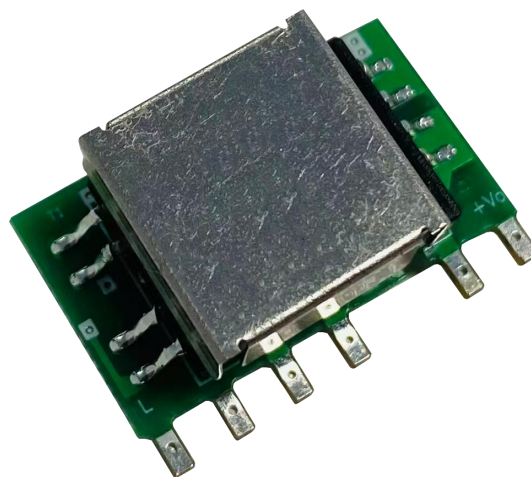


## Typical Features

- ◆ Wide input voltage range: 85-305VAC/70-430VDC
- ◆ No load power consumption  $\leq 0.3W$
- ◆ Transfer Efficiency up to 78%(TYP.)
- ◆ Switching Frequency: 65KHz
- ◆ Protections: short circuit, over current
- ◆ Isolation voltage: 3600Vac
- ◆ Meet IEC62368/UL62368/EN62368 test standard
- ◆ Conform to CE Certificate
- ◆ Ultra small size bare board, industrial level design
- ◆ PCB mounting



## Application Field

**A05-C4SXXD Series-----** a compact size, high efficient power module offered by Aipu.

It features universal input voltage range, AC and DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, good EMC performance. EMC and Safety standard meet international EN55032, IEC/EN61000. These series have important application for power, industry, instrument and smart home field. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

## Typical Product List

Certificate	Part No.	Output Specifications			Max. Capacitive Load uF	Ripple& Noise 20MHz (Max) mVp-p	Efficiency@ Full Load, 220Vac (Typical) %
		Power	Voltage	Current			
		(W)	Vo(V)	Io(mA)			
-	A05-C4S03D	3.3	3.3	1000	2000	100	68
	A05-C4S05D	5	5	1000	2000	100	74
	A05-C4S09D	5	9	556	1000	120	76
	A05-C4S12D	5	12	416	68	120	78
	A05-C4S12V1D	5	12.1	416	68	120	78
	A05-C4S15D	5	15	333	68	120	78
	A05-C4S24D	5	24	208	47	120	80

Note 1: "\*" represents a model under development;

Note 2: The typical value of output efficiency is based on the product being aged at full load for half an hour;

Note 3: The full load efficiency (% , TYP) in the table fluctuates by  $\pm 2\%$ , and the full load efficiency is the total output power divided by the input power of the module;

Note 4: The ripple and noise test method uses the twisted pair test method. For specific test methods and matching, please see the following (Ripple & Noise Test Instructions);

Note 5: Due to limited space, the above is only a partial product list. If you need products outside the list, please contact our sales department.

### Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	220	305	VAC
	DC input	70	310	430	VDC
Input Frequency range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.15	A
	220VAC	-	-	0.10	
Surge Current	115VAC	-	-	11	
	220VAC	-	-	21	
Leakage Current	-	0.25mA TYP/230VAC/50Hz			
Recommended External Input Fuse	-	1A-3A/250VAC slow fusing			
Hot Plug	-	unavailable			
Remote Control Terminal	-	unavailable			

### Output Specifications

Item		Operating Condition		Min	Typ.	Max	Unit
Voltage Accuracy		Full input voltage range, 10-100% load(0%-10% load with stable output, could work)	3.3V	-	±2.0	±8.0	%
			Others	-	±2.0	±6.0	%
Line Regulation		Nominal load	Vo	-	±1.0	±2.0	%
Load Regulation		Nominal input voltage, 20%~100% load	Vo	-	±1.0	±5.0	%
No Load Consumption		Input 115VAC		-	-	0.3	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)		-	80	-	
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%		-5.0	-	+5.0	%
	Recovery time			-5.0	-	+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	≥110% Io self-recovery			Hiccup

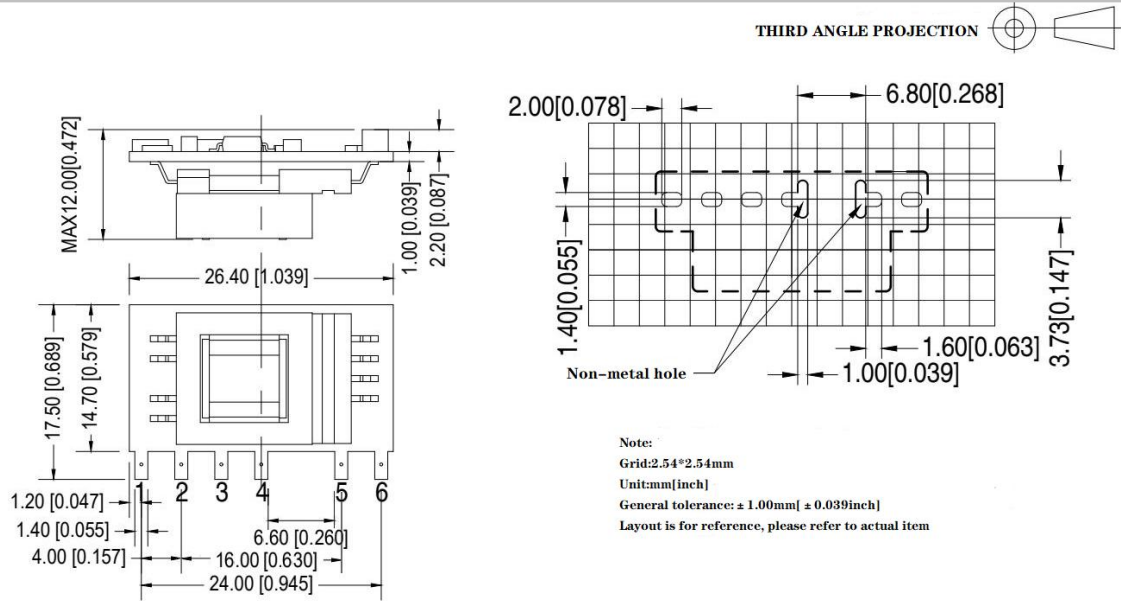
General Specifications

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	3600	-	-	VAC
Insulation Resistance	I/P-O/P	@ DC500V	100	-	-	MΩ
Safety Standard		-	EN62368, IEC62368			
Vibration		-	10-55Hz, 10G, 30Min, along X, Y, Z			
Safety Standard		-	CLASS II			
MTBF		-	MIL-HDBK-217F@ 25℃> 300,000H			

EMC Characteristics

Total Item		Sub Item	Test Standard	Class	
EMC	EMI	CE	CISPR22/EN55032	CLASS B (Recommended Circuit 2)	
		RE	CISPR22/EN55032	CLASS B (Recommended Circuit 2)	
	EMS	RS	IEC/EN61000-4-3	10V/m	Perf.Criteria B (Recommended Circuit 2)
		CS	IEC/EN61000-4-6	3Vr.m.s	Perf.Criteria B (Recommended Circuit 2)
		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



Packing Code

L x W x H

-

26.4 x 17.5x 12.0 mm

1.039 × 0.689× 0.472 inch

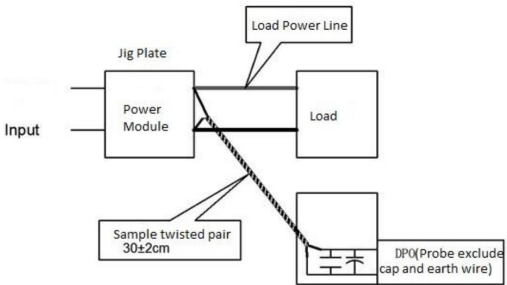
Pin Specification

Pin	1	2	3	4	5	6
Single(S)	AC(L)	AC(N)	+Vc	-Vc	-Vo	+Vo

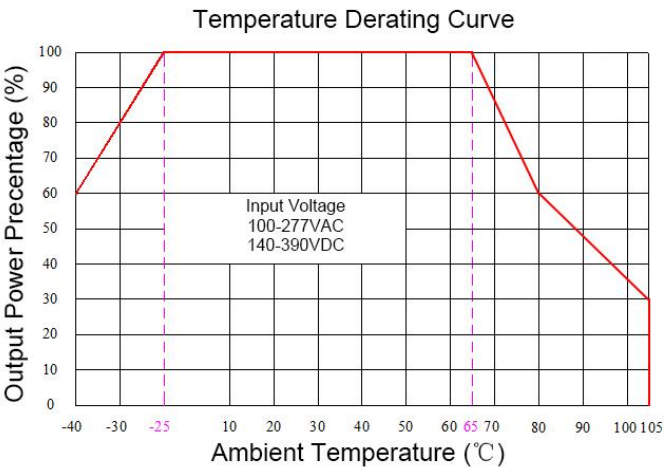
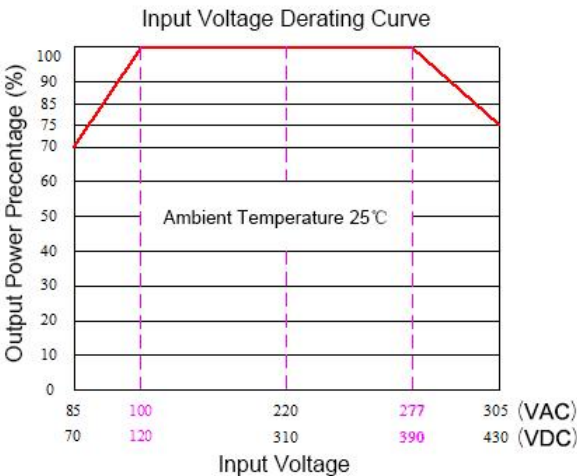
Ripple & Noise Test: (Twisted Pair Method 20MHZ bandwidth)

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

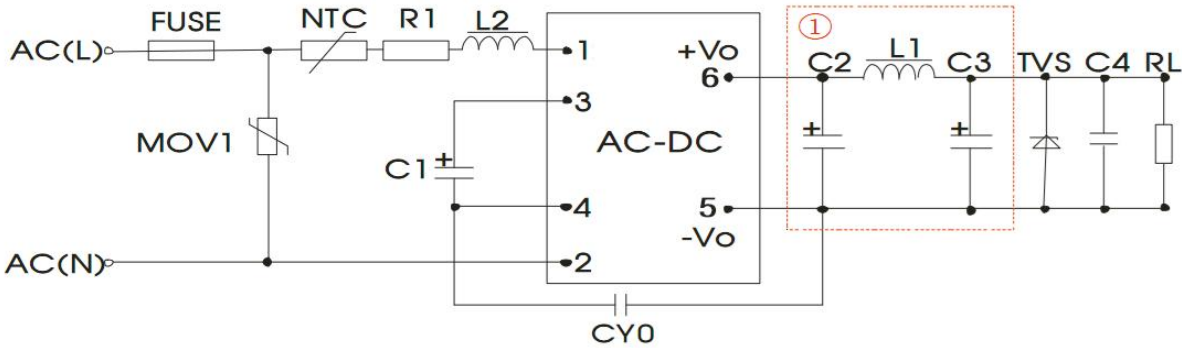


Note 1: Input Voltage should be derated based on Input voltage derating curve when it is 85~100VAC/277~305VAC/70~120VDC/390~430VDC.

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

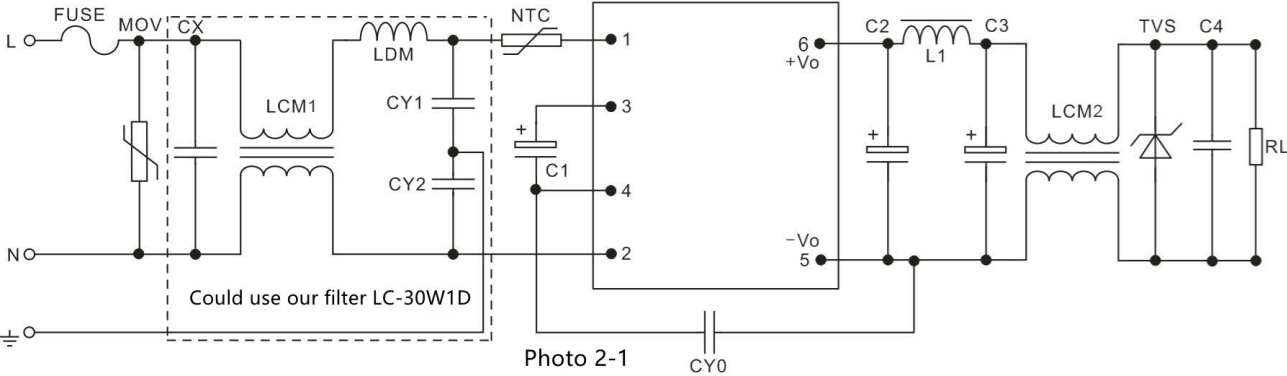


Recommended Circuit 1

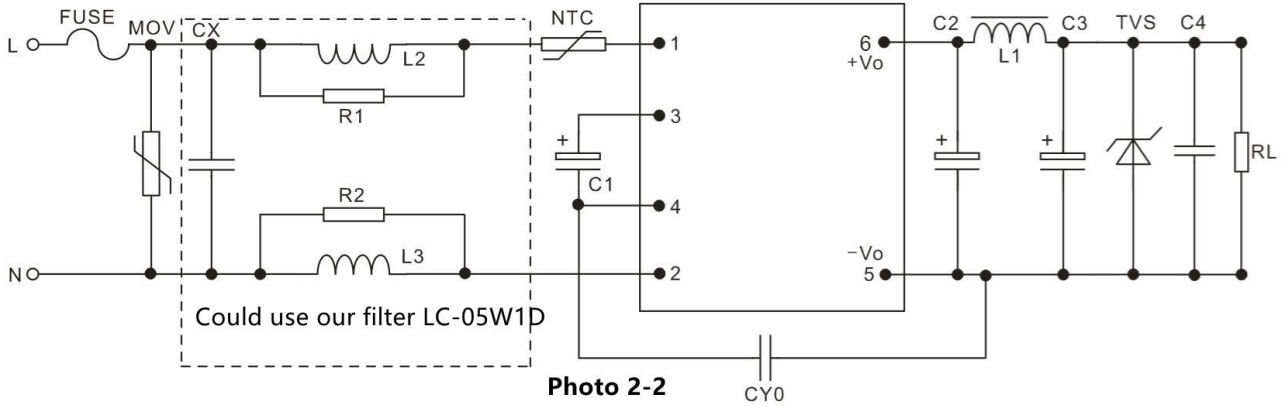
Note: ① is  $\pi$  Type filter

Products Number	C1 (Necessary)	C2 (Necessary to connect the external electrolytic capacitor)	L1 (Necessary)	C3 (Necessary to connect the external electrolytic capacitor)	C4	L2	NTC	CY0	FUSE (Necessary)	TVS Tube
A05-C4S3V3D	22uF /450V	470uF/10V	2.0uH	100uF/10V	0.1uF/50V	4.7mH	5D-9	102M/400V	1A/300V	SMBJ7.0A
A05-C4S05D		470uF/10V		100uF/10V						SMBJ7.0A
A05-C4S09D		220uF/16V		220uF/16V						SMBJ12A
A05-C4S12D		220uF/16V		68uF/16V						SMBJ20A
A05-C4S12V1D		220uF/16V		68uF/16V						SMBJ20A
A05-C4S15D		220uF/35V		68uF/35V						SMBJ20A
A05-C4S24D		100uF/35V		47uF/35V						SMBJ30A

2. EMC recommended circuit (Used Under high EMC requirement)



Recommended Circuit 2-1



Component	Recommend 1A, 300V (Necessary)	NTC	5D-9
MOV	10D561K	CY1, CY2	1nF/400VAC
CX	Recommended 0.22uF/310Vac	LDM	330uH, 0.3A
LCM1	40mH min	L2,L3	Color ring inductor 1mH, 0.3A
LCM2	40mH min	R1, R2	Resistor 2.2K, above 1/8W

**Note :**

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°C, 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>



# CERTIFICATE

## of Conformity

### Low Voltage Directive (EU) 2014/35

**Registration No.:** AN 50647659 0001  
**Report No.:** CN23HKLO 003  
**Holder:** Guangzhou Aipu Electron Technology Co., Ltd  
3rd Floor, Building 4,  
HEDY Kechuang Park,  
No.63, Punan Road, Huangpu District,  
Guangzhou city,  
510760 Guangdong  
P.R. China  
**Product:** Power Supply  
(AC/DC Modular Power)

#### Type designation listed on the next page

This certificate of conformity is based on an evaluation of a sample of the above-mentioned product. Technical Report and documentation are at the License Holder's disposal. This is to certify that the tested sample is in conformity with Annex I of Council Directive (EU) 2014/35, referred to as the Low Voltage Directive. This certificate does not imply assessment of the series-production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Annex IV of the Directive.

**Date:** 2024-09-19

**Certification Body**

*Sommy Chen*

Sommy Chen



**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**

The CE marking may be used if all relevant and effective EC Directives/Regulations are complied with.

# CERTIFICATE

## of Conformity

### Low Voltage Directive (EU) 2014/35

**Registration No.:** AN 50647659 0001

**Product:** Power Supply  
(AC/DC Modular Power)

**Identification:** Type Designation  
DA5-220SxxG9D4, DA5-220SxxG9D4Y, A05-C4SxxD  
(AIPULNION or AIPUPOWER)  
Serial No.: n.a.  
Remark: For details of the variable xx refer to  
test report CN23HKL0 003.



**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**

The CE marking may be used if all relevant and effective EC Directives/Regulations are complied with.



# CERTIFICATE

## of Conformity Directive 2014/30/EU Electromagnetic Compatibility

**Registration No.:** AE 50647566 0001  
**Report No.:** CN23FQQN 002  
**Holder:** Guangzhou Aipu Electron Technology  
Co., Ltd  
3rd Floor, Building 4,  
HEDY Kechuang Park,  
No.63, Punan Road, Huangpu District,  
Guangzhou city,  
510760 Guangdong  
P.R. China

**Product:** Power Supply  
(AC/DC Modular Power)

### Type designation listed on the next page

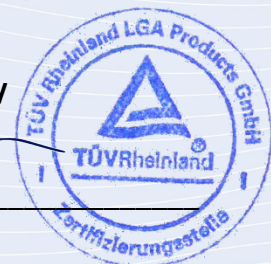
This certificate of conformity is based on an evaluation of a sample of the above mentioned product. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2014/30/EU. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to the a.m. Directive.  
This is not an EU-Type Examination Certificate.

**Date:** 2024-09-14

**Certification Body**



Gary Chen



**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**

# CERTIFICATE

## of Conformity Directive 2014/30/EU Electromagnetic Compatibility

**Registration No.:** AE 50647566 0001

**Product:** Power Supply  
(AC/DC Modular Power)

**Tested according to:** EN IEC 55014-1:2021  
EN IEC 55014-2:2021  
EN IEC 61000-3-2:2019+A1  
EN 61000-3-3:2013+A1+A2

**Identification:** Type Designation  
DA5-220SxxG9D4 A05-C4SxxD  
(xx is variable, refer to test report.)  
Serial No. : n.a.  
Remark: Refer to test report CN23FQQN 002 for details.



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