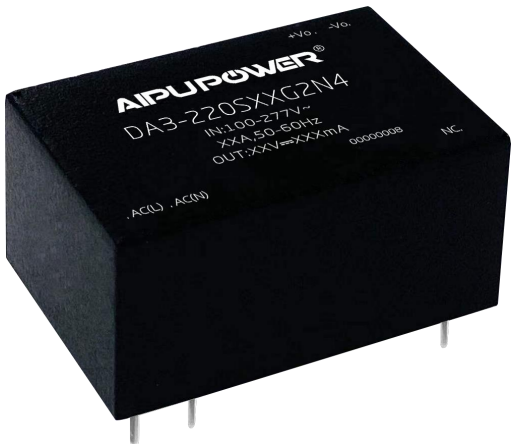
AC/DC Converter
DA3-220SXXG2N4

Typical Features

- ◆ Wide input voltage range: 85-305VAC/120-430VDC
- ◆ No load power consumption ≤ 0.25W
- ◆ Transfer Efficiency up to 74%(TYP.)
- ◆ Switching Frequency: 65KHz
- ◆ Protections: short circuit, over current, over temperature
- ◆ Isolation voltage: 4000Vac
- ◆ 4000m altitude application
- ◆ Meet IEC62368/UL62368/EN62368 test standards
- ◆ Fully enclosed plastic case, UL94 V-0 standard
- ◆ PCB mounting



Application Field

DA3-220SXXG2N4Series----- *a compact size, high efficient power module offered by Aipu.*
This series of power supplies has the advantages of global input voltage range, AC/DC dual use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, high safety isolation, and good EMC performance. EMC and safety specifications meet the international EN55032 and IEC/EN61000 standards. This series of products are widely used in many fields such as power, industry, instrumentation, and smart home. When the product is used in an environment with relatively harsh electromagnetic compatibility, please refer to the application circuit provided by our company.

Typical Product List

Certificate	Part No.	Output Specifications			Max. Capacitive Load	Ripple& Noise 20MHz (Max)	Efficiency@ Full Load, 220Vac (Typical)
		Power	Voltage	Current			
		(W)	Vo(V)	Io(mA)	uF	mVp-p	%
-	DA3-220S05G2N4	3	5	600	1000	100	71
	DA3-220S12G2N4	3	12	250	500	100	74
	DA3-220S24G2N4	3	24	125	200	150	81

Note 1: Due to limited space, the above is only a partial list of products. If you need products outside the list, please contact our sales department.

Note 2: "*" represents a model under development.

Note 3: The typical value of output efficiency is based on the product aging for half an hour at full load.

Note 4: The full load efficiency (%, TYP) in the table fluctuates by ±2%. The full load efficiency is the total output power divided by the input power of the module.

Note 5: The ripple and noise test method adopts the twisted pair test method. The specific test method and matching can be seen later (Ripple & Noise Test Instructions).

Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	220	305	VAC
	DC input	120	310	430	VDC
Input Frequency range	-	47	50	63	Hz

Input Current	115VAC	/	/	0.10	A
	220VAC	/	/	0.05	
Surge Current	115VAC	/	/	10	
	220VAC	/	/	20	
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Recommended External Input Fuse	-	2A/250VAC slow fusing			
Input capacitors CE1,CE2		3.3uF/450V			
Hot Plug	-	unavailable			
Remote Control Terminal	-	unavailable			

Output Specifications

Item		Operating Condition		Min	Typ.	Max	Unit
Voltage Accuracy		Full input voltage range, Any load	Vo	-	±2.0	±5.0	%
Line Regulation		Nominal load	Vo	-	-	±2.0	%
Load Regulation		Nominal input voltage, 20%~100% load	Vo	-	-	±4.0	%
No Load Consumption		Input 115VAC		-	-	0.25	W
		Input 220VAC		-	-		
Minimum Load		Single Output		10	-	-	%
Start up Delay Time		Nominal input voltage (full load)		-	600	-	mS
Power-off Holding Time		Input 115VAC (full load)		-	50	-	mS
		Input 220VAC (full load)		-	70	-	
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%		-5.0	-	+5.0	%
	Recovery time			-	-	5.0	mS
Output Overshoot		Full input voltage range		≤10%Vo			%
Short circuit Protection				Continuous, self-recovery			Hiccup
Temperature Drift		-		-	±0.03%	-	%/℃
Over Current Protection		Input 220VAC		≥120% Io self-recovery			Hiccup

General Specifications

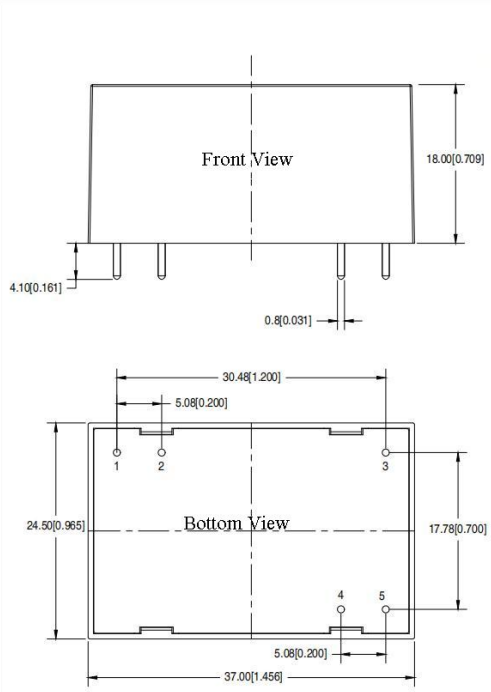
Item		Operating Condition	Min	Typ.	Max	Unit
Switching Frequency		-	-	65	-	KHz
Operating Temperature		-	-40	-	+105	℃
Storage Temperature		-	-40	-	+110	
Soldering Temperature		Wave soldering	260±4℃, time 5-10S			
		Manual soldering	360±8℃, time 4-7S			
Relative Humidity		-	10	-	90	%RH
Isolation Voltage	I/P-O/P	Test 1min,leakage current≤5mA	4000	-	-	VAC
Insulation Resistance	I/P-O/P	@ DC500V	100	-	-	MΩ
Safety Standard		-	EN60950、IEC60950			

Vibration	-	10-55Hz,10G,30Min,along X,Y,Z
Safety Standard	-	CLASS Ⅱ
Class of Case		UL94 V-0
MTBF	-	MIL-HDBK-217F@25℃＞300,000H

EMC Characteristics

Total Item		Sub Item	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS A
			CISPR22/EN55032	CLASS B (Recommended Circuit 1)
		RE	CISPR22/EN55032	CLASS A
			CISPR22/EN55032	CLASS B (Recommended Circuit 1)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (Recommended Circuit 1)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (Recommended Circuit 1)
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±1KV Perf.Criteria B
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

Dimension



Note: Grid 2.54x2.54mm
unit:mm[inch]
pin tolerance:±0.10mm[±0.004inch]
general tolerance:±0.50mm[±0.020inch]

Packing Code	L x W x H	
-	37.0X24.5X18mm	1.457 × 0.965× 0.7.09 inch

Pin Specification

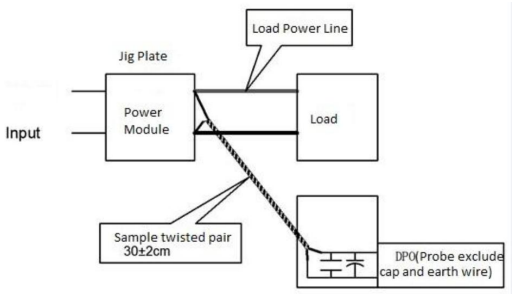
Pin	1	2	3	4	5
Single(S)	AC(L)	AC(N)	NP	+Vo	-Vo

Ripple& Noise Test: (Twisted Pair Method 20MHZ bandwidth)

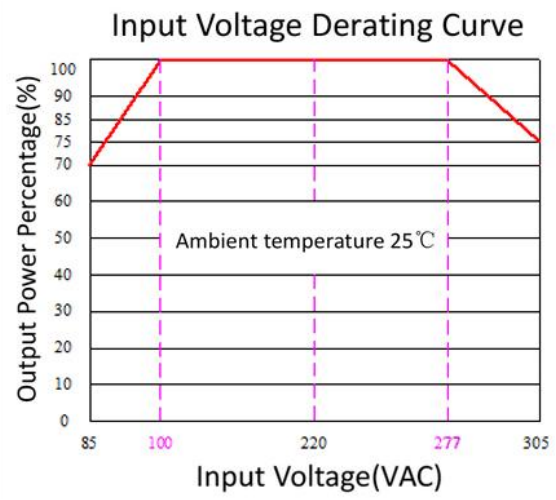
Test Method:

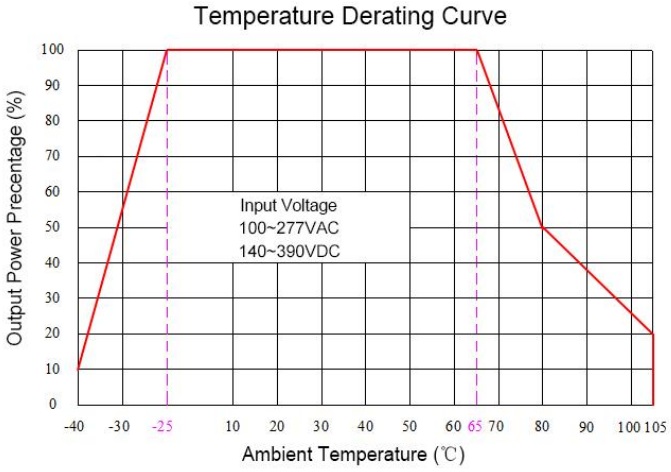
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

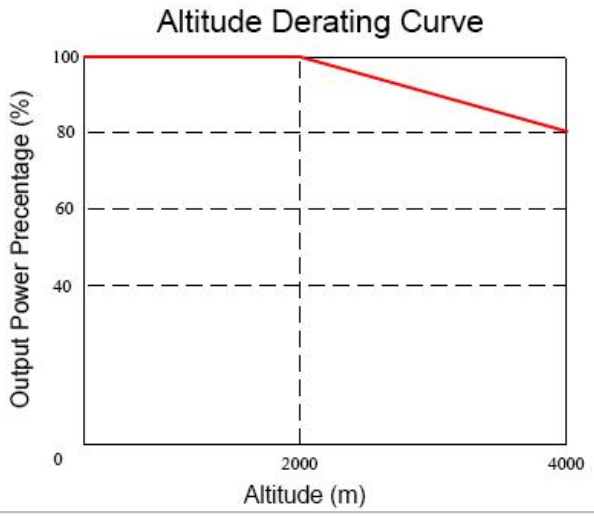
(2) Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Product Characteristic Curve





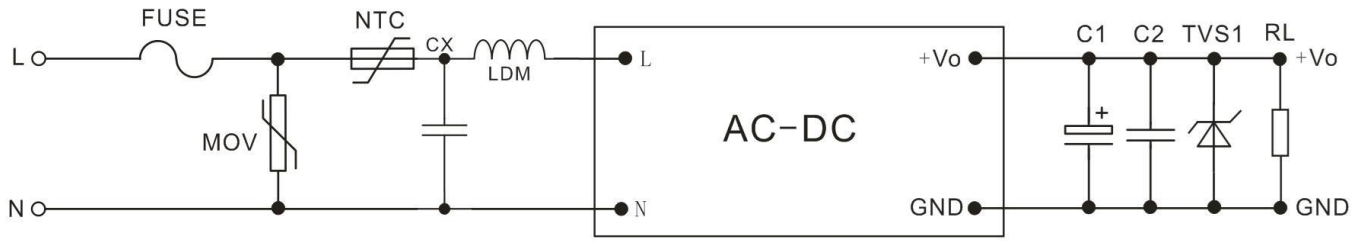


Note 1: Input Voltage should be derated based on Input voltage derating curve when it is 85~100VAC/277~305VAC/120~140VDC/ 390~430VDC.

Note 2: Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

Typical Application Circuit and EMC Recommended Circuit

1.Typical Application Circuit



Recommended Circuit 1

Note 1:

1) FUSE is a fuse, and it is recommended to use 2A~250Vac slow-break, square type;

2) MOV is a varistor, and the recommended model is 10D561K;

3) NTC1 is a thermistor, and the recommended model is 5D-11, which is used to protect the module from damage during lightning surges;

4) CX is an X capacitor, and the recommended model is 104K, 275V;

5) LDM is a differential mode inductor, and the inductance is more than 2mH

6) C1 selects a high-frequency low-impedance electrolytic capacitor with a capacitance value less than the capacitive load, and the withstand voltage value is more than 1.5 times the output voltage;

7) C2 selects a 0.1uF ceramic chip capacitor, and the withstand voltage value is more than 1.5 times the output voltage;

8) TVS1 is a TVS tube; 5V output is recommended to use: SMBJ7.0A, 9V output is recommended to use: SMBJ12.0A, Recommended for 12V output: SMBJ20A, Recommended for 15V output: SMBJ20.0A, Recommended for 24V output: SMBJ30.0A, Recommended for 48V output: SMBJ64A.

Note 2:

1. The product should be used within the specification range, or it will cause permanent damage to it;
2. The input terminal should connect to fuse;
3. If the product is worked under the minimum requested load, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
4. 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;
5. 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(pure resistance load);
6. All index testing methods in this datasheet are based on our Company's corporate standards;
7. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, please directly contact our technician for specific information;
8. We can provide product customization service,
9. Specifications are subject to change without prior notice, please follow up with our website for latest manual.

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