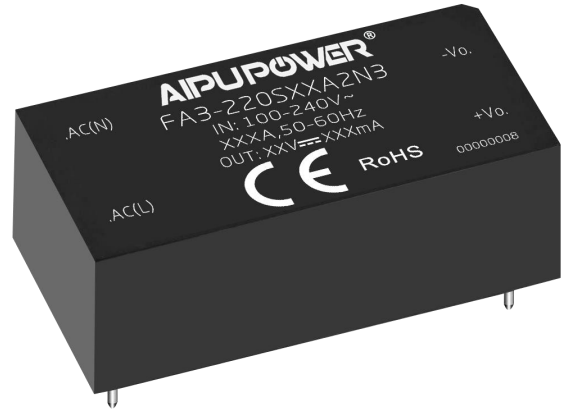


Typical Features

- ◆ Wide input voltage range 85-265VAC/120-380VDC
- ◆ No-load power consumption ≤0.35W(Typ.)
- ◆ Efficiency up to 77% (Typ.)
- ◆ Operating temperature from -40℃ to +75℃
- ◆ Switching frequency 65KHz
- ◆ Short Circuit & Over Current Protections
- ◆ Isolation Voltage: 3600VAC
- ◆ Max. Operating Altitude: 2000m
- ◆ Compliant with IEC/EN/UL62368 Standards
- ◆ CE/RoHS Certified
- ◆ Fully enclosed plastic case, UL94V-0 rated



RoHS

EN62368-1

Application Field

FA3-220SXXA2N3 Series Compact, high-efficiency, CE-certified AC-DC modules from Aipu. Features universal input (AC/DC dual-use), low ripple/noise, low temperature rise, low power consumption, and high efficiency. Offers high reliability, safety isolation, and excellent EMC performance meeting EN55032/IEC/EN61000 standards. Ideal for power, industrial, instrumentation, and smart home sectors. For harsh EMC environments, refer to recommended application circuits.

Typical Product List

Certificate	Part No.	Input Voltage Range		Output Specifications			Max. Capacitive Load @220VAC	Ripple & Noise 20MHz (Max)	Efficiency @full load 220VAC (Typ.)
		Nominal	Range	Power	Voltage	Current			
		(VAC)	(VAC)	P(W)	Vo(VDC)	Io(mA)			
CE/RoHS	FA3-220S3V3A2N3	220	85-265	2	3.3	600	500	100	66
	FA3-220S3V8A2N3			2.3	3.8	600	500	100	68
	FA3-220S05A2N3			3	5	600	500	100	71
	FA3-220S12A2N3				12	250	300	120	75
	FA3-220S15A2N3				15	200	200	140	75
	FA3-220S24A2N3				24	125	47	140	77

Note 1: "*" indicates models under development.

Note 2: Typical efficiency measured after 30 min. at full load (burn-in).

Note 3: Full load efficiency (% , Typ.) may fluctuate by ±2%. Efficiency = P_{out} / P_{in} .

Note 4: This list is partial. Contact sales for unlisted models.

Input Specifications						
Item	Test Condition	Min.	Typ.	Max.	Unit	
Input Voltage Range	AC Input	85	220	265	VAC	
	DC Input	120	310	380	VDC	
Input Frequency Range	-	47	50	63	Hz	
Standby Power Consumption	Input 115VAC	-	0.15	0.35	W	
	Input 220VAC					
Input Current	Input 115VAC	-	-	0.07	A	
	Input 220VAC	-	-	0.05		
Inrush Current	Input 115VAC	-	-	10	A	
	Input 220VAC	-	-	20		
Leakage Current	-	0.5mA TYP/230VAC/50Hz				
Hot Plug	-	Not Supported				
Recommended External Fuse	-	1A/300VAC, Slow-blow type				
Remote Control (Ctrl)	-	N/A				

Output Specifications							
Item	Test Condition	Min.	Typ.	Max.	Unit		
Output Voltage Accuracy	Full input voltage range, any load	Vo	-	±3.0	±5.0	%	
Line Regulation	Rated Load	Vo	-	-	±1.0	%	
Load Regulation	Nominal input voltage, 20%~100% load	Vo	-	-	±4.0	%	
Ripple & Noise	5%-100% load, 20MHz bandwidth	Vo	-	-	140	mVp-p	
	Note 1: Ripple and noise are measured using the parallel cable method. Please refer to the "Ripple & Noise Test Instruction" section for specific test setups and configurations.						
Dynamic Response	Overshoot	25%~50%~25%		-5.0	-	+5.0	%
	Recovery Time	50%~75%~50%		-	-	5.0	ms
Minimum Load	Single output	10	-	-	-	%	
Temperature Coefficient	-	-	-	-	±0.03	%/°C	
Start-up Delay Time	Input 115VAC (full load)	-	-	-	1000	ms	
	Input 220VAC (full load)	-	-	-			
Hold-up Time	Input 115VAC (full load)	10	-	-	-		
	Input 220VAC (full load)		-	-	-		
Start-up Overshoot	Full input voltage range	≤10				%Vo	
Short Circuit Protection(SCP)		Continuous, Auto-recovery				Hiccup	
Over Current Protection(OCP)	Input 220VAC	120%Io	-	-	280%Io	mA	

General Specifications						
Item	Test Condition	Min.	Typ.	Max.	Unit	
Switching Frequency	-	-	65	-	KHz	
Operating Temperature	Refer to the Temperature Derating Curve	-40	-	+75	°C	

Storage Temperature	-		-40	-	+105	
Soldering Temperature	Wave-soldering		260±4℃, 5-10s			
	Manual-soldering		360±8℃, 4-7s			
Relative Humidity	-		10	-	90	%RH
Isolation Voltage	I/P-O/P	Test 1min, leakage current <5mA	3600	-	-	VAC
Insulation Resistance	I/P-O/P	@DC500V	100	-	-	MΩ
MTBF	MIL-HDBK-217F@25℃		300	-	-	kh
Safety Standard	-		IEC/EN62368			
Vibration	10-55Hz, 10G, 30min each axis (X, Y, Z)					
Safety Class	-		CLASS II			
Weights & Dimensions	Part No.	Weight (Typ.)	Dimensions L x W x H			
	A2	16g	37.7X18.7X13.6mm	1.484X0.736X0.535inch		

EMC Performance						
Test Items		Test Standards		Performance Level / Criteria		
EMC	EMI	CE	CISPR32/EN55032	CLASS B (Ref. Fig. 1)		
		RE	CISPR32/EN55032	CLASS B(Ref. Fig. 1)		
	EMS	RS	IEC/EN61000-4-3	10V/m Perf. Criteria B		
		CS	IEC/EN61000-4-6	3Vr.m.s Perf. Criteria B(
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV, Perf. Criteria B		
		Surge Immunity	IEC/EN61000-4-5	±2KV Perf.Criteria B (Ref. Fig. 1)		
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B		
		Voltage Dips & Interruptions	IEC/EN61000-4-11	0%~70%,Perf. Criteria B		

Product Characteristics Curves

Input Voltage Derating Curve

Ambient Temperature 25°C

Temperature Derating Curve

Input Voltage
85~265VAC
120~380VDC

Altitude Derating Curve

Note 1: For input voltage ranges of 85-130VAC / 240-305VAC / 120-180VDC / 340-430VDC, temperature derating must be applied based on the input voltage derating curve. (The maximum operating temperature for CE certification is 50°C).

Note 2: Cooling: Natural convection. For enclosed environments, please contact us.

Typical Application Circuit & EMC Recommended Components

1. Typical Application Circuit

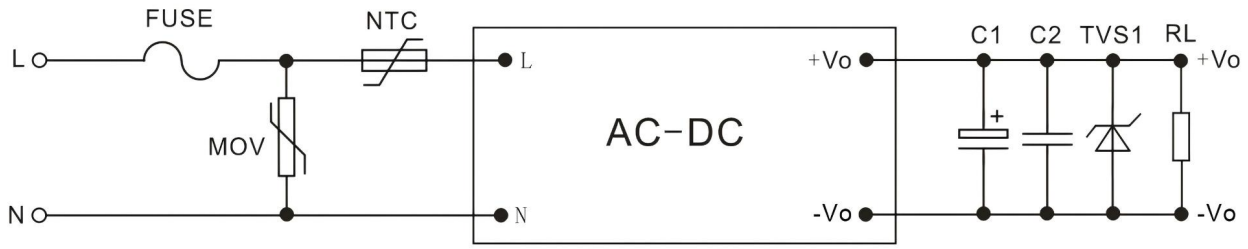


Figure 1

型号	C1	C2	FUSE(Required)	MOV	NTC	TVS
FA3-220S3V3A2N3	330μF/10V	1μF/50V	1A/300VAC, Slow-blow	10D471K /3500A	10D-7	SMBJ7.0A
FA3-220S3V8A2N3						
FA3-220S05A2N3						SMBJ20A
FA3-220S12A2N3	220μF/16V					SMBJ20A
FA3-220S15A2N3	100μF/25V					SMBJ20A
FA3-220S24A2N3	47μF/35V					SMBJ30A

Notes:

- C1:** Electrolytic capacitor. High-frequency, low-resistance type is recommended. Refer to manufacturer specifications for capacity and ripple current.
- C2:** Ceramic capacitor, used to filter high-frequency noise.
- TVS:** Recommended to protect downstream circuits in case of module anomaly.

2. EMC Recommended Components(for higher EMC requirements)

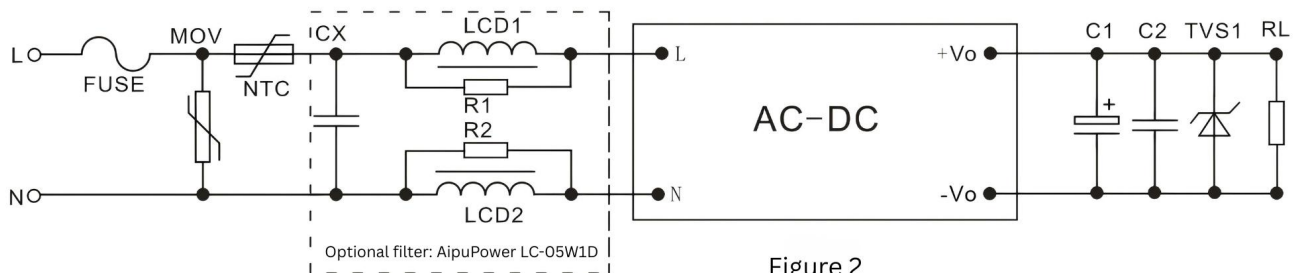
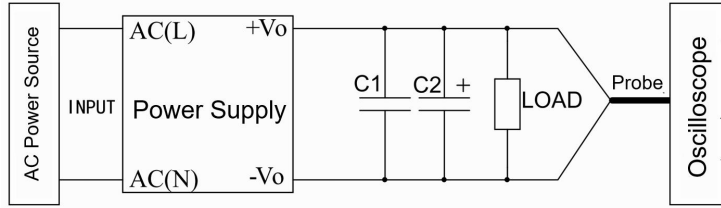


Figure 2

Components	Recommended values	Components	Recommended values
MOV	10D471K/3500A	NTC	10D-7
CX	X2/104K/275VAC	LCD1,LCD2	1mH/1W Color ring inductor
FUSE	1A/300VAC, Slow-blow, Required	R1、R2	2KΩ,1/8W以上

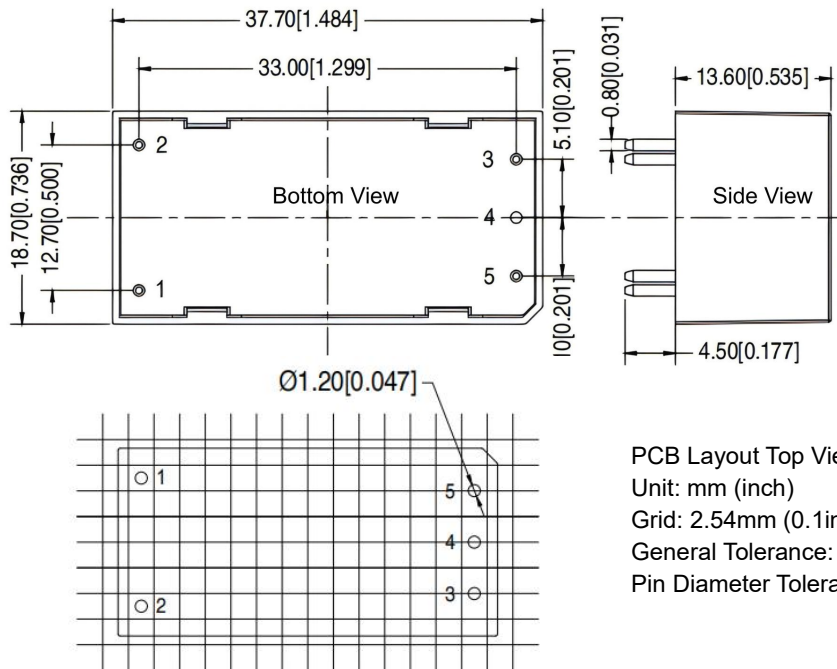
Note: Some component parameters should be used in conjunction with the recommended values of the typical application circuit.

Ripple & Noise Test Instruction (Parallel Cable Method, 20MHz Bandwidth)



1. Ripple & Noise is measured using the parallel-cable method. The oscilloscope bandwidth is set to 20MHz with "Sample" mode. The probe cap and ground lead are removed, while a 0.1μF ceramic capacitor (C1) and a 10μF high-frequency low-impedance electrolytic capacitor (C2) are connected in parallel at the probe tip.
2. Schematic of Output Ripple & Noise Test: Connect the input terminals of the power module to the DC source, and the output terminals to the electronic load via a test jig. Use separate sampling wires to measure directly at the output terminals. Power cables with appropriate gauges and insulation must be selected based on the output current.

Mechanical Dimensions



PCB Layout Top View
Unit: mm (inch)
Grid: 2.54mm (0.1inch)
General Tolerance: ±0.5 (±0.019)
Pin Diameter Tolerance: ±0.10 (±0.004)

Pin Definition

Pin No.	1	2	3	4	5
Function	AC(N)	AC(L)	+Vo	NP	-Vo
	AC Input (Neutral)	AC Input (Line)	Positive Output	No Pin	Negative Output

Application Notice

1. The product must be used within the specified range; otherwise, permanent damage may occur.
2. Product performance cannot be guaranteed if the load is below the minimum required load.
3. Product performance cannot be guaranteed if the product operates outside the specified load range.
4. Unless otherwise specified, all data are measured at Ta=25°C, humidity<75%R, nominal input voltage, and rated output load (pure resistive load).

5. All test methods are based on our corporate standards.
6. The above specifications apply only to the standard models listed in this datasheet. Some specifications for non-standard models may vary. Please contact our technical staff for details.
7. Customized products are available.

Guangzhou Aipu Electron Technology Co., Ltd

Address: Building 4, HEDY Park, No.63, Punan Road, Huangpu Dist, Guangzhou, China.

Tel: 86-20-84206763 Fax: 86-20-84206762 HOTLINE: 400-889-8821

E-mail: sales@aipu-elec.com Website: <https://www.aipupower.com>