavailable			

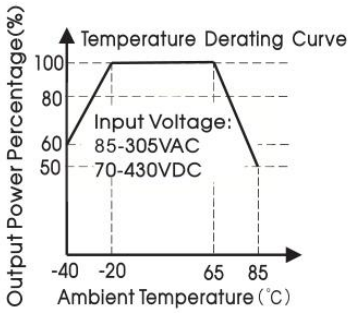
Output Specifications	Output Voltage Accuracy	10% - 100% load		--	±5	--	%
	Line Regulation	Rated load		--	±1.5	--	
	Load Regulation			--	±3	--	
	Ripple & Noise*	20MHz bandwidth (peak-to-peak value)		--	50	100	mV
	Temperature Coefficient			--	±0.1	--	%/℃
	Stand-by Power Consumption	230VAC input	12V	--	0.07	0.1	W
			15V	--	0.12	0.16	
			18V	--	0.16	0.2	
	Short Circuit Protection			Hiccup, continuous, self-recover			
	Over-current Protection			≥110%Io, self-recover			
	Minimum Load			10	--	--	%
General Specifications	Operating Temperature			-40	--	+85	℃
	Storage Temperature			-40	--	+105	
	Storage Humidity			--	--	95	%RH
	Power Derating	-40℃ to -20℃		2	--	--	%/℃
		+65℃ to +85℃		2.5	--	--	
		85VAC-100VAC		1.33	--	--	%/VAC
		277VAC-305VAC		1.1	--	--	
	Safety Standard			Design refer to EN62368-1, BS EN62368-1			
	MTBF			MIL-HDBK-217F@25℃ >1000,000 h			
Mechanical Specifications	Dimension	16.13 x 15.10 x 9.50 mm					
	Weight	4.5g (Typ.)					
	Cooling method	Free air convection					

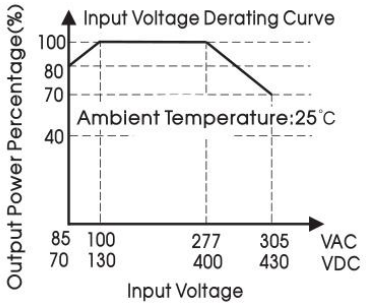
Note: * The "parallel cable" method is used for ripple and noise test,

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions (EMI)	CE	CISPR32/EN55032 CLASS A (See Fig. 1 for recommended circuit)	
			CISPR32/EN55032 CLASS B (See Fig. 2 for recommended circuit)	
		RE	CISPR32/EN55032 CLASS B	
	Immunity (EMS)	ESD	IEC/EN61000-4-2 Contact ± 6KV	perf. Criteria B
		RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
		EFT	IEC/EN61000-4-4 ±2KV (See Fig. 1 for recommended circuit)	perf. Criteria B
			IEC/EN61000-4-4 ±4KV (See Fig. 2 for recommended circuit)	perf. Criteria B
		Surge	IEC/EN61000-4-5 line to line ±1KV	perf. Criteria B
		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

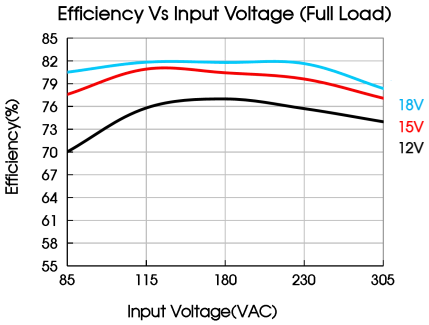


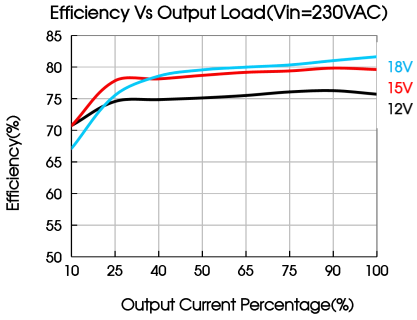


Note:

① With an AC input between 85 - 100VAC/277- 305VAC and a DC input between 70 - 130VDC/400 - 430VDC, the output power must be derated as per temperature derating curves;

② This product is suitable for applications using natural air cooling; for applications in closed environment please consult our FAE.





Additional Circuits Design Reference

1. Recommended circuit 1

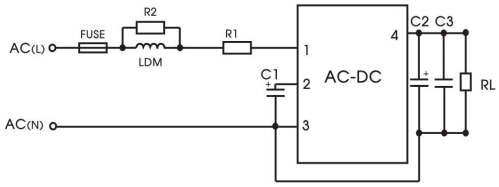


Fig. 1

Part No.	FUSE (required)	C1 (required)	C2 (required)	LDM (required))	R1 (wire-wound resistor, required)	C3	R2
APSK05-12	1A/300V (slow-blow)	10uF/400V (165-264VAC) 10uF/450V (165-305VAC) 22uF/400V (85-264VAC) 22uF/450V (85-305VAC)	470uF/16V (solid-state capacitor)	4.7mH/0.2A (C1=10uF) 2.2mH/0.24A (C1=22uF)	12Ω/3W (C1=10uF) 2Ω/2W (C1=22uF)	0.1uF/50V	8.2kΩ/0.25W
APSK05-15			470uF/35V				
APSK05-18							

Note:

1. C1 is used as input filter capacitor (required);

2. Output filter: We recommend using an electrolytic capacitor with high frequency, high ripple current and low ESR rating for C2 refer to manufacture's datasheet). Combined with LDM, they form a pi-type filter circuit. Choose a Capacitor voltage rating with at least 20% margin, in other words not exceeding 80%;

3. Recommend R2 to use 1206 package chip resistor.

2. Recommended circuit 2

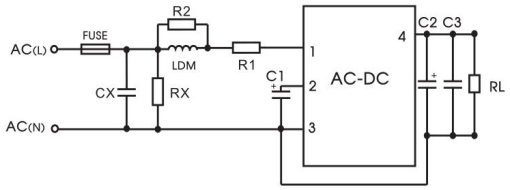


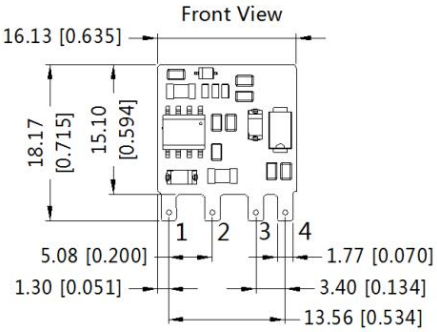
Fig. 2

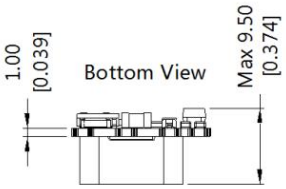
Part No.	FUSE (required)	C1 (required)	C2 (required)	LDM (required)	R1 (wire-wound resistor, required)	CX	RX*	C3	R2
APSK05-12	1A/300V (slow-blow)	10uF/400V (165-264VAC) 10uF/450V (165-305VAC)	470uF/16V (solid-state capacitor)	4.7mH/0.2A (C1=10uF) 2.2mH/0.24A (C1=22uF)	12Ω/3W (C1=10uF) 2Ω/2W (C1=22uF)	104K/ 310VAC	5MΩ- 8MΩ	0.1uF/ 50V	8.2kΩ /0.25W
APSK05-15									
APSK05-18		22uF/400V (85-264VAC) 22uF/450V (85-305VAC)	470uF/35V						

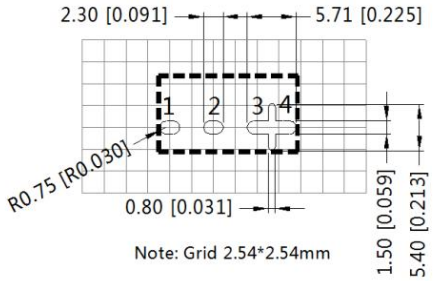
Note: *The X capacitor needs to be connected in parallel with the bleeder resistance(RX), the recommended resistance value is between 5MΩ~8MΩ, and the actual need to be selected as series-parallel connection according to the certification standard.

Dimensions and Recommended

THIRD ANGLE PROJECTION







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

Note:
Unit: mm[inch]
General tolerances: ±0.50[±0.020]
The layout of the device is for reference only, please refer to the actual product

Note:

1. External electrolytic capacitors are required to modules, more details refer to typical applications;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%, nominal input voltage (115Vac and 230Vac) and rated output load;
3. In order to improve the efficiency at light load, there will be audible noise generated, but it does not affect product performance and reliability.
4. The module needs to be glued and fixed after assembly.
5. All index testing methods in this datasheet are based on our company corporate standards;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.