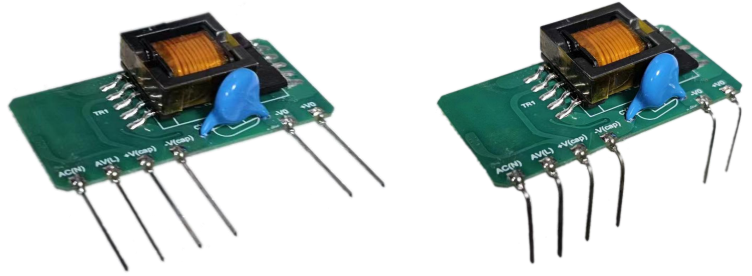


Typical Features

- ◆ Wide input voltage range: 85-528VAC/120-746VDC
- ◆ No load power consumption: ≤0.2W(230VAC)
- ◆ Transfer efficiency: typ. 80%(230VAC)
- ◆ Switching Frequency: 65KHz(Typ)
- ◆ Protections: short circuit, over-current
- ◆ Isolation voltage :4000VAC
- ◆ 4000m altitude application
- ◆ PCB mounting



Application Field

DA5-300SXXG9N4-1 Series--- a compact size, high efficient, power module offered by Aipu. This series of power module has the advantages of ultra-wide input voltage, AC and DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, and high safety isolation. Meet IEC62368, UL62368, EN62368 standards, widely used in industrial, office, power and civil and other fields. When the product is used in a harsh environment with electromagnetic compatibility, please refer to the application circuit given by our company.

Typical Product List

Certificate	Part no.	Output Specifications			Capacitive Load(MAX) u F	Ripple& Noise 20MHz (MAX) mVp-p	Efficiency Full Load ,230VAC (Typ) %
		Power	Voltage	Current			
		(W)	Vout(V)	Iout(m A)			
-	DA5-300S05G9N4(-1)	5	5	1000	3000	80	76
	DA5-300S12G9N4(-1)	5	12	420	2200	120	78
	DA5-300S15G9N4(-1)	5	15	333	1000	120	78
	DA5-300S24G9N4(-1)	5	24	210	600	120	80

Note 1: 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 being aged for half an hour at full load;

Note 3: Due to the instrument error of the test equipment, the minimum efficiency is defined as -2% of the typical value;

Note 4: 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 5: The suffix -1 is a 90° bent foot model.

Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	230	528	VAC
	DC input	120	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
	Input 480VAC	-	-	0.5	
External fuse	-	2.0A/500VAC, Slow fuse (necessary)			
leakage current	-	0.25mA TYP / 230VAC/50HZ			
Hot-plug	-	unavailable			
Remote Control Terminal	-	unavailable			

Output Specifications

Item		Operating Condition	Min.	Typ.	Max.	Unit
Voltage Accuracy		Full input voltage range, Any load	-	±1.0	±2.0	%
Line Regulation		Nominal Load	-	-	±0.5	%
Load Regulation		Nominal input voltage, 20%~100% load	-	-	±0.5	%
Minimum Load		Single Output	0	-	-	%
Turn-on Delay Time		Input 230VAC(full load)	-	500	-	mS
Power-off Holding Time		Input 400VAC(full load)	-	100	-	mS
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%	-5.0	-	+5.0	%
	Recovery time		-5.0	-	+5.0	mS
Output Over-shoot		Full input voltage range	≤10%Vo			%
Short circuit protection			Long-term short-circuit, self-recovery			Hiccup
Drift Coefficient		-	-	±0.03%	-	%/°C
Over Current Protection		Full input range	≥130% Io self-recovery			Hiccup
Ripple & Noise		Vout=5V		60	80	mV
		Vout=12V		80	120	
		Vout=15V	-	80	120	
		Vout=24V	-	80	120	
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

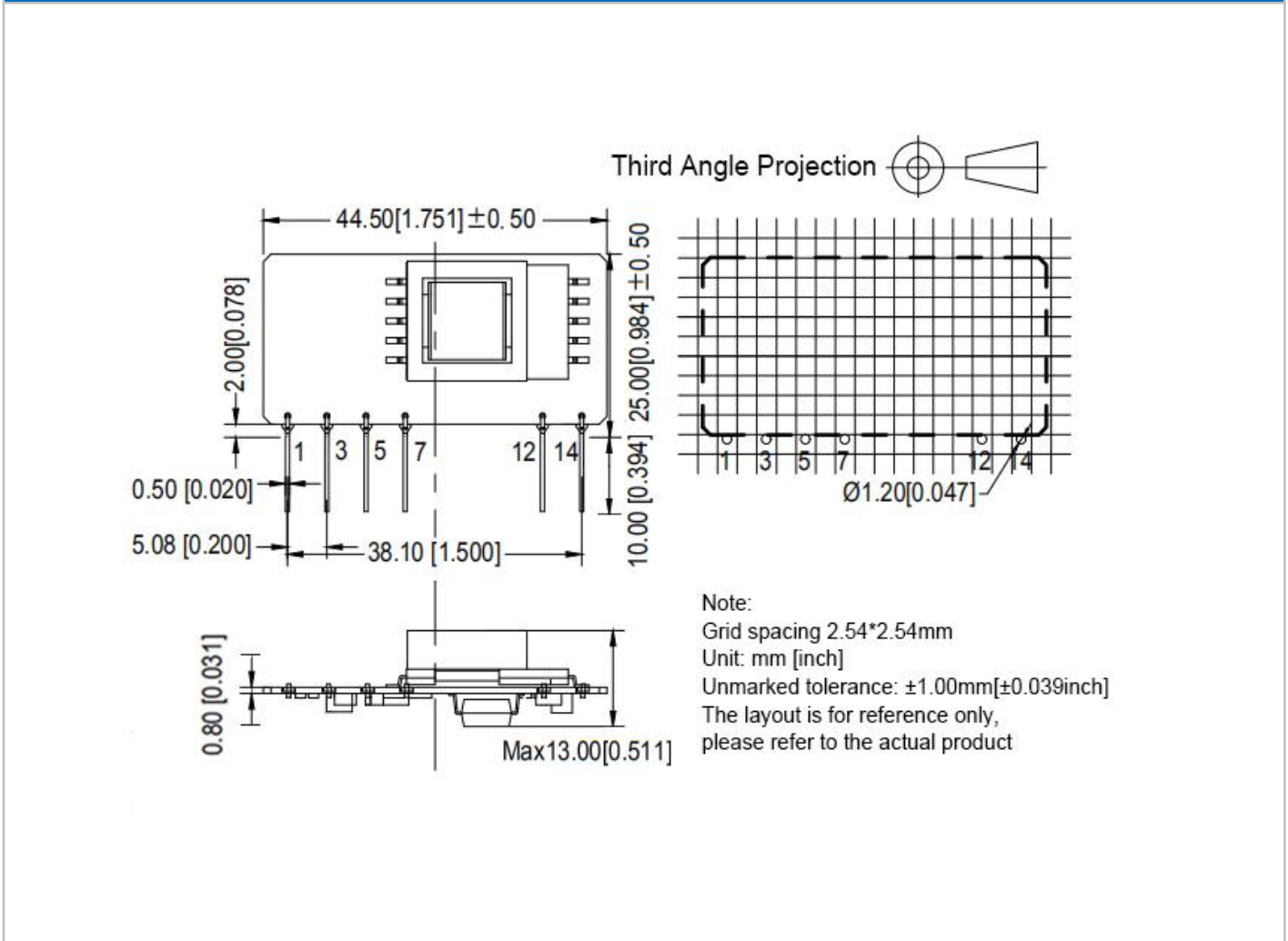
Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency	-	60	65	70	KHz
Operating Temperature	-	-40	-	+105	°C
	needs to be performed on the basis of the temperature derating curve. The derating curve diagram can be seen in the back (product characteristic curve).				
Storage Temperature	-	-40	-	+110	
Soldering Temperature	Wave-soldering	260±4°C, Time 5-10S			
	Manual-soldering	360±8°C, Time 4-7S			

Relative Humidity		-	10	-	90	%RH
Isolation Voltage	Input-Output	Test 1min, leakage current≤5mA	4000	-	-	VAC
Insulation Resistor	Input-Output	@DC500V	100	-	-	MΩ
Vibration		-	10-55Hz, 10G, 30Min, along X, Y, Z			
mean time between failures		-	MIL-HDBK-217F 25°C > 300,000H			

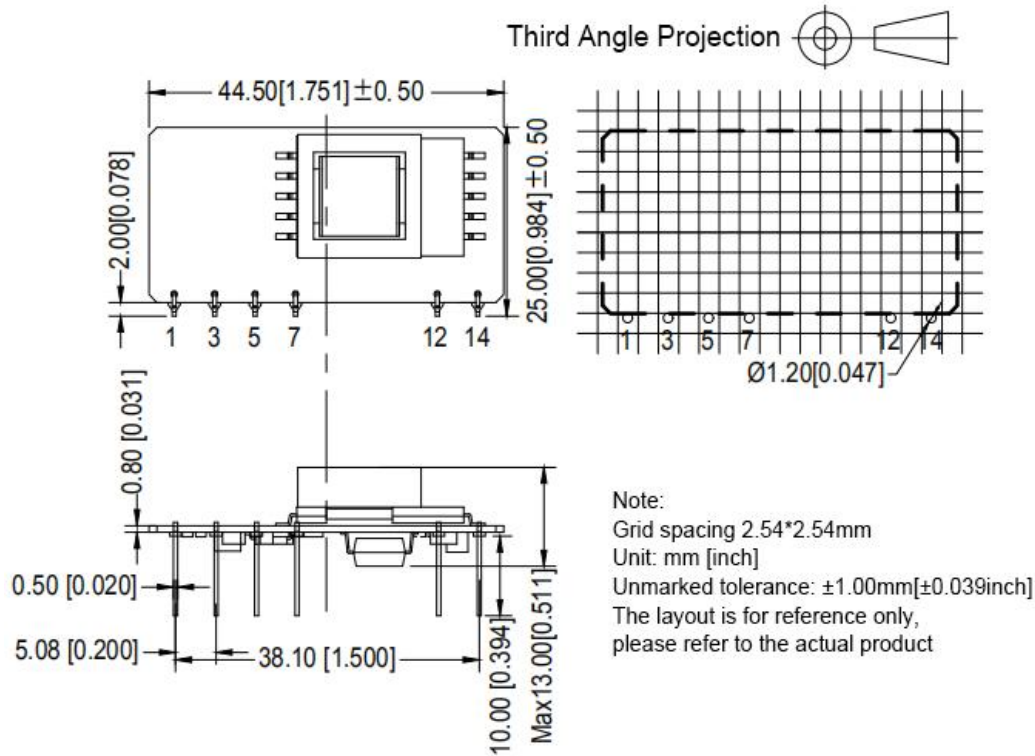
EMC Characteristics

EMC	EMI	CE	CISPR22/EN55022, CLASS B (Recommend Circuit 2)
		RE	CISPR22/EN55022, CLASS B (Recommend Circuit 2)
	EMS	ESD	IEC/EN 61000-4-2 ±4KV / ±8KV perf. Criteria B (Recommend Circuit 1)
		RS	IEC/EN 61000-4-3 10V/m perf. CriteriaB (Recommend Circuit 2)
		EFT	IEC/EN 61000-4-4 ±2KV perf. Criteria B (Recommend Circuit 1)
			IEC/EN 61000-4-4 ±4KV perf. Criteria B (Recommend Circuit 2)
		Surge	IEC/EN 61000-4-5 line to line ±1KV (Recommend Circuit 1)
			IEC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV (Recommend Circuit 2)
		CS	IEC/EN61000-4-6 10 Vr.m.s perf. Criteria B (Recommend Circuit 2)

Dimension



-1 Dimension



Part No.	L x W x H	
-	44.5X25.0X13.0mm	1.752X0.984X0.512inch

Pin Definition

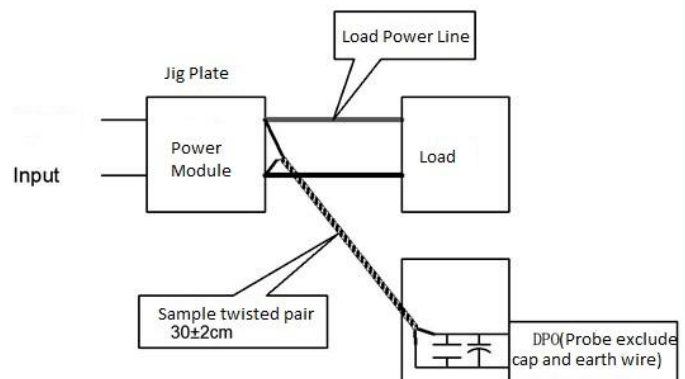
Pin	1	3	5	7	12	14
Single(S)	AC (N)	AC (L)	+V(CAP)	-V(CAP)	-V0	+V0

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

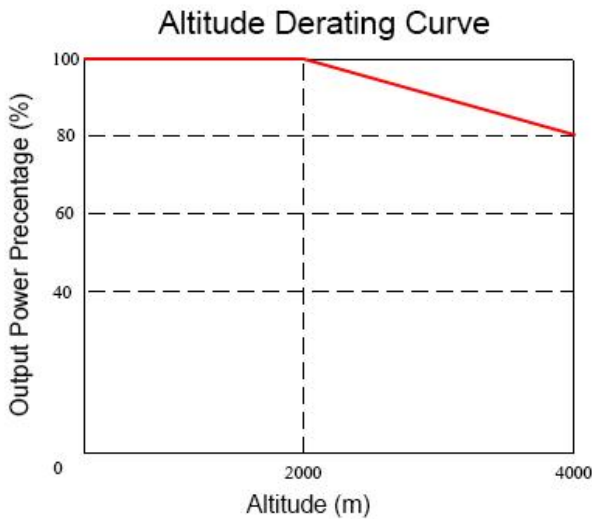
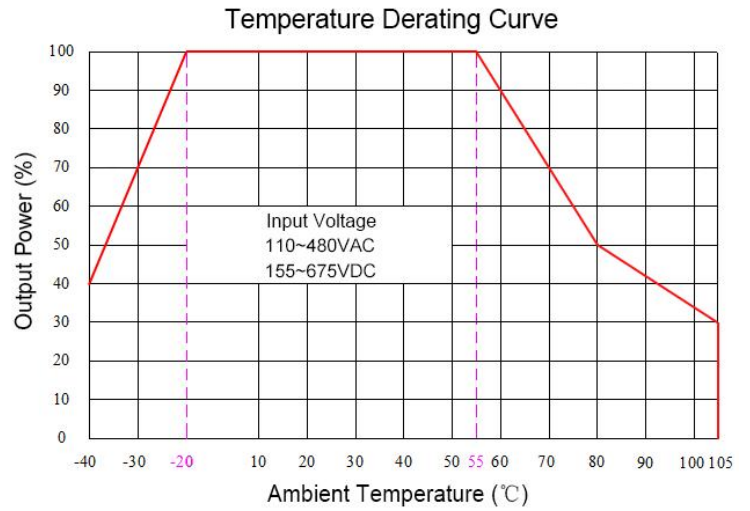
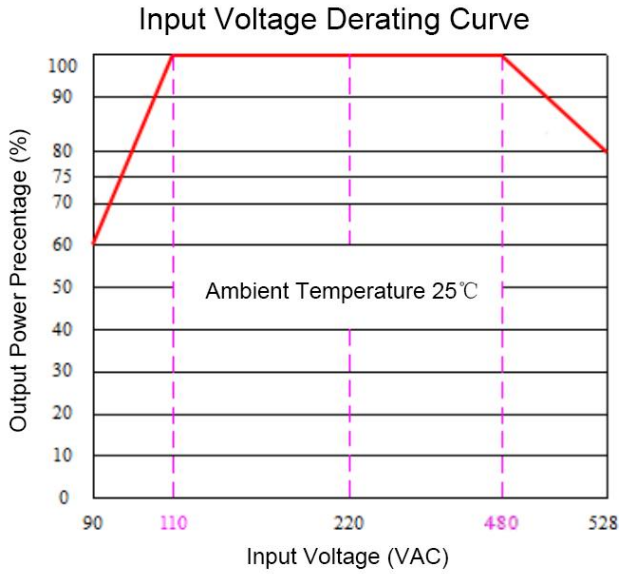
Test Method:

(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

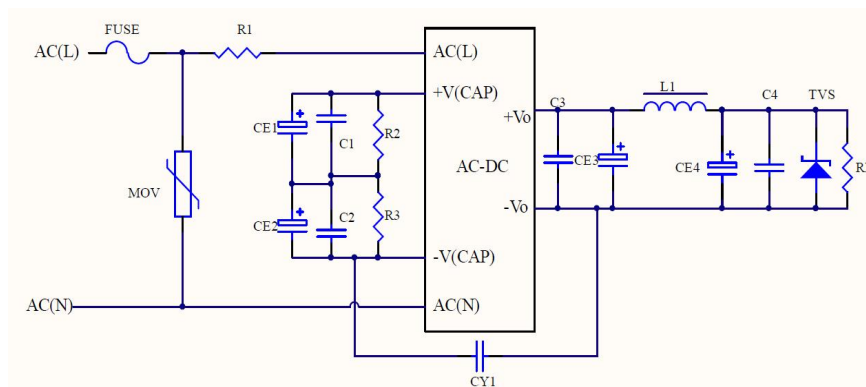


Note 1: The input voltage is 85~110VAC/480~528VAC/120~155VDC/675~746VDC, which needs to be derated based on the input voltage derating curve.

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.

Typical Application Circuit and EMC Recommended Circuit

1. Typical Application Circuit



Recommended Circuit 1

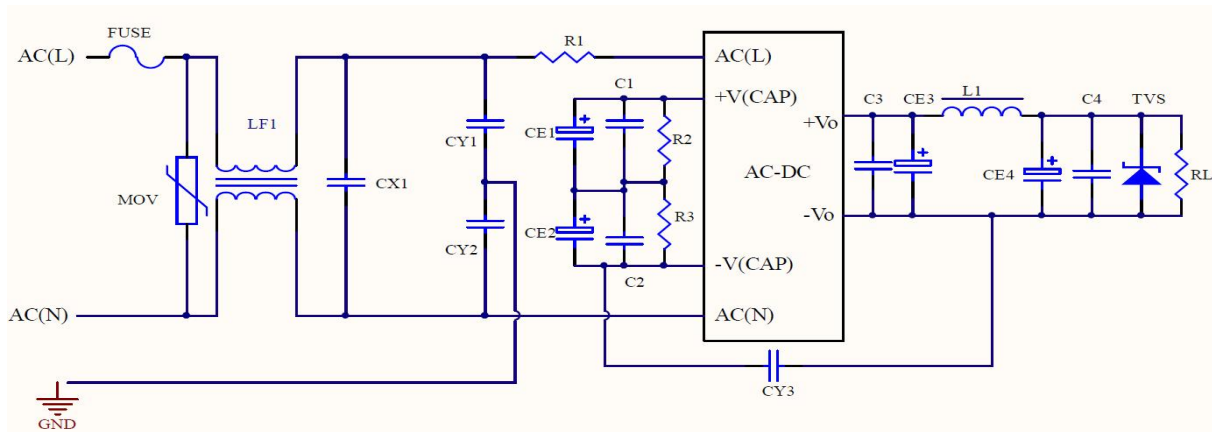
Recommended parameters :

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, 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



Recommended Circuit 2

Recommended parameters:

1. 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 $T_a=25^{\circ}\text{C}$, 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.

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