Typical Features

- ◆Wide Input Voltage Range: 85-305VAC/120-430VDC
- ◆No load power consumption≤0.2W
- ◆Transfer Efficiency: 82% (typ.)
- ◆Switching Frequency: 65KHz
- ◆Protections: Short-circuit, Over-current, Over-temperature
- ◆Isolation voltage: 4000Vac
- ◆Meet CISPR32/EN55032 CLASS B test standard
- ◆Conform to CE, RoHS
- ◆Enclosed plastic case , meet UL94 V-0
- ◆PCB Mounting

Application Field

FA5-220SXXY2N4 Series*-----is a high-efficiency module 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, etc. This series of products has important applications in many fields such as industry, office power and civil use. 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

Certificate	Part No	Output Specification			Max. Capacitive Load	Ripple& Noise 20MHz (MAX)	Efficiency@ Full Load, 220Vac (Typical)
		Power	Voltage	Current			
		(W)	Vo (V)	Io (m A)	uF	mVp-p	%
-	FA5-220S3V3Y2N4	4.1	3.3	1250	5000	100 (Need peripheral)	73
	FA5-220S05Y2N4	5	5	1000	5000	100 (Need peripheral)	76
	FA5-220S12Y2N4	5	12	416	4000	150	82
	*FA5-220S15Y2N4	5	15	333	3000	150	83
	*FA5-220S24Y2N4	5	24	208	100	200	84

Note

1. 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;
2. Due to the instrument error of the test equipment, the minimum efficiency is defined as -2% of the typical value;
3. The typical value of output efficiency is based on the product after half an hour of full load aging;
4. "*" is a model under development;
5. The test method for ripple and noise adopts the twisted pair test method. The specific test method and matching can be seen later (Ripple & Noise Test Instructions);
6. FA5-220S3V3Y2N4, FA5-220S05Y2N4 need to use peripheral circuits to reduce ripple. The specific peripheral parameters are shown in Figure 2.

Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	85	220	305	VAC
	DC Input	120	310	430	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.2	A
	230VAC	-	-	0.1	
Surge Current	115VAC	-	-	16	
	220VAC	-	-	30	
No-load Power Consumption	115VAC	-	-	0.2	W
	230VAC	-			
Leakage Current	-	0.5mA 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	3.3V	-	±2.0	±4.0	%
			Other	-	±2.0	±3.0	
Line Regulation		Nominal Load	Vo	-	-	±0.5	
Load Regulation		Nominal input voltage,20%~100% load	Vo	-	-	±5.0	
Minimum Load		Single Output		0	-	-	
Turn-on Delay Time		Input 220VAC (full load)		-	1000	-	mS
Power-off Holding Time		Input 220VAC (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				Continuous, Self-recovery			Hiccup
Drift Coefficient		-		-	±0.03%	-	%/℃
Over Current Protection		Input 220VAC		≥150% Io Self-recovery			Hiccup
Over Voltage Protection		Output 5VDC		≤7.5			VDC
		Output 12VDC		≤18			
		Output 15VDC		≤20			
		Output 24VDC		≤30			

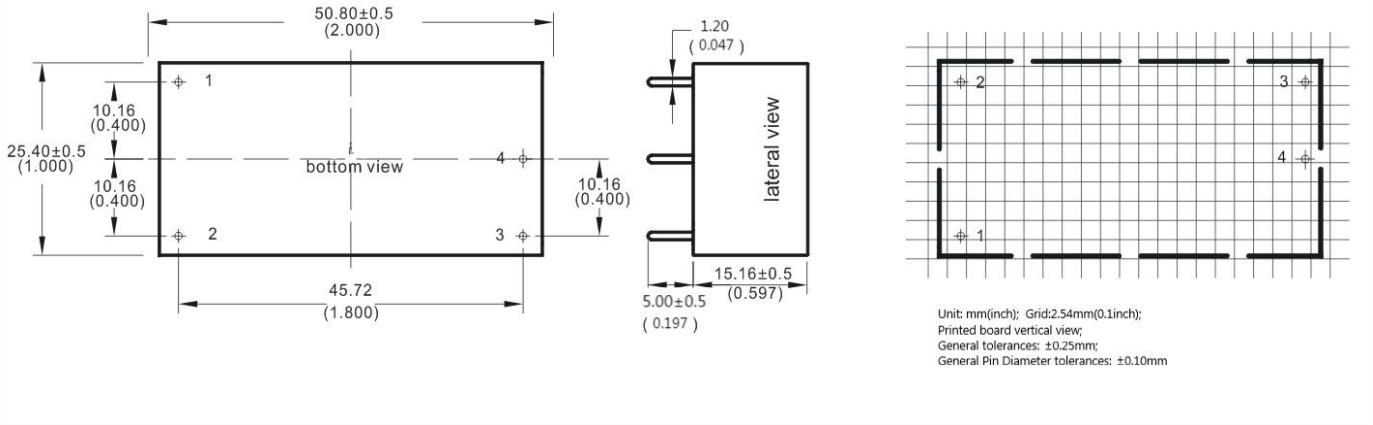
General Specifications

Items		Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency		-	61	65	73	KHz
Operating Temperature		-	-40	-	+75	℃
		The temperature derating needs to be performed based on the temperature derating curve. The derating curve can be found in the following (product characteristic curve).				
Storage Temperature		-	-40	-	+85	
Soldering Temperature		Wave-soldering	260±4℃, timing 5-10S			
		Manual-soldering	360±8℃, timing 4-7S			
Relative Humidity		-	10	-	90	%RH
Isolation Voltage	Input-Output	Test 1min, leakage current≤5mA	4000	-	-	VAC
Insulation Resistance	Input-Output	@DC500V	100	-	-	MΩ
Vibration		-	10-55Hz,10G,30Min,alongX,Y,Z			
MTBF		-	MIL-HDBK-217F 25℃＞300,000H			

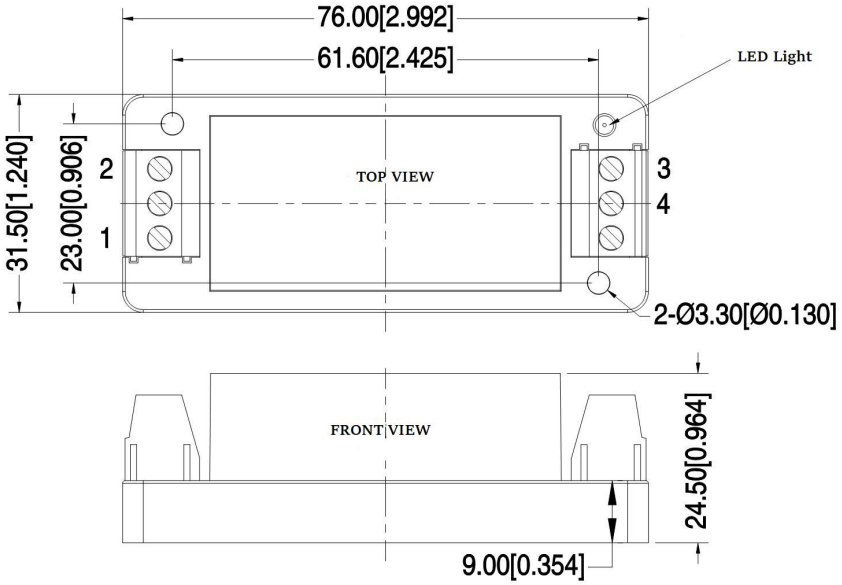
EMC Characteristics

Total Item		Sub Item	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55022	CLASS B (see recommended circuit 1)
		RE	CISPR22/EN55022	CLASS B (see recommended circuit 1)
	EMS	ESD	IEC/EN61000-4-2	±8KV/15KV Perf.Criteria B
		RS	IEC/EN61000-4-3	10V/m Perf.Criteria A
		EFT	IEC/EN61000-4-4	±1KV Perf.Criteria B
			IEC/EN61000-4-4	IEC/EN61000-4-4 ±2KV (see recommended circuit 1) Perf.Criteria B
		Surge	IEC/EN61000-4-5	±1KV Perf.Criteria B
			IEC/EN61000-4-5	±2KV (see recommended circuit 1) Perf.Criteria B
		SC	IEC/EN61000-4-6	10Vr.m.s Perf.Criteria A
		PMF	IEC/EN61000-4-8	10A/m Perf.Criteria A
		Voltage sags, dips and short interruptions immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

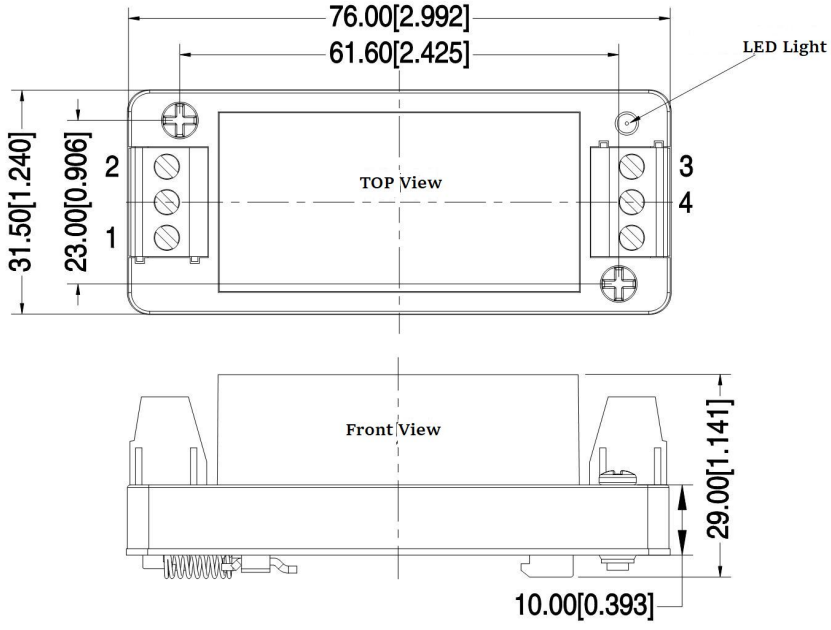
Y2 Packing Dimension



Y2-T Packing Dimension



Y2-TS Packing Dimension



Packing Code	L x W x H	
Y2	50.8X25.4X15.16 mm	2.000X1.000X0.597inch
Y2-T	76.0X31.5X24.5mm	2.992X1.240X0.964inch
Y2-TS	76.0X31.5X29.0mm	2.992X1.240X1.141inch

Pin Definition

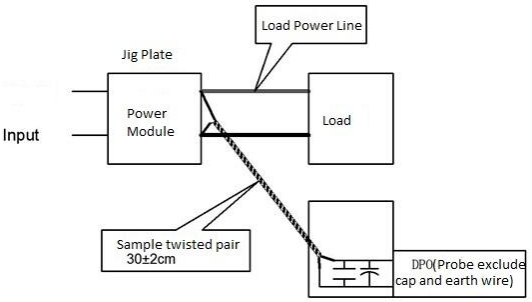
Pin	1	2	3	4
Single	AC（N）	AC（L）	+Vo	-Vo

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

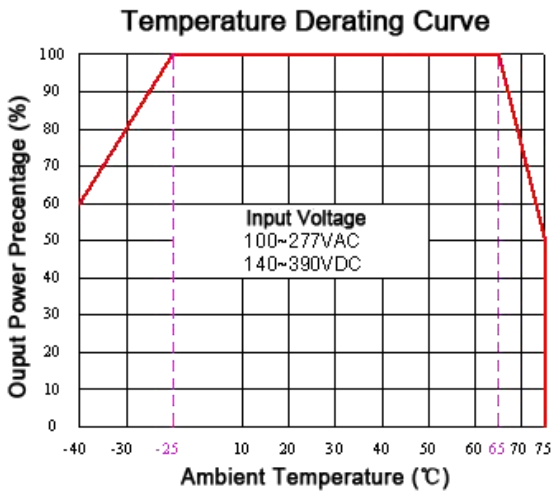
Test Method:

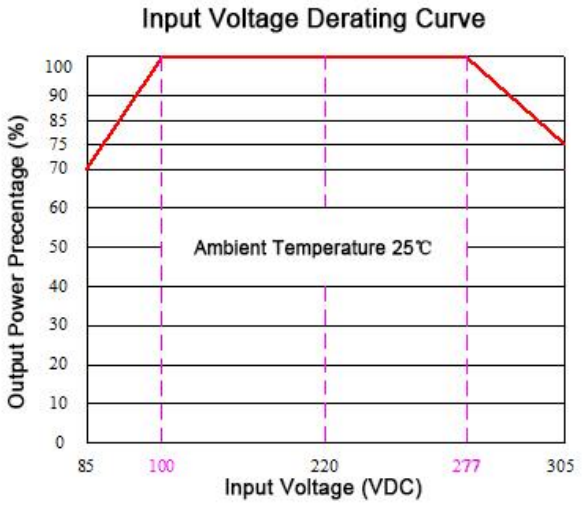
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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



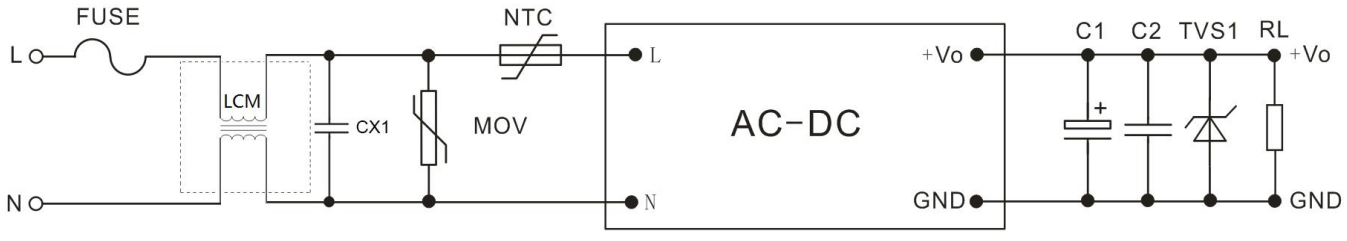


Note 1: The input voltage is 85~100VAC/277~305VAC/120~140VDC/390~430VDC. The voltage must be derated based on the input voltage derating curve.

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

Typical EMC Recommended Application Circuit

1. EMC Recommended Circuit:



Note 1:

1) FUSE is a fuse, and it is recommended to use 2A~300Vac slow-break, square type;

2) MOV is a varistor, and the recommended model is 14D561K;

3) NTC is a thermistor, and the recommended model is 10D-11, which is used to protect the module from damage during lightning surges;

4) LMC is a common mode inductor, and the recommended inductance is 40mH; (UU9.8/UU10.5 does not consider conduction and radiation, which can be unnecessary);

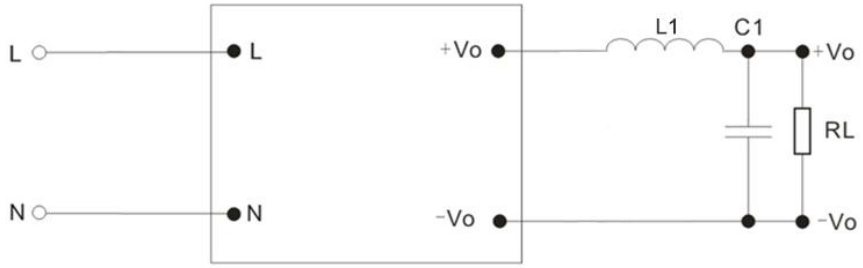
5) CX1 is an X capacitor, and the recommended model is 0.1uF/310Vac; (conduction and radiation are not considered, which can be unnecessary);

6) C1 selects a high-frequency low-impedance electrolytic capacitor with a capacitance value less than the capacitive load, and the withstand voltage value is more than 1.5 times the output voltage;

7) C2 selects a 0.1uF ceramic chip capacitor, and the withstand voltage value is more than 1.5 times the output voltage;

8) TVS1 is a TVS tube; 5V output recommended: SMBJ7.0A, 9V output recommended: SMBJ12.0A, 12V output recommended: SMBJ20A,15V output recommended: SMBJ20.0A, 24V output recommended: SMBJ30.0A, 48V output recommended: SMBJ64A.

2. FA5-220S3V3Y2N4, FA5-220S05Y2N4 Peripheral Circuit for Reducing Ripple:



Note:

1. C1 is a solid capacitor, model 220uF/10V;
2. L1 is a rod-type inductor, inductance is 2.2uH, wire diameter is more than 0.4mm.

Note :

1.The product should be used under the specification range, otherwise it will cause permanent damage to it.

2.Product's input terminal should connect to fuse;

3.If the product is not worked under the load range(below the minimum load or beyond the load range), we cannot ensure that the performance of product is in accordance with all the indexes in this manual;

4.Unless otherwise specified, data in this datasheet are tested under conditions of **Ta=25℃**, **humidity<75%** when inputting nominal voltage and outputting rated load(pure resistance load);

5.All index testing methods in this datasheet are based on our Company's corporate standards

6.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;

7.We can provide customized product service;

8.The product specification may be changed at any time without prior notice.

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