Typical Features

- ◆ Wide input voltage range:85-305VAC/120-430VDC
- ◆ No-load power consumption≤0.2W
- ◆ Transfer efficiency: 87%(typ.)
- ◆ Switching frequency: 65KHz(typ.)
- ◆ Protection: Short Circuit, Over Current, Over Voltage
- ◆ Isolation voltage: 3000VAC
- ◆ Meet IEC62368/UL62368/EN62368 test standard
- ◆ With CE, RoHS certificate
- ◆ Safety Class: CLASS II

Application Field

FA15-220SXXY2N3---a compact size, high efficient power converter offered by Aipu.
It features universal input voltage, DC and AC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation. It widely used in industrial, office power and home applications.

Typical Product List

Certificate	Part No.	Output Specification			Max. Capacitive Load (MAX)	Ripple& Noise 20MHz (MAX)	Efficiency@ Full Load 220Vac (Typical)
		Power	Voltage	Current			
		(W)	Vo(V)	Io(m A)	uF	mVp-p	%
CE/RoHS	FA15-220S05Y2N3	15	5	3000	5000	80 ①	82
CE/RoHS	FA15-220S12Y2N3	15	12	1250	2000	200	86
CE/RoHS	FA15-220S15Y2N3	15	15	1000	1000	200	87
CE/RoHS	FA15-220S24Y2N3	15	24	625	600	240	86

Note 1: Due to the instrument deviation of the test equipment, the minimum efficiency is -2% of the typical value.
Note 2: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.
Note 3: ripple and noise is tested by twisted pair method, for details please check" Ripple & Noise Test" at back.
Note 4: ① means FA15-220S05Y2N3, external circuit needed to lower ripple, for details please check Photo 2.

Input Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	85	220	305	VAC
	DC Input	120	300	430	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.3	A
	230VAC	-	-	0.2	

Surge Current	115VAC	-	-	16	
	220VAC	-	-	30	
No Load Consumption	Input 115VAC	-	-	0.2	W
	Input 230VAC	-			
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Hot plug	-	Unavailable			
Remote control terminal	-	Unavailable			

Output Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Voltage Accuracy	Full input voltage Range, Any load	-	±2.0	±3.0	%
Line Regulation	Nominal Load	-	-	±0.5	%
Load Regulation	Nominal input Voltage 20%~100% load	-	-	±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	25%~50%~25%	-5.0	-	+5.0	%
	50%~75%~50%	-5.0	-	+5.0	mS
Output Overshooting	Full input voltage range	≤10%Vo			%
Short Circuit Protection		Continuous, Self-recovery			Hiccup
Drift Coefficient	-	-	±0.03%	-	%/℃
Over Current Protection	Input 220VAC	≥130% Io Self-recovery			Hiccup
Over Voltage Protection	Output 5VDC	≤7.5			VDC
	Output 12VDC	≤18			
	Output 15VDC	≤20			
	Output 24VDC	≤30			

General Specifications

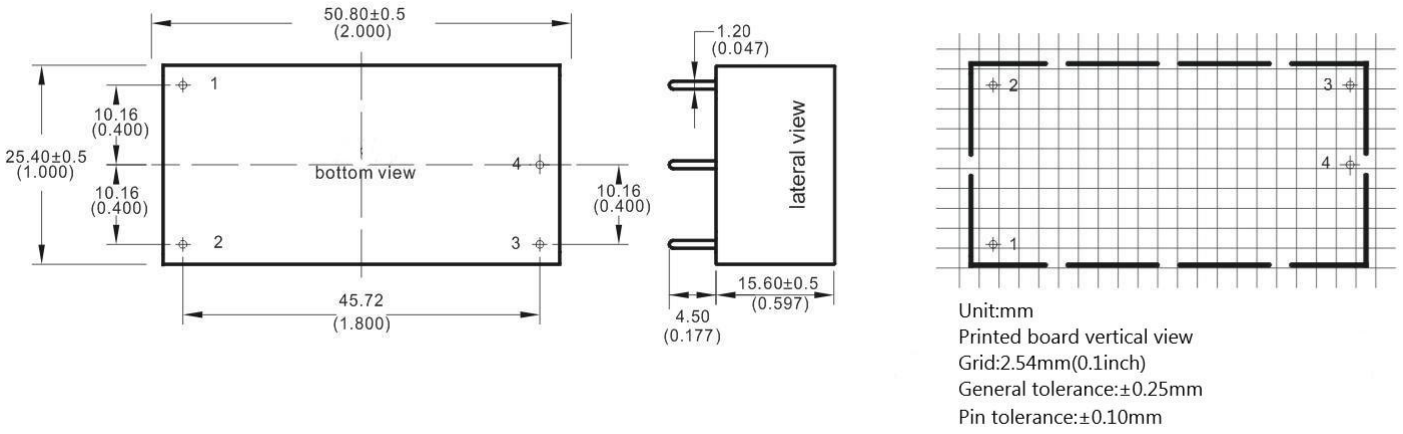
Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency	-	61	65	73	KHz
Operating Temperature	-	-40	-	+75	℃
	Note: Ripple & Noise is tested by twisted pair method, for details please see (Ripple& Noise Test) at back				
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave-soldering	260±4℃, timing 5-10S			
	Manual-soldering	360±8℃, timing 4-7S			

Relative Humidity		-	10	-	90	%RH
Isolation Voltage	I/P-O/P	Test 1min, leakage current ≤5mA	3000	-	-	VAC
Insulation Resistance	I/P-O/P	Input-Output@DC500V	100	-	-	MΩ
Vibration		-	10-55Hz,10G,30Min, along X,Y,Z			
MTBF		-	MIL-HDBK-217F@25℃＞300,000H			

EMC Characteristics

EMI	CE	CISPR22/EN55022	CLASS B (see recommended circuit Photo 1)	
	RE	CISPR22/EN55022	CLASS B (see recommended circuit Photo 1)	
EMC	ESD	IEC/EN61000-4-2	±6KV/8KV	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	±2KV (see recommended circuit Photo 1)	Perf.Criteria B
	Surge	IEC/EN61000-4-5	±1KV	Perf.Criteria B
		IEC/EN61000-4-5	±2KV(see recommended circuit Photo 1)	Perf.Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf.Criteria A
	PFMF	IEC/EN61000-4-8	10A/m	Perf.Criteria A
	Voltage dips and interruptions	IEC/EN61000-4-11	0%-70%	Perf.Criteria B

Packing Dimension



Packing Code	L x W x H	
Y2	50.8X25.4X15.6 mm	2.000X1.000X0.614inch

Pin Definition

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

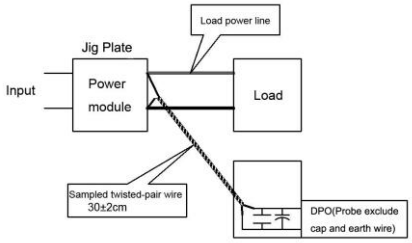
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

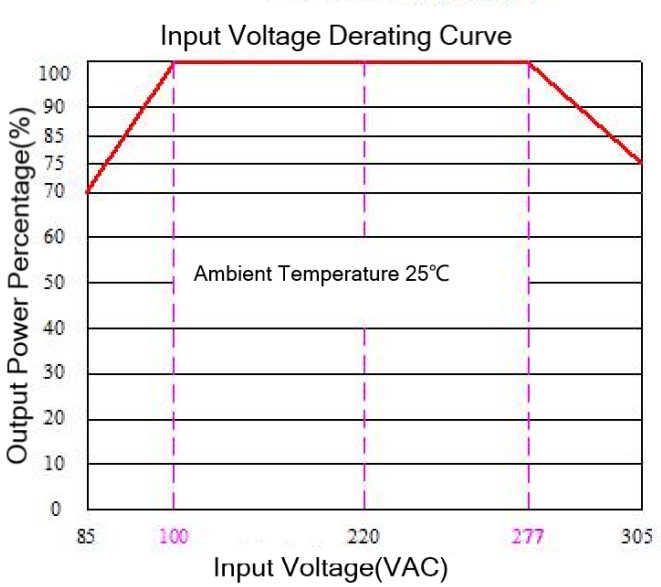
Test Method:

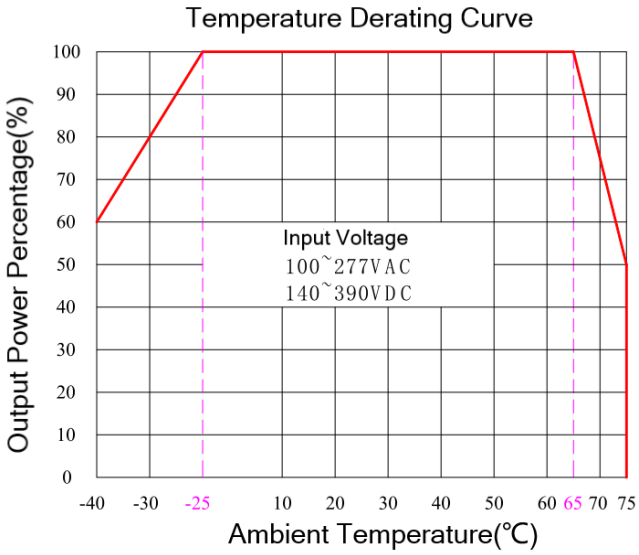
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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/ 277~305VAC/ 120~140VDC/ 390~430VDC.

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

Application Design Referenced

EMC Solution and Recommend Circuit

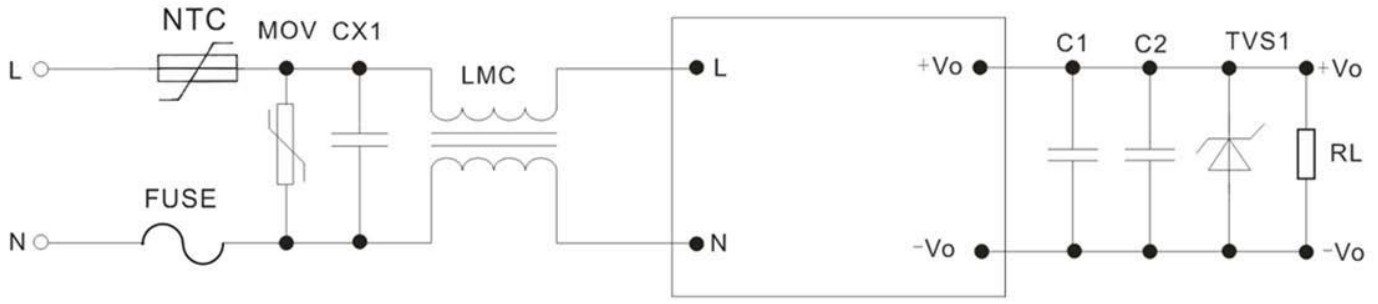
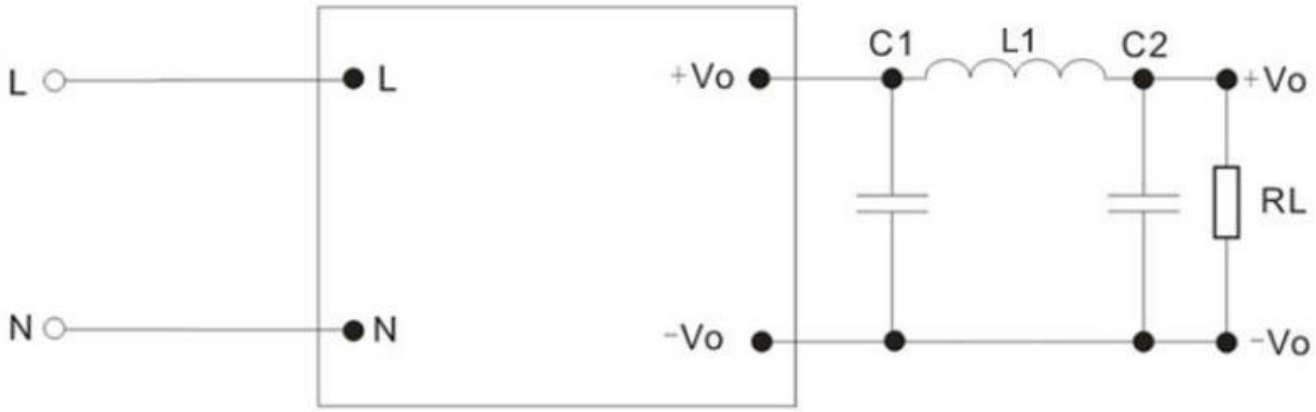


Photo 1

Note:

1. FUSE: recommend 2A~250Vac, slow fusing, block form;
2. MOV is voltage dependent resistor, recommend model: 10D561K;
3. NTC is thermistors, recommend model:10D-11, to prevent the module from damage when lightning surge.
4. LMC is CM inductor, recommend 30mH;
5. CX1 is X capacitor, recommend model: 0.22uF/250Vac;
6. C1 choose high-frequency and low-impedance electrolytic capacitor, capacitance smaller than capacitive load, and withstand voltage is 1.5 times above the output voltage.
7. C2 choose 0.1uF ceramic chip capacitors, withstand voltage is 1.5 times above the output voltage;
8. TVS1 is TVS tube, 5V output recommend: SMBJ7.0A, 9V output recommend:SMBJ12.0A, 12V output recommend: SMBJ20A,15V output recommend :SMBJ20.0A, 24V output recommend:SMBJ30.0A, 48V output recommend: SMBJ64A.

FA15-220S05Y2N3, external circuit to lower ripple



Note:

1) C1, C2 is electrolytic capacitor, C1 is 330uF/10V, C2 is 220uF/10V;
2) L1 is rod type inductor, inductance 2.2uH, wire diameter of 0.7mm above.

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.