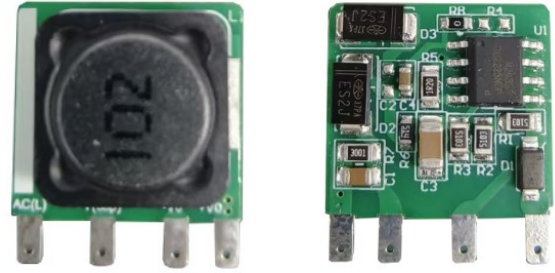


Typical Features	
◆	Wide input voltage range 85-305VAC/70-430VDC
◆	No load power consumption $\leq 0.40W$
◆	Efficiency 73%(TYP.)
◆	Protections - short circuit, over current
◆	Mini size open-frame, high efficiency & reliability
◆	Industrial-grade technology design
◆	PCB SIP mounting
◆	Operating temperature from -40 to +85°C



Application Field

A03-C1SXXM Series ----- Mini size, high efficiency open-frame power supplies with global input voltage range (both AC & DC available), low ripple, low temperature rise, low standby power consumption, high efficiency & reliability and good EMC performance. This series of products can be widely used in the fields of electricity power, industry, instrumentation and smart home devices, etc. The additional circuit for EMC is recommended in this data sheet for the application with higher EMC requirement.

Typical Product List

Certificate	Part No.	Output Specifications			Max. Capacitive Load 230Vac uF	Ripple& Noise 20MHz (Max) mVp-p	Efficiency@ Full Load, 230Vac (Typical) %
		Power	Voltage	Current			
		(W)	Vo(V)	Io(mA)			
-	A03-C1S05M	1	5	200	500	150	57
-	A03-C1S12M	3	12	250	330	150	73

This series of power supplies are not isolated, there is no insulation between input and output, ground protection is needed against electric shock.

Note 1 - The ripple & noise is tested by the twisted pair test method (refer to the following application circuit & test instructions).

Note 2 - The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 3 - The full load efficiency should be in $\pm 2\%$ 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.

Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	230	305	VAC
	DC input	70	310	430	VDC
Input Frequency range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.12	A
	277VAC	-	-	0.06	
Surge Current	115VAC	-	25	-	A
	277VAC	-	40	-	
External Fuse	-	1A/300VAC Time-delay fuse, necessary			
Hot Plug	-	unavailable			

Output Specifications

Item	Operating Condition		Min	Typ.	Max	Unit
Voltage Accuracy	Full input voltage range, 10%~100% load	Vo=5V	-	±1.5	-7~+3	%
		Vo=12V	-	±2.5	-5~+8	
Line Regulation	Rated load	Vo=5V	-	±1.5	±2.5	
		Vo=12V	-	±1.0	±2.5	
Load Regulation	Rated input voltage, 10%~100% load	Vo=5V	-	±2.5	±5.5	
		Vo=12V	-	±2.0	±5.5	
No Load Consumption	Input 230VAC	Vo=5V	-	-	0.3	W
		Vo=12V	-	-	0.4	
Minimum Load	Single Output		10	-	-	%
Turn-on Delay Time	Input 230VAC (full load)		-	1000	-	mS
Power-off Hold up Time	Input 230VAC (full load)		-	80	-	
Output Overshoot	Full input voltage range		≤10%Vo			%
Short circuit Protection			Continuous, self-recovery			Hiccup
Over Current Protection			≥110% Io, self-recovery			
Temperature Drift	-		-	±0.12%	-	%/°C

General Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Operating Temperature	Refer to the temperature derating curve	-40	-	+85	°C
Storage Temperature	-	-40	-	+105	
Soldering Temperature	Wave soldering	260±4°C, time 5-10S			
	Manual soldering	360±8°C, time 4-7S			
Relative Humidity	-	-	-	95	%RH
Safety Standard	-	IEC/EN62368/UL62368			
MTBF	-	MIL-HDBK-217F@25°C>1000,000H			

EMC Performance

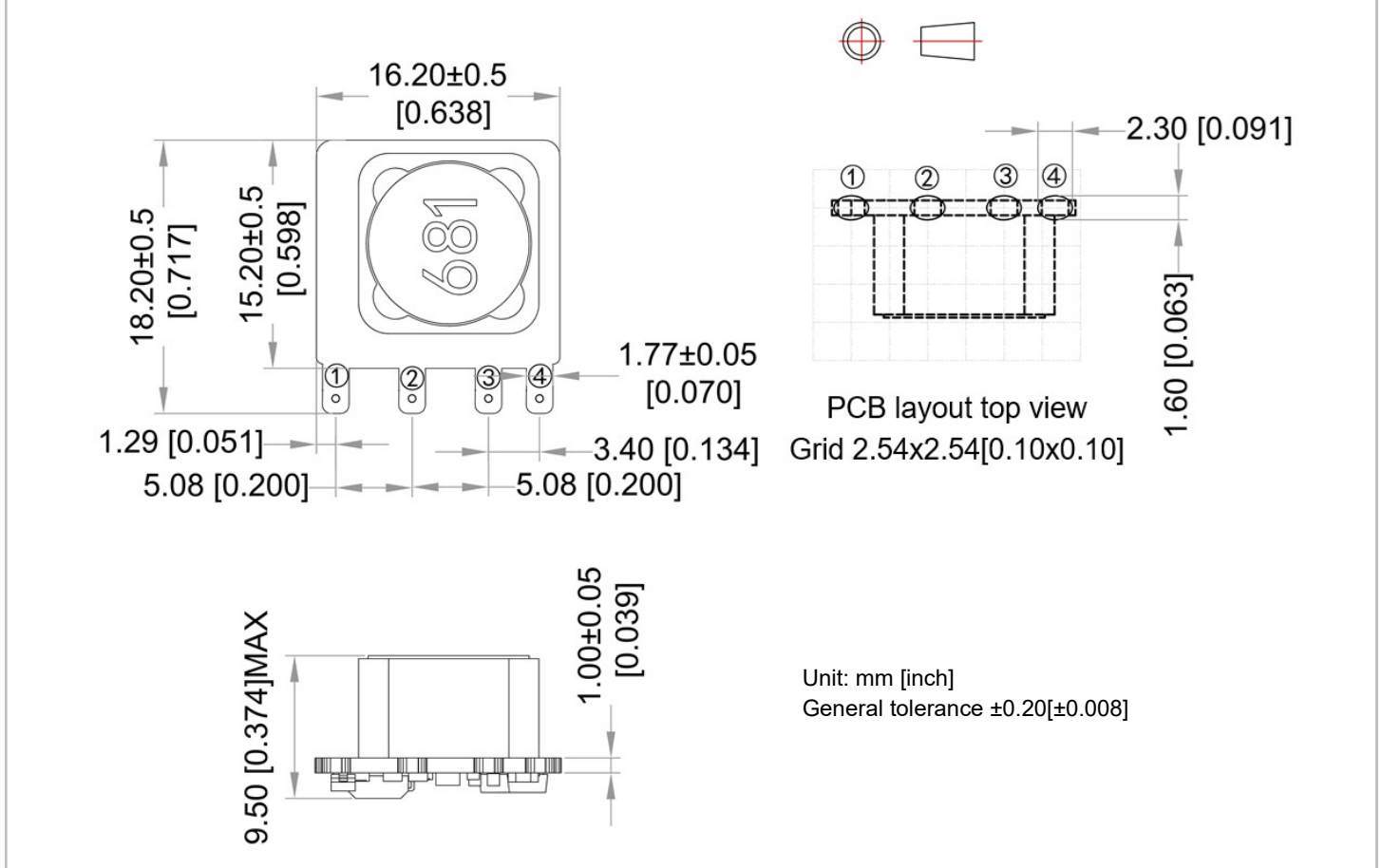
Total Item	Sub Item	Test Standard	Performance/Class		
EMC	EMI	CISPR22/EN55032	CLASS A (with the Recommended Circuit 1)		
			CLASS B (with the Recommended Circuit 2)		
			CLASS A (with the Recommended Circuit 2)		
	EMS	RS	IEC/EN61000-4-3	10V/m	Perf.Criteria A (with the Recommended Circuit 2)
		CS	IEC/EN61000-4-6	3Vr.m.s	Perf.Criteria A (with the Recommended Circuit 2)
		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 ±1KV (with the Recommended Circuit 1)	Perf.Criteria B
	EFT	IEC/EN61000-4-4	±2KV	Perf.Criteria B (with the Recommended Circuit 1)
			±4KV	Perf.Criteria B (with the Recommended Circuit 2)
Voltage Dips & Interruptions	IEC/EN61000-4-11	0%~70%	Perf.Criteria B (with the Recommended Circuit 2)	

Physical Characteristics

Dimension	Open-frame	16.20x18.20x9.50 mm
Weight		4.5g (TYP)
Cooling Method		Nature air

Mechanical Dimensions



Packaging Code	Dimensions L x W x H	
-	16.20x18.20x9.50 mm	0.638x0.717x0.374 inch

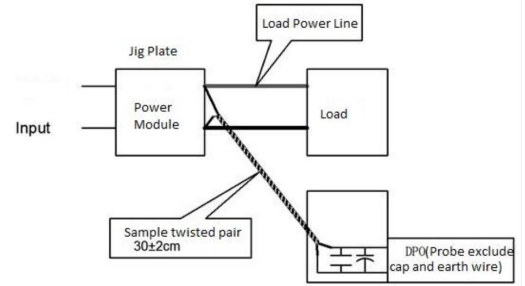
Pin function Definition

Pin No.	1	2	3	4
Single (S)	AC(L)	+V(CAP)	AC(N)/-Vo	+Vo

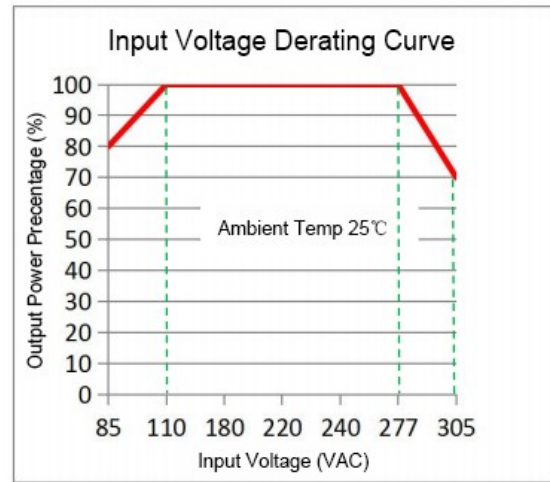
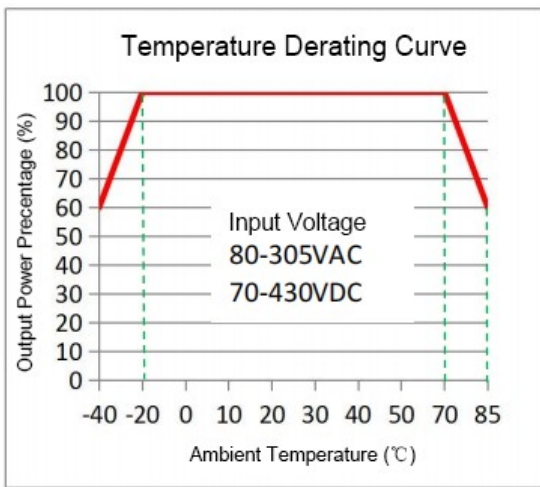
Ripple & Noise Test Instructions (Twisted Pair Method, 20MHz Bandwidth)

1. The Ripple & noise test need 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the Sample Mode.

2. The test diagram is shown on the right. 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 twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be started after input power on.



Product Performance Curves

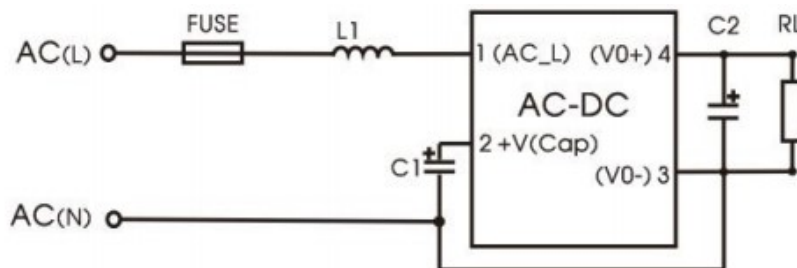


Note 1 - The output power should be derated based on the input voltage derating curve at 85~110VAC/277~305VAC/70~130VDC/400~430VDC.

Note 2 - This product should operate at a natural air condition, please contact us if it need be used at a closed space.

Recommended Circuits for Application

1. Typical Application Circuit



Circuit 1

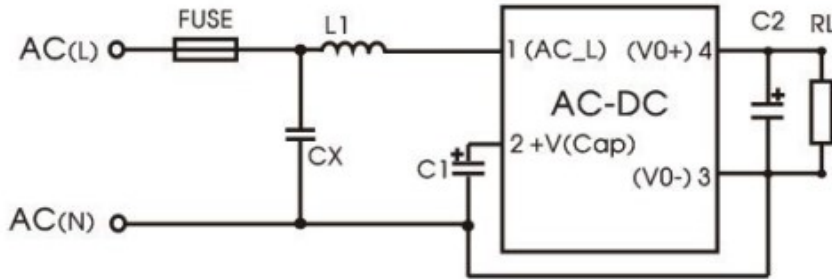
FUSE (*)	L1 (*)	C1 (*)	C2 (*)
1A/300VAC, Time-delay fuse	1.2mH/ 0.2A Min	10uF/400V (165-264VAC input range)	470uF/16V
		10uF/450V (165-305VAC input range)	
		22uF/400V (85-264VAC input range)	
		22uF/450V (85-305VAC input range)	

All these * marked components are necessary for the application, not optional.

Note:

1. C1 must be externally connected, a 22uF electrolytic capacitor is recommended to meet the surge immunity index.
2. C2 must be externally connected, a high-frequency low-resistance electrolytic capacitor or a solid-state capacitor is recommended.
3. L1 current should be at least 80% of rated value which is defined by its manufacturer.

2. Recommended Circuit for higher EMC requirement



Circuit 2

FUSE (*)	CX (*)	L1 (*)	C2 (*)	C1 (*)
1A/300VAC, Time-delay fuse	X1,104K/310VAC	1.2mH/0.2A Min	470uF/16V	10uF/400V (165-264VAC input range)
				10uF/450V (165-305VAC input range)
				22uF/400V (85-264VAC input range)
				22uF/450V (85-305VAC input range)

All these * marked components are necessary for the application, not optional.

Application Notice

1. The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.
2. A fuse should be connected at input.
3. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.
4. The product performance in this datasheet cannot be guaranteed if it works at over-load condition.
5. Unless otherwise specified, all values or indicators in this datasheet are tested at Ta=25°C, humidity<75%RH, rated input voltage and rated load.
6. All values or indicators in this datasheet had been tested based on Aipupower test specifications.
7. The specifications are specially for the parts listed in this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.
8. Aipupower can provide customization service.

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>