



### Typical Features

- ◆ Wide input voltage range:85-265VAC/120-380VDC
- ◆ No-load power consumption $\leq\leq 0.5W$
- ◆ Transfer efficiency (typ. 82%)
- ◆ Switching frequency: 65KHz
- ◆ Protection: Short Circuit, Over Current
- ◆ Isolation voltage: 2500Vac
- ◆ Plastic case, conform to UL94V-0 Class
- ◆ PCB mounting



### Application Field

**FA15-220S05G3N3 Series**----- 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, with good EMC performance. EMC and Safety standard meet international EN55032,IEC/EN61000. It widely used in power, industrial, instrument, smart home applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

### Typical Product List

Part No.	Output Specification					Max. Capacitive Load	Ripple & Noise 20MHz (Max)	Efficiency@ Full Load 220Vac (Typical)
	Power	Voltage 1	Current 1	Voltage 2	Current 2			
	(W)	Vo1 (V)	Io1 (mA)	Vo2 (V)	Io2 (mA)			
FA15-220S05G3N3	15	5.0	3000	-	-	5000	100	82

Note 1: Ripple&Noise should be tested with EMC solution recommended circuit, please see photo 1 at back.

Note 2: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.

Note 3: ".\*" is model under developing.

Note 4: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.

Note 5: The fluctuation range of full load efficiency(% ,TYP) is  $\pm 2\%$ , full load output efficiency= total output power/module's input power.

### Input Specification

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	/	/	250	mA
	220VAC	/	/	150	
Surge Current	115VAC	/	/	10	
	220VAC	/	/	20	



Leakage Current	-	0.5mA TYP/230VAC/50Hz
External fuse recommended value	-	2A-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	-	±1.0	±2.0	%
		Vo2	-	-	-	%
Line Regulation	Nominal Load	Vo1	-	-	±1.0	%
		Vo2	-	-	-	%
Load Regulation	Nominal input Voltage 20%~100% load	Vo1	-	-	±0.5	%
		Vo2	-	-	-	%
No load power consumption	Input 115VAC		-	-	0.5	W
	Input 220VAC		-	-		
Minimum load	Single Output		0	-	-	%
	Positive Negative Dual output common grounded		-	-	-	%
	Positive Negative Dual output isolated		-	-	-	
Turn-on Delay Time	Nominal input voltage, full load		-	200	-	mS
Power-off Holding Time	Input 115VAC (full load)		-	15	-	mS
	Input 220VAC (full load)		-	65	-	
Output Overshooting	Full input voltage range (full load)		-	-	10	%
Dynamic Response	25%~50%~25%		Overshoot range (%) : $\leq \pm 5\%$			%
	50%~75%~50%		Recovery time (mS) : $\leq 5.0\text{mS}$			mS
Short Circuit Protection	Input full voltage range		Continuous, Self-recovery			Hiccup
Drift Coefficient	-	-	-	±0.03%	-	%/°C
Over Current Protection	Input 220VAC		$\geq 130\% I_o$ , Self-recovery			Hiccup
Ripple & Noise	Vo=5.0V		-	60	100	mV
	Note: Ripple& Noise is tested by Twisted Pair Method, details please see Ripple& Noise Test at back.					

### General Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
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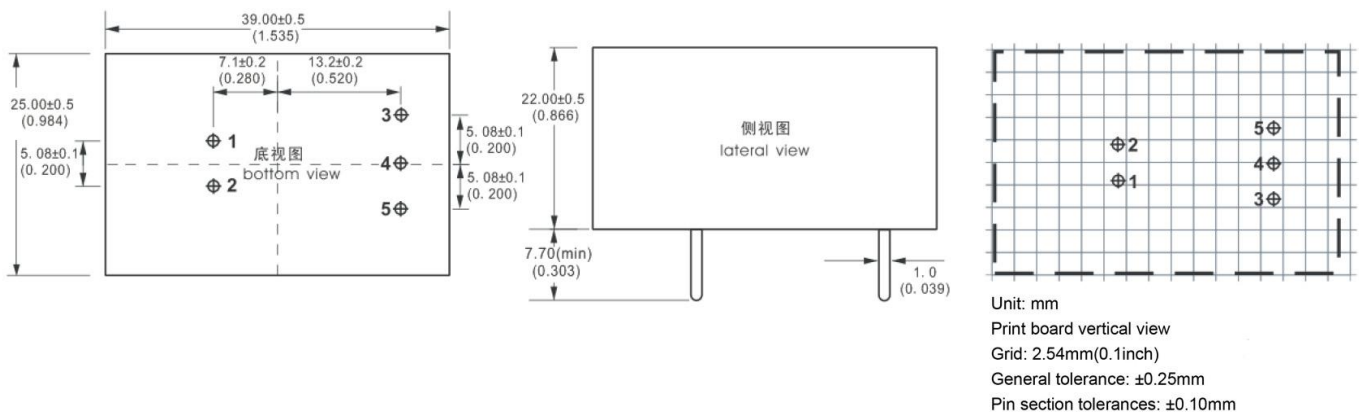


Switching Frequency	-	60	65	70	KHz
Operating Temperature	-	-40	-	+75	℃
Storage Temperature	-	-40	-	+85	
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Input-Output, Test 1min, leakage current ≤5mA	2500	-	-	VAC
Insulation Resistance	Input-Output@DC500V	100	-	-	MΩ
MTBF	-	≥300,000H @25℃			
Safety Standard	-	EN60950、IEC60950			
Vibration	-	10-55Hz, 10G, 30Min, along X, Y, Z			
Class of Case Material	-	UL94V-0			

### EMC Characteristics

Total Item	Sub Item	Test Standard	Class	
EMC	EMI	CE	CLASS B (see recommended circuit Photo 2)	
		RE	CLASS B (see recommended circuit Photo 2)	
	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 ±4KV / 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





Packing Code	L x W x H	
G3	39.0 x 25.0 x 22.0 mm	

### Pin Definition

Pin-out	1	2	3	4	5
Single (S)	AC(N)	AC(L)	GND	NP	+Vo

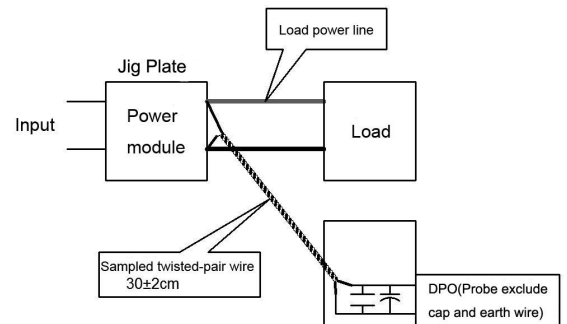
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

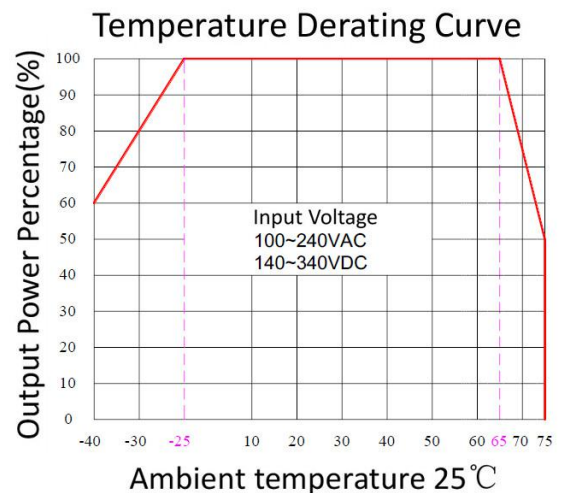
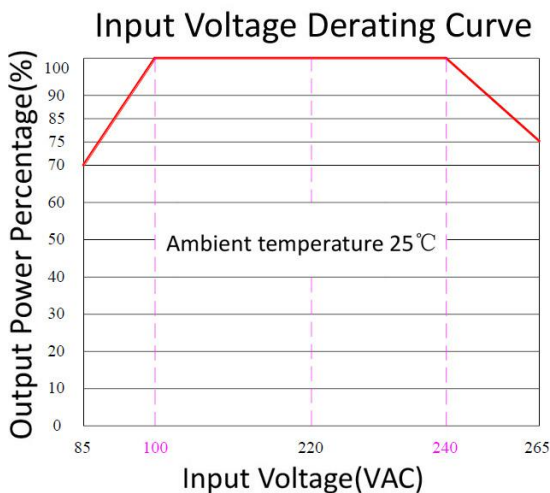
Test Method:

(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



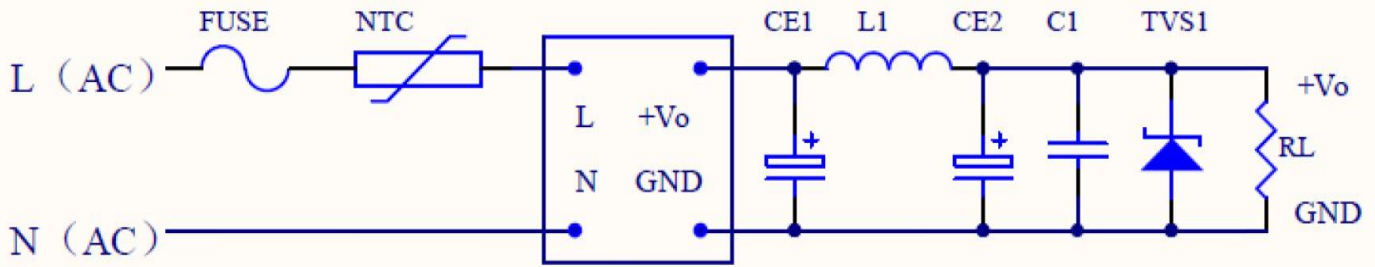
Note

1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 85~100VAC /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

#### 1. Typical Application Circuit



Part No.	CE1, CE2	L1	C1	TVS1
FA15-220S05G3N3	220uF	5uH	0.1uF	SMBJ7.0A

Note:  
 Output filter capacitor CE1, CE2 is electrolytic capacitor, recommend high frequency low resistor electrolytic capacitor, for capacity and current low, please refer to the technical specifications provided by each manufacturer. CE1, CE2 capacitor withstand voltage should derate to 80%, capacitor C1 is ceramic capacitor, to filter high frequency noise, recommended 0.1uF/50V/1206.  
 TVS1 tube is a recommend component to protect post-circuit if converter fails. Recommend to external FUSE, Model:2A/250V, slow fusing.

### 2.EMC solution recommended circuit

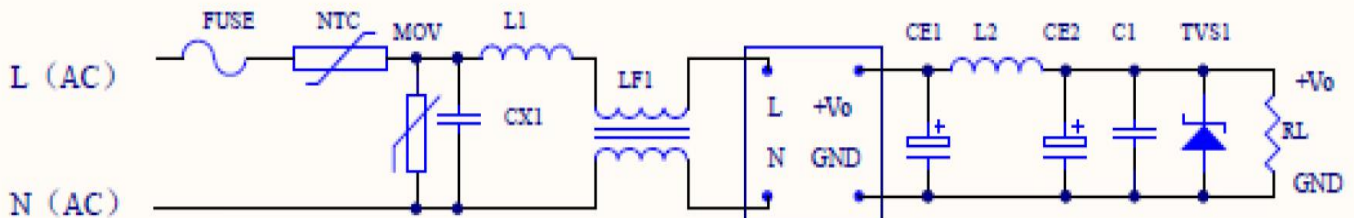


Photo 2, EMC for higher requirement circuit

Component	Products Module	Value
FUSE	2.0A/ 250Vac	2.0A/ 250Vac, slow-fusing, necessary
NTC	5D-9	5D-9
MOV	10D561K	10D561K
CX1	0.47uF/ 275Vac	0.47uF/ 275Vac
L1	6.8uH/ 3.0A	6.8uH/ 3.0A H inductor
LF2	UU9.8 30mH min	30mH/3.0A



## 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  $T_a=25^{\circ}\text{C}$ , 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.