



Typical Features

- ◆ Wide input voltage range: 85-265VAC/120-380VDC
- ◆ No load power consumption $\leq 0.3W$ (TYP.)
- ◆ Transfer Efficiency up to 72%(TYP.)
- ◆ Switching Frequency: 65KHz
- ◆ Protections: short circuit, over current, over temperature
- ◆ Isolation voltage: 3000Vac
- ◆ Meet IEC60950/UL60950/EN60950 test standard
- ◆ Conform to CE、RoHS
- ◆ Plastic case, meet UL94V-0 class
- ◆ PCB mounting



Application Field

FA3-220SXXA2A Series----- a compact size, high efficient, meet CE standard power module offered by Aipu. It features universal input voltage range, AC and DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, good EMC performance. EMC and Safety standard meet international EN55032,IEC/EN61000. These series have important application for power, industry, instrument and smart home field. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Typical Product List

Certificate	Part No.	Output Specifications					Max. Capacitive Load	Ripple & Noise 20MHz (Max)	Efficiency@ Full Load, 220Vac (Typical)
		Power	Voltage1	Current1	Voltage 2	Current 2			
		(W)	Vo1 (V)	Io1 (mA)	Vo2 (V)	Io2 (mA)			
CE	FA3-220S3V3A2A	2	3.3	600	-	-	400	100	66
CE	FA3-220S05A2A	3	5	600	-	-	400	80	72
CE	FA3-220S12A2A	3	12	250	-	-	300	100	73
CE	FA3-220S24A2A	3	24	125	-	-	100	200	70

Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

Note 2: "*" are models being developing.

Note 3: The typical value of output efficiency is based on module is full loaded and burned-in after half an hour.

Note 4: The fluctuation range of full load efficiency(% ,TYP) in table is $\pm 2\%$, full load efficiency= output power/module's input power.

Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	220	265	VAC

	DC input	120	310	380	VDC
Input Frequency range	-	47	50	63	Hz
Input Current	115VAC	/	/	0.06	A
	220VAC	/	/	0.05	
Surge Current	115VAC	/	/	10	
	220VAC	/	/	20	
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Recommended External Input Fuse	-	1A-2A/250VAC slow fusing			
Hot Plug	-	unavailable			
Remote Control Terminal	-	unavailable			

Output Specifications

Item	Operating Condition		Min	Typ.	Max	Unit
Voltage Accuracy	Input voltage 220V, any load	Vo1	-	±3.0	±5.0	%
		Vo2	-	-	-	%
Line Regulation	Nominal load	Vo1	-	-	±1.0	%
		Vo2	-	-	-	%
Load Regulation	Nominal input voltage, 20%~100% load	Vo1	-	-	±4.0	%
		Vo2	-	-	-	%
No Load Consumption	Input 115VAC		-	0.3	0.5	W
	Input 220VAC		-			
Minimum Load	Single Output		15	-	-	%
	Dual output common ground		-	-	-	%
	Dual output but Isolated		-	-	-	%
Start up Delay Time	Nominal input voltage (full load)		-	800	-	mS
Power-off Holding Time	Input 220VAC (full load)		-	100	-	mS
Dynamic Response	25%~50%~25%		Overshoot range (%) : ≤±5.0			%
	50%~75%~50%		Recovery time (mS) : ≤5.0			mS
Output Overshoot	Full input voltage range		≤10%Vo			%
Short circuit Protection	Full input voltage range		Continuous, self-recovery			Hiccup
Temperature Drift	-		-	±0.03%	-	%/°C
Over Current Protection	Input 220VAC		≥120% Io self-recovery			Hiccup



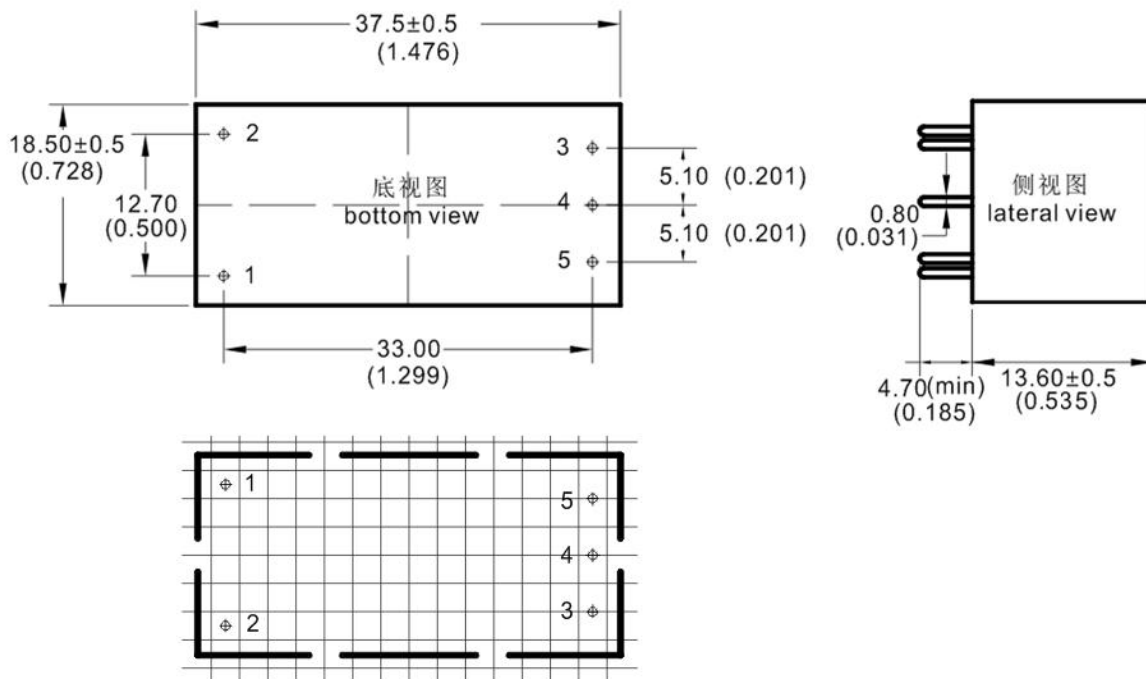
Ripple & Noise	Input 220VAC(full load)	50	80	200	mV
	Note: Ripple & Noise is tested by twisted pair method, details please refer to Ripple & Noise test at back.				

General Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-40	-	+75	°C
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave soldering	260±4°C, time 5-10S			
	Manual soldering	360±8°C, time 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Input-Output, Test 1min, leakage current≤5mA	3000	-	-	VAC
Insulation Resistance	Input-Output@ DC500V	100	-	-	MΩ
Safety Standard	-	EN60950、IEC60950			
Vibration	-	10-55Hz, 10G, 30Min, along X, Y, Z			
Safety Standard	-	CLASS II			
Class of Case Material	-	UL94V-0 Class			
MTBF	-	MIL-HDBK-217F@25°C > 300,000H			

EMC Characteristics

Total Item	Sub Item	Test Standard	Class	
EMC	EMI	CE	CISPR22/EN55032 CLASS B	
		RE	CISPR22/EN55032 CLASS B	
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B
		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

Dimension


注：引脚长度以模块实物为准

单位(Unit):mm

印刷板俯视图 (Printed board vertical view)

栅格间距(latic spacing):2.54mm(0.1inch)

未标注尺寸公差±0.25mm

未注明引脚直径公差±0.10mm

Packing Code

L x W x H

A2

37X18.5X13.6mm

1.476X0.728X0.535inch

Pin Specification

Pin	1	2	3	5
Single (S)	AC(N)	AC(L)	+Vo	-Vo

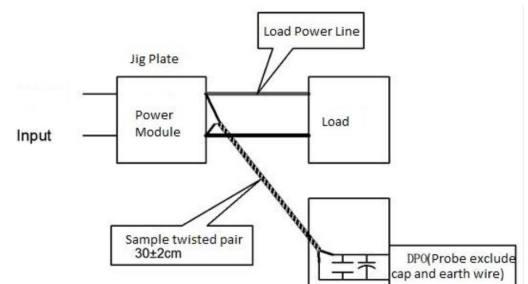
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

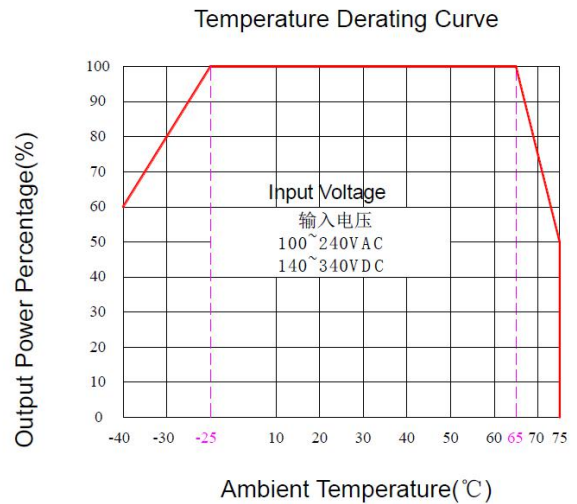
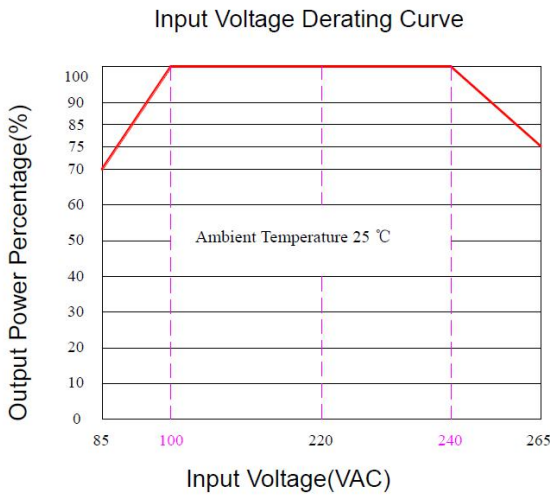
Test Method:

(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100Mbandwidth 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 based on Input voltage derating curve when it is 85~100VAC/120~140VDC and 240~265VAC/340~380VDC.

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

Typical Application Circuit and EMC Recommended Circuit

1. Typical Application Circuit

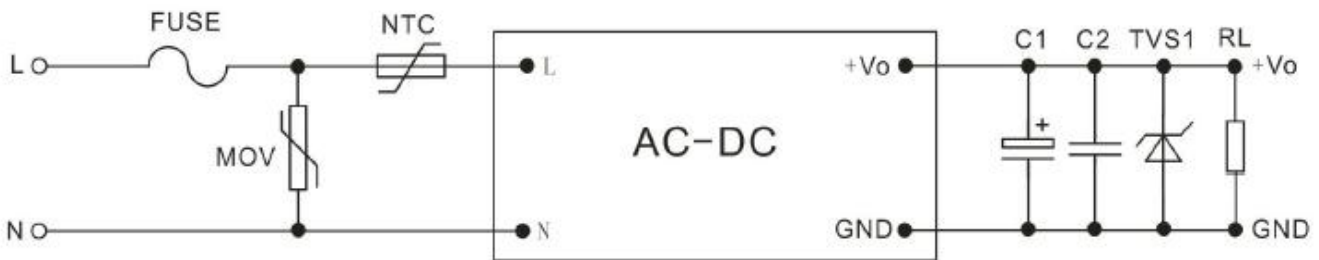


Photo 1

Output Voltage	5V	9V	12V	15V	24V	48V
TVS Tube Recommended	SMBJ7.0A	SMBJ12A	SMBJ20A	SMBJ20A	SMBJ30A	SMBJ64A
C1 Capacitor Recommended	330uF/10V	220uF/16V	220uF/16V	100uF/25V	47uF/35V	22uF/63V

Note:

Output filter capacitor C1 is electrolytic capacitor, recommend to use high frequency low resistance ones, capacitance and current please refer to the technical specification from each supplier. C2 is ceramic capacitor, to filter high frequency noise. TVS tube is a recommend component to protect post-circuit if converter fails. Recommend to connect external FUSE, model: 1A/250V slow-fusing. Recommend to connect NTC thermal resistor, type: 10D-7. Recommend to connect to MOV piezoresistor, type: 10D511K.

2. EMC recommended circuit

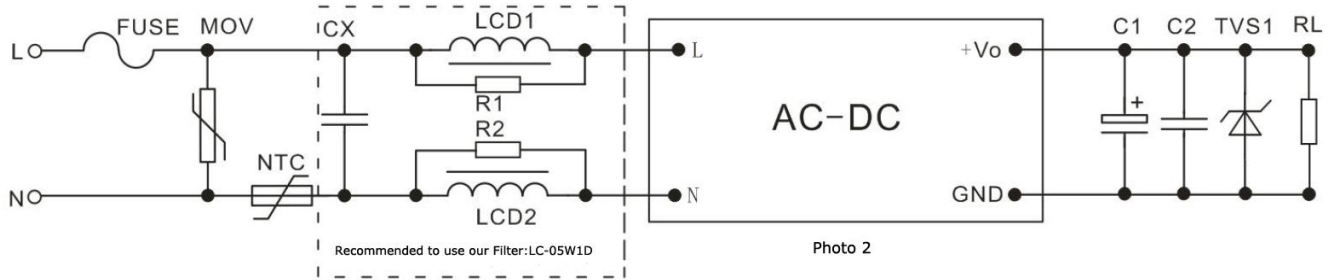


Photo 2

Component	Recommend Value	Component	Recommend Value
MOV	10D511K	NTC	10D-7
CX	0.1uF/275VAC	LMD	1mH/1W Color Ring Inductance
FUSE	1A/250V,slow-fusing,necessary		
R1、R2	2KΩ, 5%, above 1/8W		

Note 1:

1. The product should be used within the specification range, or it will cause permanent damage to it;
2. The input terminal should connect to fuse;
3. If the product is worked under the minimum requested load, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
4. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
5. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% with nominal input voltage and rated output load(pure resistance load);
6. All index testing methods in this datasheet are based on our Company's corporate standards;
7. 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;
8. We can provide product customization service,
9. Specifications are subject to change without prior notice, please follow up with our website for newest manual.