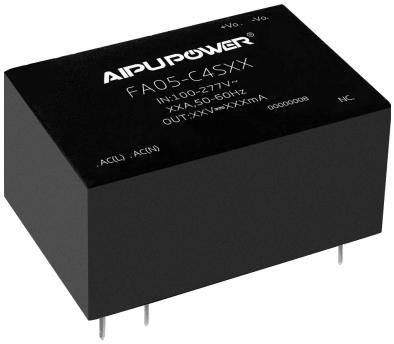
Typical Features

- Wide input voltage range 85-305VAC/120-430VDC
- Standby power consumption ≤0.25W@220VAC
- Efficiency up to 79%(Typ.)
- Operating temperature from -40 to +85℃
- Switching frequency 65KHz
- Short circuit & over current protections
- Isolation voltage 4000VAC
- Altitude during operating 5000m Max
- Compliant with IEC/EN62368/UL62368
- PCB DIP mounting



Application Field

FA05-C4SXX Series ----- Compact size & high-performance AC-DC modular power supplies with global adapted input voltage range (both AC and DC available), low ripple, low temperature rise, low standby power consumption, high efficiency, high reliability, safety isolated and good EMC performance. This series of products can be widely used in the fields of Electric power, Industry, Instrument and Smart home devices, etc. Additional circuit diagram for EMC is recommended for the application with high EMC requirement.

Typical Product List

Certificate	Part No.	Input Voltage		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)	(uF)	mVp-p	%
-	FA05-C4S12	220	85-305	5	12	417	2000	100	78
-	FA05-C4S15			5	15	333	1000	100	79

Note 1: The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 2: The full load efficiency should be in ±2% of the typical value in this table. The efficiency is calculated by the way that the full output power is divided by the input power.

Note 3: The Ripple & Noise is tested by the Parallel-line method, please refer to the following test instruction.

Note 4: Please contact Aipu sales for other output voltages requirement of this series but not listed in this table.

Input Specifications

Item	Test Condition	Min	Typ.	Max	Unit
Input voltage range	AC input	85	220	305	VAC
	DC input	120	310	430	VDC
Input frequency	-	47	50	63	Hz
Input current	115VAC input	-	-	0.10	A
	220VAC input	-	-	0.06	

Surge current	115VAC input	-	-	15	A
	220VAC input	-	-	20	
Standby power consumption	115VAC input	-	-	0.25	W
	220VAC input	-	-		
Leakage current	-	0.5mA TYP/ 230VAC/ 50Hz			
Recommended external fuse	-	2A/300VAC Time-delay fuse			
Hot plug	-	Unavailable			
ON/OFF Control	-	Unavailable			

Output Specifications

Item		Test Condition	Min	Typ.	Max	Unit
Voltage accuracy		Full input voltage range, any load	-	±2.0	±3.0	%
Line regulation		Rated load	-	-	±0.5	%
Load regulation		Nominal input voltage, 20%~100% load	-	-	±1.0	%
Minimum load		Single Output	0	-	-	%
Temperature drift coefficient		-	-	-	±0.03	%/℃
Turn-on delay time		Input 115VAC (full load)	-	-	50	mS
		Input 220VAC (full load)	-	-		
Power-off hold up 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	mS
Output overshoot		Full input voltage range	≤10			%Vo
Short circuit protection			Continuous, self-recovery			Hiccup
Over current protection		Input 220VAC	130%Io	-	250%Io	mA
Ripple & Noise		Full input voltage range	-	50	100	mVp-p
Note: The Ripple & noise is tested by the Parallel-line method, please refer to the following test instruction.						

General Specifications

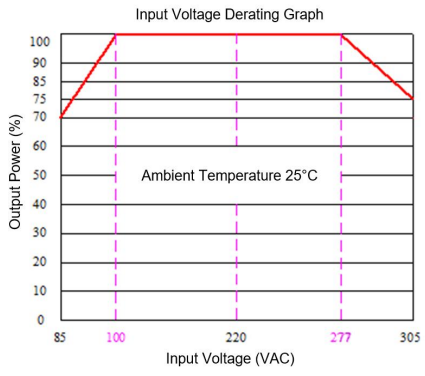
Item	Test Condition		Min	Typ.	Max	Unit
Switching frequency			-	65	-	KHz
Operating temperature	Refer to the Temperature Derating Graph		-40	-	+85	℃
Storage temperature			-40	-	+105	
Soldering temperature	Wave soldering		260±4℃, time 5-10S			
	Manual soldering		360±8℃, time 4-7S			
Relative humidity			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
MTBF	MIL-HDBK-217F@25℃		1000	-	-	K hours
Safety standard			IEC/EN62368			

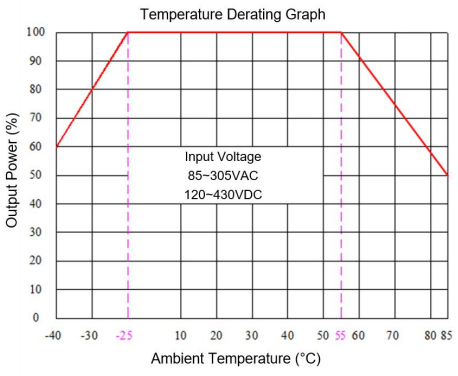
Vibration			10-55Hz,10G,30Min, along X, Y, Z	
Safety standard			CLASS Ⅱ	
Weight & Dimensions	Part No.	Weight (Typ.)	Dimensions L x W x H	
	FA05-C4SXX	27g	37.00x24.50x18.00 mm	1.457×0.965×0.709 inch

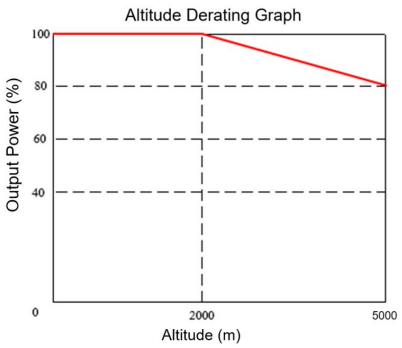
EMC Performance

Items			Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS B (with the Recommended Circuit 1)
		RE	CISPR32/EN55032	CLASS B (with the Recommended Circuit 1)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf. Criteria B (with the Recommended Circuit 1)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf. Criteria B (with the Recommended Circuit 1)
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf. Criteria B (with the Recommended Circuit 1)
		Surge	IEC/EN61000-4-5	Line to line ±2KV Perf. Criteria B (with the Recommended Circuit 1)
		EFT	IEC/EN61000-4-4	±4KV Perf. Criteria B (with the Recommended Circuit 1)
		Voltage dips & Interruptions	IEC/EN61000-4-11	0%~70% Perf.Criteria B

Product Characteristics Graphs







Note 1: The output power should be derated based on the input voltage derating graph at 85~100VAC/277~305VAC/120~140VDC/ 390~430VDC.

Note 2: This product should operate under the condition of natural air, please contact us if it could be used at a closed space.

Recommended Circuit for Application

Typical application circuit diagram

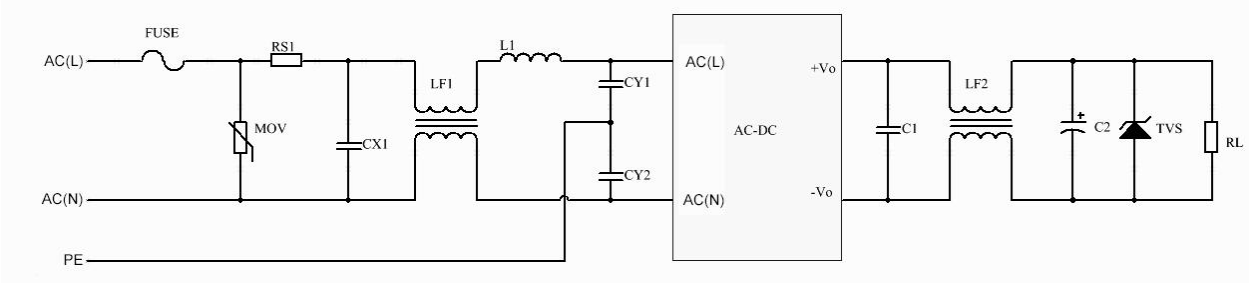
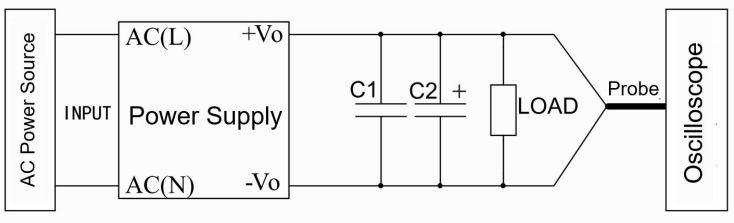


Figure - Circuit 1

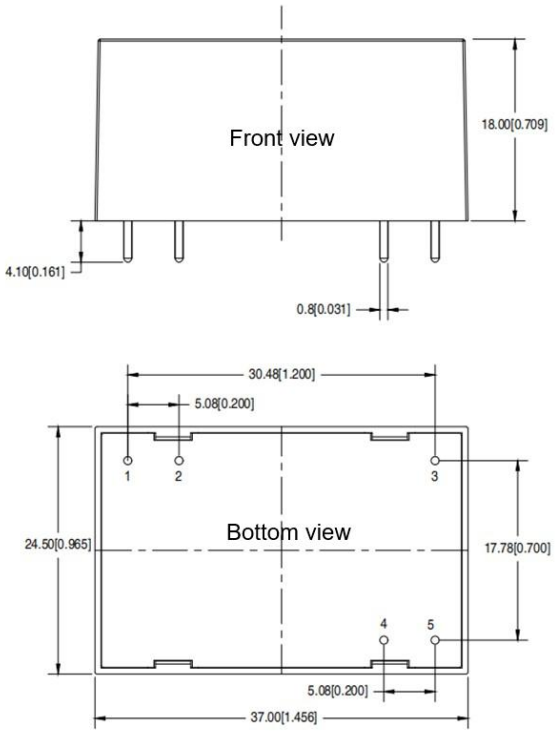
Part No.	FUSE (Required)	MOV	RS1 (Required)	CX1	L1	LF1	CY1 CY2	C1	LF2	C2	TVS
FA05-C4S12	2A/ 300VAC Time delay fuse	14D561K/ 4500A	12Ω/3W Wire-wound resistor	X2/ 224K/ 310VAC	820uH 0.5A	25mH 0.5A	Y1/ 102M/ 400VAC	1uF 50V	100uH	68uF 16V	SMBJ20A
FA05-C4S15											

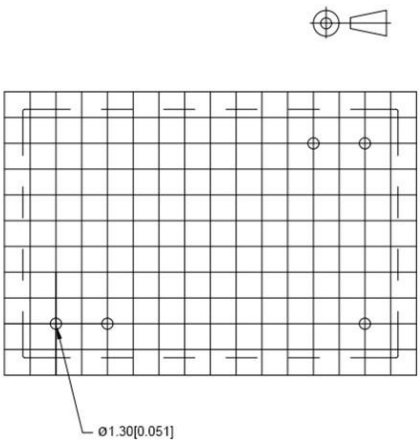
Ripple & Noise Test Instruction (Parallel-line Method, 20MHz Bandwidth)



1. The Ripple & Noise test needs the cables in parallel, an oscilloscope that should be set at the Sample Mode, bandwidth 20MHz. 100M bandwidth probe with cap and ground removed. One polypropylene capacitor C1(0.1uF) and one high frequency low impedance electrolytic capacitor C2(10uF) are connected in parallel with the probe.
2. Refer to the test diagram, the converter output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The test can start at the converter output terminals after the input power on.

Mechanical Dimensions





PCB layout vertical view
Grid 2.54x2.54[0.10x0.10]

Unit: mm[inch]
General tolerance: ±0.50[±0.020]
Pin diameter tolerance: ±0.10[±0.004]

Pin-out Function Description

Pin No.	1	2	3	4	5
Function	AC(L)	AC(N)	No Connection	+Vo	-Vo

Application Notice

1.The product should be used according to the specifications, otherwise it could be permanently damaged.

2. The product performance cannot be guaranteed if it works at a lower load than the minimum load defined.

3. The product performance cannot be guaranteed if it works under over-load condition.

4. Unless otherwise specified, all values or indicators on this datasheet are tested at Ta=25℃, humidity<75%RH, nominal input voltage and rated load (pure resistance load).

5. All values or indicators on this datasheet have been tested based on Aipupower test specifications.

6.The specifications are specially for the parts listed on this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.

7. Aipupower can provide customization service.

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