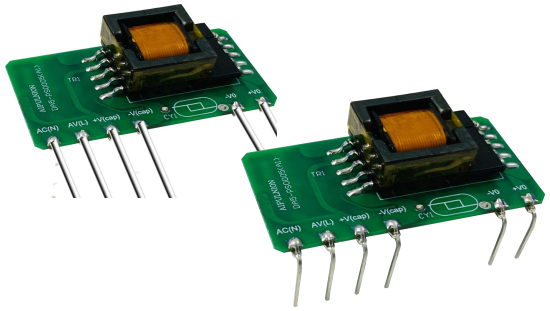
Typical Features

- Wide input voltage range:90-528VAC/127-746VDC
- No-load power：≤0.2W（230VAC）
- Transfer Efficiency up to 80%（230VAC）
- Switching Frequency：65KHz（TYP）
- Protections: short circuit, over current
- Isolation voltage ：4000VAC
- PCB mounting



Application Field

DA5-300SXXG9N4---It is a high efficiency small volume bare board power supply provided by Aipu.This series of power supply has the advantages of ultra wide input voltage, AC/DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, high safety isolation, etc. It meets IEC62368, UL62368, EN62368 standards and is widely used in industry, office, electric power, civil and other fields. When the product is used in harsh EMC environment, please refer to the application circuit provided by our company.

Typical Product List

Certificate	Part No.	Output Specifications			Capacitive Load (MAX)	Ripple & Noise 20MHz (Max)	Efficiency@ Full Load, 220Vac (Typical)
		Power	Voltage	Current			
		(W)	Vout (V)	Iout (m A)	u F	mVp-p	%
-	DA5-300S05G9N4(F)	5	5	1000	3000	80	76
	DA5-300S12G9N4(F)	5	12	420	2200	120	78
	DA5-300S24G9N4(F)	5	24	210	600	120	80

Note 1: The ripple test needs to be tested under the condition of adding peripherals;

Note 2: The typical value of output efficiency is based on the product aging for 30mins under full load;

Note 3: The minimum efficiency is defined as -2% of the typical value due to the instrumental error of the test equipment;

Note 4: Due to the limited space, the above is only a partial list of products. If you need products other than the list, please contact the sales department of our company.

Input Specifications

Item	Operating Condition	Min	Typ	Max	Unit
Input Voltage Range	AC input	90	230	528	VAC
	DC input	127	325	746	VDC
Input Frequency range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.15	A
	230VAC	-	-	0.10	
Surge Current	115VAC	-	-	10	
	230VAC	-	-	17	

No-load power consumption	Input 230VAC	-	-	0.2	W
	Output480VAC	-	-	0.5	
External fuse	-	2.0A/500VAC,Slow fuse (required)			
leakage current	-	0.25mA TYP / 230VAC/50HZ			
hot plug	-	not support			
Remote control	-	No remote control			

Output Specifications

Item		Operating Condition	Min	Typ	Max	Unit
Voltage Accuracy		Input full voltage range Any load	-	±1.0	±2.0	%
Linear regulation rate		Nominal load	-	-	±0.5	%
Load Regulation		Input nominal voltage 20%~100% load	-	-	±0.5	%
Minimum load		single output	0	-	-	%
Start delay time		Input 230VAC（Full Load）	-	500	-	mS
Power down hold time		Input400VAC（Full load）	-	100	-	mS
Dynamic Response	Overshoot magnitude	25%~50%~25% 50%~75%~50%	-5.0	-	+5.0	%
	Recovery Time		-5.0	-	+5.0	mS
output overshoot		Input full voltage range	≤10%Vo			%
Short circuit protection			Long-term short-circuit, self-recovery			Hiccup
Drift coefficient		-	-	±0.03%	-	%/℃
Overcurrent Protection		Enter the full range	≥130% Io self-recovery			Hiccup
Ripple noise		Vout=5V		80	120	mV
		Vout=12V		100	150	
		Vout=24V	-	120	200	
		The test method of ripple and noise adopts the twisted pair test method. For the specific test method and collocation, please refer to the following (ripple & noise test description).				

General Specifications

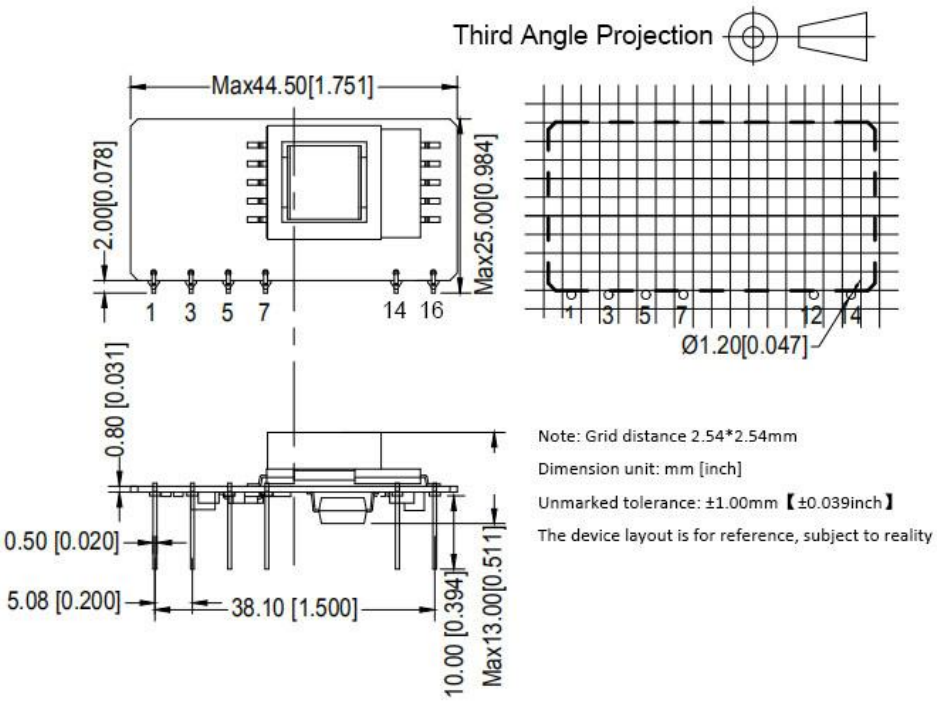
Item	Operating Condition	Min	Typ	Max	Unit
Switching Frequency	-	60	65	70	KHz
Operating Temperature	-	-40	-	+85	℃
	The temperature derating needs to be performed on the basis of the temperature derating curve. The derating curve diagram can be seen in the back (product characteristic curve).				
Storage temperature	-	-40	-	+105	
Soldering temperature	wave soldering	260±4℃，Time 5-10S			
	manual welding	360±8℃，Time 4-7S			
Relative humidity	-	10	-	90	%RH

isolation voltage	Input-Output	Test for 1 minute, leakage current≤5mA	4000	-	-	VAC
Insulation resistance	Input-Output	施加 DC500V	100	-	-	MΩ
Vibration		-	10-55Hz,10G,30Min,alongX,Y,Z			
Mean time between failures		-	MIL-HDBK-217F 25℃＞300,000H			

EMC Characteristic

EMC	EMI	CE	CISPR22/EN55022, CLASS B （**R**ecommended circuit is shown in Figure **3**）
		RE	CISPR22/EN55022, CLASS B （**R**ecommended circuit is shown in Figure**3**）
	EMS	ESD	IEC/EN 61000-4-2 ±4KV / ±8KV perf. Criteria B（**R**ecommended circuit is shown in Figure**2**）
		RS	IEC/EN 61000-4-3 10V/m perf. CriteriaB （**R**ecommended circuit is shown in Figure**3**）
		EFT	IEC/EN 61000-4-4 ±2KV perf. Criteria B （**R**ecommended circuit is shown in Figure**2**）
			IEC/EN 61000-4-4 ±4KV perf. Criteria B （**R**ecommended circuit is shown in Figure**3**）
		Surge	IEC/EN 61000-4-5 line to line ±1KV（**R**ecommended circuit is shown in Figure**2**）
			IEC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV（**R**ecommended circuit is shown in Figure**3**）
		CS	IEC/EN 61000-4-6 10 Vr.m.s perf. Criteria B （**R**ecommended circuit is shown in Figure**3**）

Dimension



Packing Code	L x W x H	
G9	44.5X25.0X13.0mm	1.752X0.984X0.512inch

Pin Definition

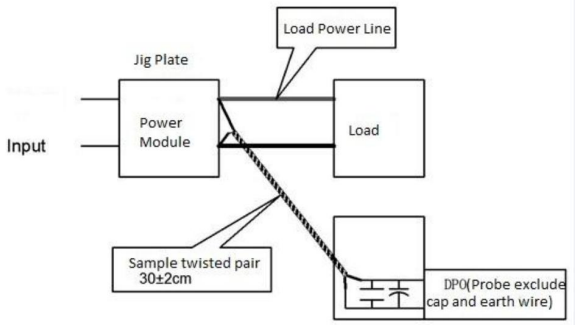
Pin	1	3	5	7	14	16
Single（S）	AC（N）	AC（L）	+V(CAP)	-V(CAP)	-V0	+V0

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

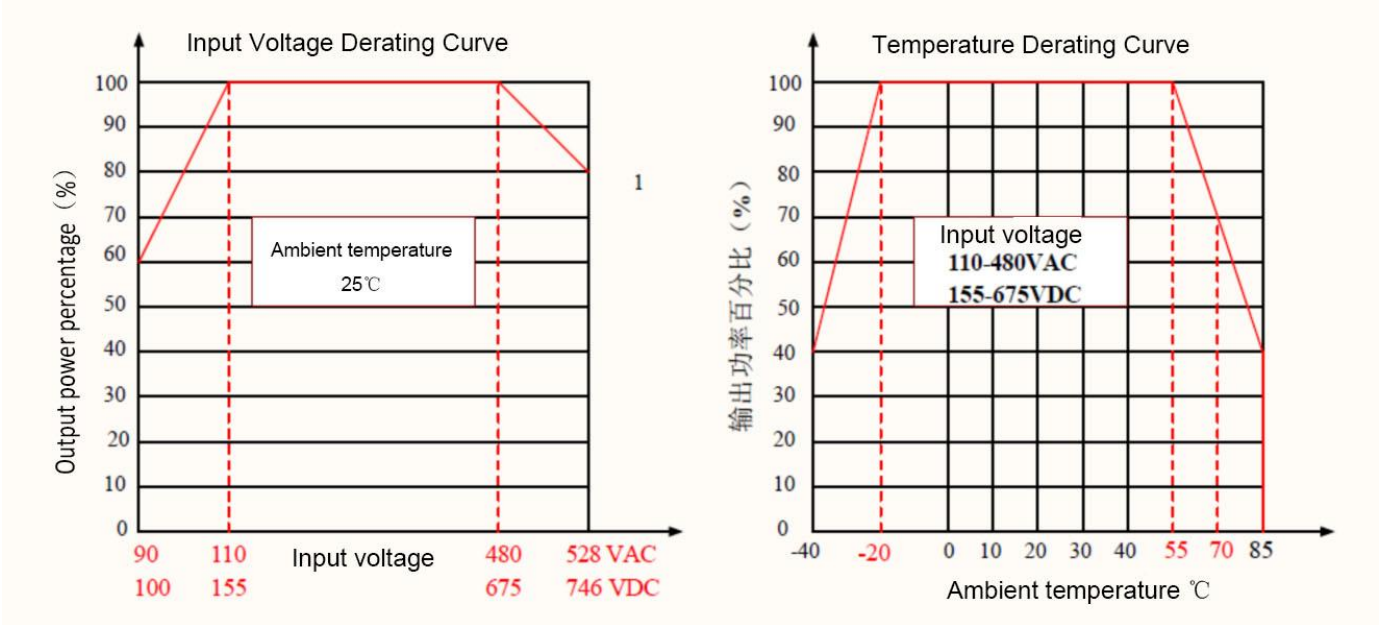


Figure 1

Note 1: The input voltage is 90~110VAC/480~528VAC/100~155VDC/675~746VDC, which needs to be derated based on the input voltage derating curve.

Note 2: This product is suitable for use in a natural wind cooling environment, if it is used in a closed environment, please contact our company.

Reference circuit

1. Typical Application Circuit

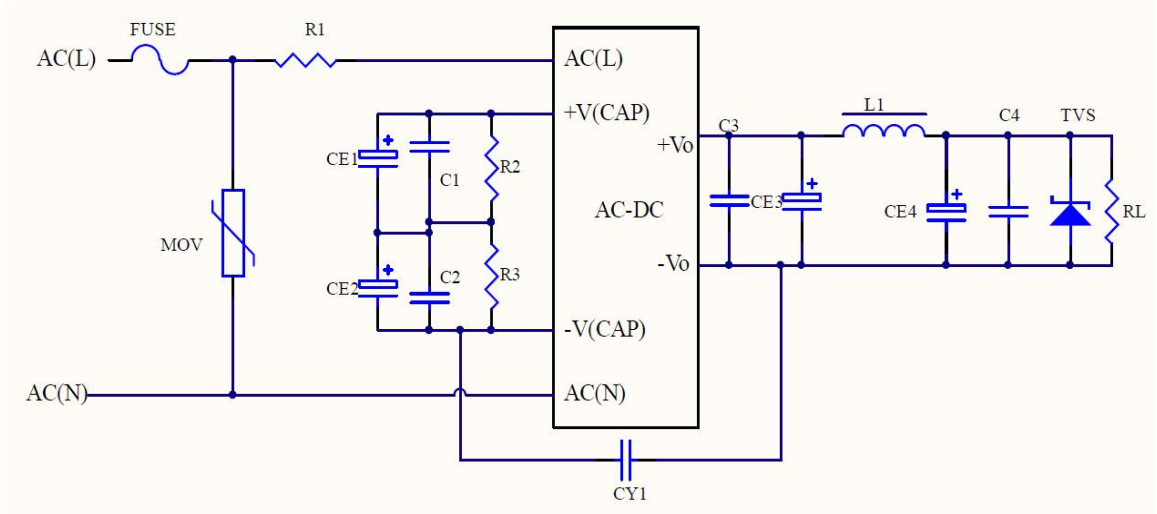


Figure 2

Recommended parameters：

Part no.	CE3, CE4 (Required)	C1、C2	C3, C4	L1 (Required)	TVS1
DA5-300S05G9N4	470uF/10V	0.1uF/630V	0.1uF/50V	4.7uH/3A	SMBJ7.0A
DA5-300S12G9N4	220uF/16V			4.7uH/3A	SMBJ20A
DA5-300S24G9N4	220uF/35V			5.6uH/3A	SMBJ30A

Note:

1. FUSE is a fuse, the recommended specification is 2A/500VAC, slow break (required);
2. MOV is a varistor, 14D102K (required);
3. R1 is metal sheath/cement resistance, 20Ω/1W (required);
4. CE1 and CE2 are electrolytic capacitors, 33uF/450V (required);
5. R1 and R2 are discharge resistors, 3M/1206. (required);
6. TVS is a transient suppression diode, SMBJ20A;
7. CY1 is a Y capacitor, 470pF/500V (required).

2.EMC Solutions and Recommended Circuits

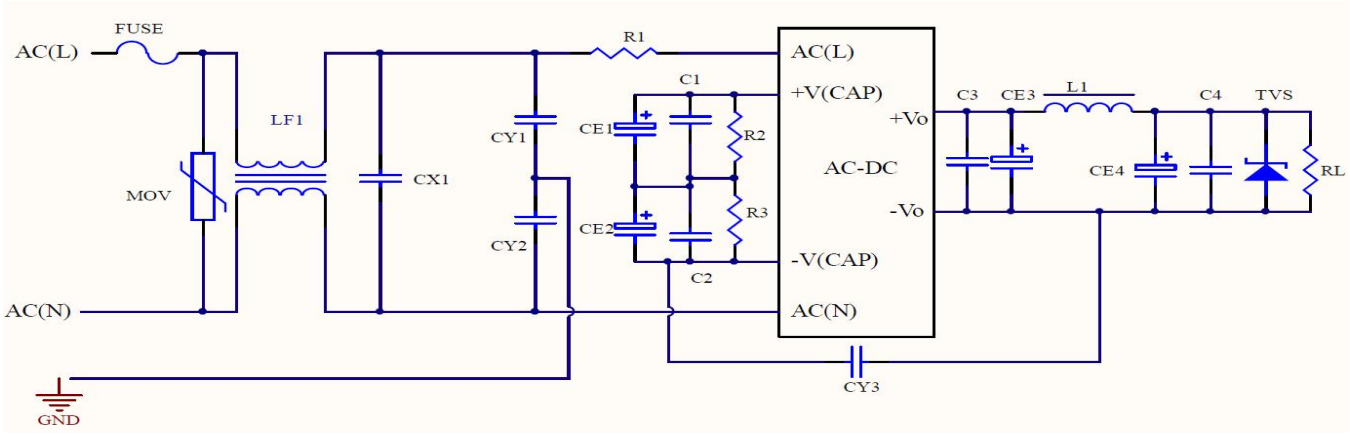


Figure 3

Recommended parameters:

1. FUSE is a fuse, the recommended specification is 2A/500Vac, slow break (required);
2. MOV is a varistor, 14D102K (required);
3. R1 is metal sheath/cement resistance, 20Ω/1W (required);
4. CY1, CY2, CY3 are Y capacitors, 470pF/500VAC (required);
5. CX1 is the X capacitor, 0.33uF/530VAC (required);
6. LF1 is a common mode inductor, 15mH/0.5A (required).

Note: The recommended values of other components are based on the actual application and refer to the typical application circuit.

Note:

1. The product should be used within the specification range, otherwise it will cause permanent damage to the product;
2. The input end of the product must be connected to insurance;
3. If the product works below the minimum required load, the product performance cannot be guaranteed to meet all the performance indicators in this manual;
4. If the product works beyond the product load range, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
5. Unless otherwise specified, the above data are all measured at Ta=25℃, humidity <75%, input nominal voltage and output rated load (pure resistive load);
6. All the above index test methods are based on the company's standards;
7. The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard models will exceed the above requirements. For details, please contact our technical staff directly;
8. Our company can provide product customization;
9. Product specifications are subject to change without notice. Please pay attention to the latest manual published on our official website.