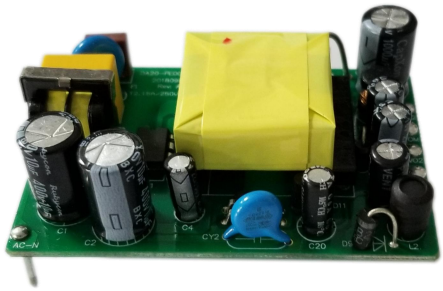
Typical Features

- ◆ Wide input voltage range:165-265VAC/ 233-375VDC
- ◆ No-load power consumption≤0.5W
- ◆ Transfer efficiency (typ. 83%)
- ◆ Switching frequency: 65KHz
- ◆ Output Short Circuit, Over Current, Over Voltage Protection
- ◆ Isolation voltage: 3000Vac
- ◆ 4000m altitude application
- ◆ Meet IEC60950/UL60950/EN60950 test standards
- ◆ Safety level: CLASS II
- ◆ PCB mounting



Application Field

DA20-220H051212G93 Series**-----***is a high-efficiency bare board power supply provided by Aipu to customers. This series of power supplies has the advantages of global input voltage range, AC/DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, high safety isolation, and good EMC performance. EMC and safety specifications meet the international EN55032 and IEC/EN61000 standards. This series of products are widely used in many fields such as power, industry, instrumentation and smart home. When the product is used in an environment with relatively harsh electromagnetic compatibility, please refer to the application circuit provided by our company.*

Typical Product List

Part No.	Output Specification							Max. Capacitive Load	Ripple& Noise 20MHz (Max)	Efficiency @ Full Load 220Vac (Typical)
	Power	Vo1	Io1	Vo2	Io2	Vo3	Io3			
	(W)	(V)	(mA)	(V)	(mA)	(V)	(mA)	u F	mVp-p	%
DA20-220H051212G93	18.7	+5	500	+12	1200	-12	150	680/4000/680	150/150/150	83

Note 1: The typical value of output efficiency is based on the product being aged at full load for half an hour.

Note 2: The full load efficiency (%, TYP) in the table fluctuates by ±2%. The full load efficiency is the total output power divided by the input power of the module.

Note 3: 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 4: The test method for ripple and noise adopts the twisted pair test method. For specific test methods and matching, please see the following (Ripple & Noise Test Instructions).

Input Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	165	220	265	VAC
	DC Input	233	310	375	VDC
Input Frequency Range	-	47	50	63	Hz

Input Current	115VAC	-	-	0.4	A
	220VAC	-	-	0.2	
Surge Current	115VAC	-	-	20	
	220VAC	-	-	30	
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
External fuse recommended value	-	3.15A/250VAC slow-fusing			
Hot plug	-	Unavailable			
Remote control terminal	-	Unavailable			

Output Specification

Item	Operating Condition		Min.	Typ.	Max.	Unit
Voltage Accuracy	Full input voltage range Any load	Vo1	-	±2.0	±3.0	%
		+Vo2		±2.0	±3.0	
		-Vo2		±3.0	±5.0	
Line Regulation	Nominal Load	Vo1	-	-	±0.5	%
		+Vo2			±1.5	
		-Vo2			±1.5	
Load Regulation	Nominal input Voltage 20%~100% load	Vo1	-	-	±2.0	%
		+Vo2			±3.0	
		-Vo2			±3.0	
No load power consumption	Input 115VAC		-	-	0.5	W
	Input 220VAC		-	-		
Minimum load	Single output		-	-	-	%
	Positive and negative dual-channel common ground output		-	-	-	
	Positive and negative dual-channel common ground, one channel isolated output		10	-	-	
Turn-on Delay Time	Nominal input voltage, full load		-	800	-	mS
Power-off Holding Time	Input 115VAC (full load)		-	100	-	mS
	Input 220VAC (full load)		-	80	-	
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%	-10	-	+10	%
	Recovery time		-5.0	-	+5.0	mS
Output Overshoot	Full input voltage range		≤10%Vo			%
Short Circuit Protection			Continuous, Self-recovery			Hiccup
Drift Coefficient	-		-	±0.03%	-	%/℃
Over Current Protection	Input 220VAC		⩾120% Io, Self-recovery			Hiccup

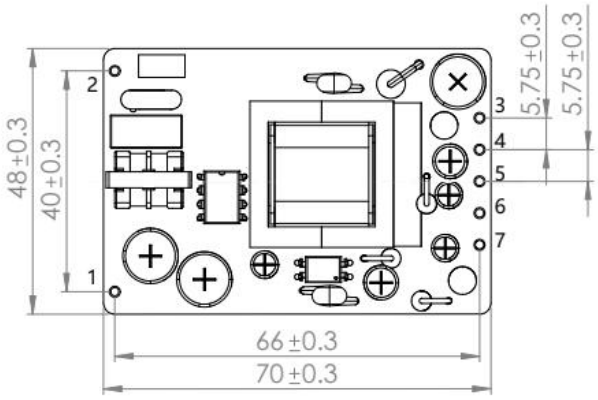
General Specifications

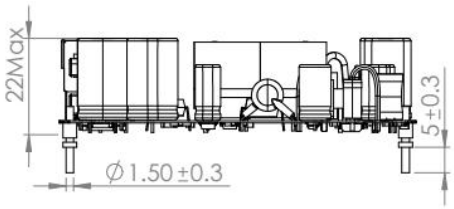
Item		Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency		-	-	65	-	KHz
Operating Temperature		-	-30	-	+105	℃
Storage Temperature		-	-40	-	+110	
Soldering Temperature		Wave-soldering	260±4℃, timing 5-10S			
		Manual-soldering	360±8℃, timing 4-7S			
Relative Humidity		-	10	-	90	%RH
Isolation Voltage	I/P-O/P	Test 1min, leakage current ≤5mA	3000	-	-	VAC
Insulation Resistance	I/P-O/P	@DC500V	100	-	-	MΩ
Safety Standard		-	EN60950、IEC60950			
Vibration		-	10-55Hz,10G,30Min,alongX,Y,Z			
Safety Class		-	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 1)
		RE	CISPR22/EN55032	CLASS B (Recommended Circuit 1)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (Recommended Circuit 1)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (Recommended Circuit 1)
		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

Packing Dimension





Unit: mm
Unmarked tolerance ±1.0
The device layout is for reference only, please refer to the actual product

Packing Code	L x W x H	
-	70.0 X 48.0 X 22.0 mm	2.755 X 1.889 X 0.866 inch

Pin Definition

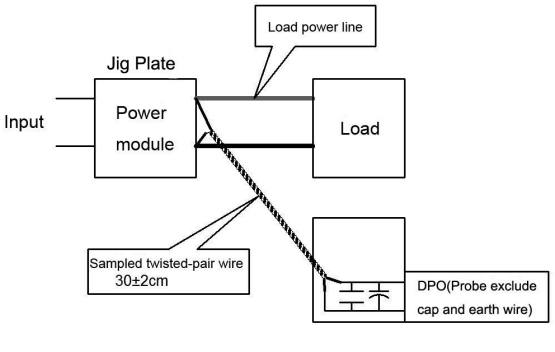
Pin	1	2	3	4	5	6	7
Function	AC(N)	AC(L)	+Vo2	COM	-Vo2	+Vo1	-Vo1

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

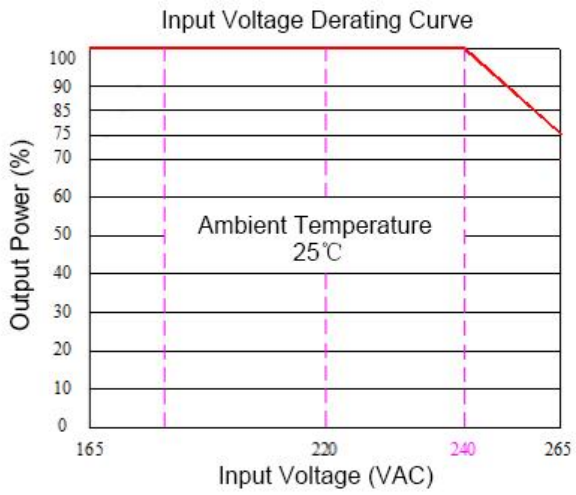
Test Method:

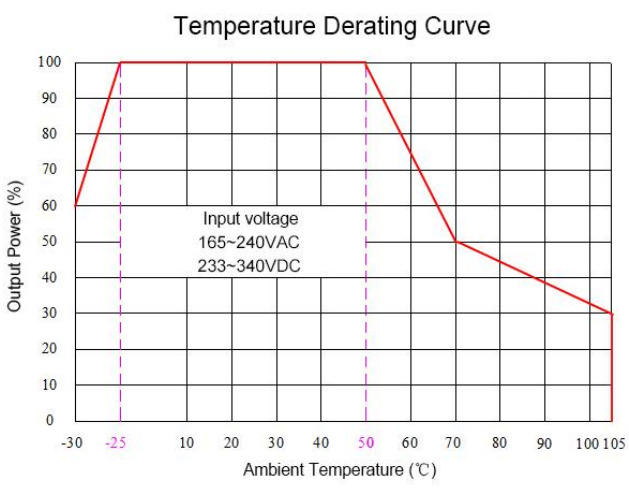
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

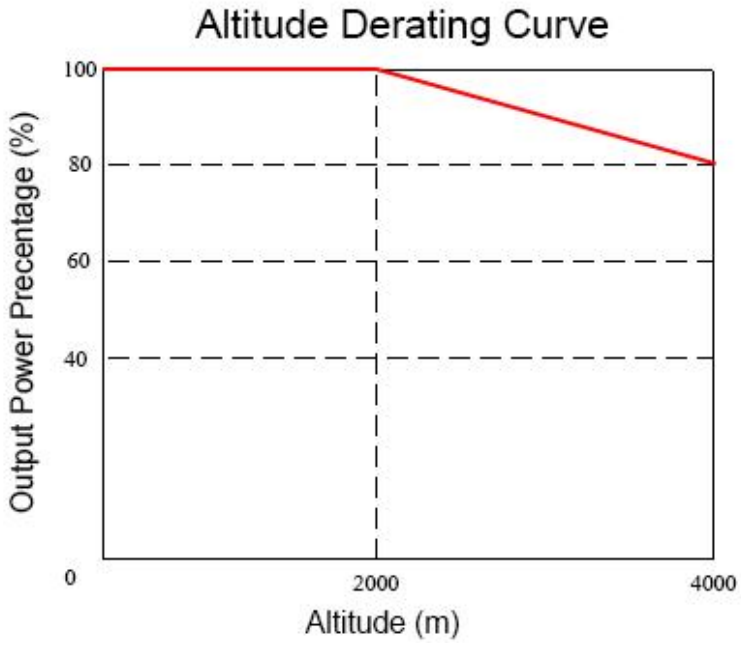
(2) Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line. Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Product Characteristic Curve





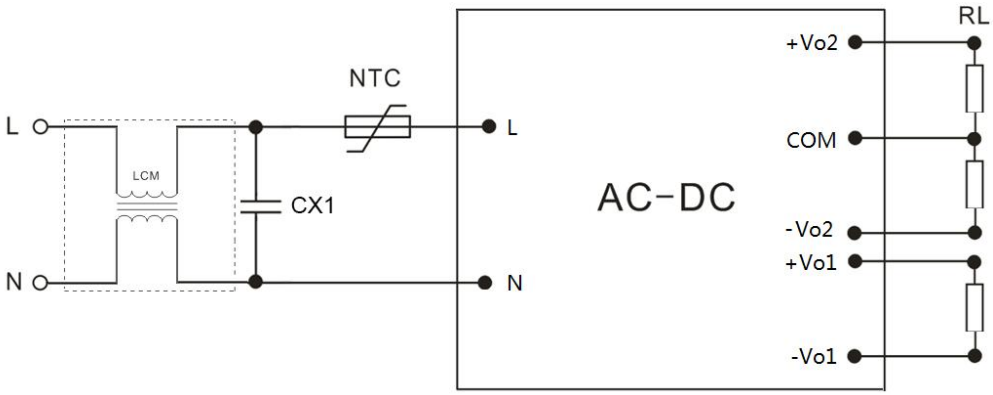


Note

1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 85~100VAC /240~265VAC /120~140VDC /340~380VDC.

2: Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

Typical EMC Circuit and Recommended Spec



EMC Recommended Circuit

Note:

1) LCM is a common mode inductor, which is not required to be externally connected. The recommended inductance is greater than 20mH.

2) CX1 is an X capacitor, with a recommended value of 0.22uF/250V

3) NTC is a thermistor, with a recommended value of 10D-11

Note 2:

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

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