



Typical Features	
◆	Wide input voltage range:85-265VAC/120-380VDC
◆	No-load power consumption≤0.3W
◆	Transfer efficiency (typ. 82%)
◆	Switching frequency: 65KHz
◆	Output Short Circuit, Over Current, Over Voltage, Over Temp Protection
◆	Isolation voltage: 4000Vac
◆	Plastic case, meets flammability UL94 V-0
◆	PCB mounting



**Application Field**

**FA15-220HXXXXXF2D4 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. 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	Vo1	Io1	Vo2	Io2	Vo3	Io3			
	(W)	(V)	(mA)	(V)	(mA)	(V)	(mA)			
FA15-220H050505F2D4	15	5	2000	5	500	-5	500	11000/2200	80/100	80
FA15-220H051212F2D4	15	5	2000	12	200	-12	200	11000/800	80/100	81
FA15-220H051515F2D4	15	5	1800	15	200	-15	200	6000/400	80/100	82
*FA15-220H052424F2D4	15	5	1800	24	125	-24	125	6000/200	80/120	83

- Note 1: For more items, please contact with our sales team.
- Note 2: "\*" is model under developing.
- Note 3: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.
- Note 4: The fluctuation range of full load efficiency(%,TYP) is ±2%, full load output efficiency= total output power/module's input power.
- Note 5: Ripple & Noise are tested by Twisted-Pair method, please check at back.

**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	/	/	0.3	A



	220VAC	/	/	0.15	
Surge Current	115VAC	/	/	20	
	220VAC	/	/	30	
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
External fuse recommended value	-	1A-2A/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/Vo3	-	±5.0	±10.0	%
Line Regulation	Nominal Load	Vo1	-	-	±0.5	%
		Vo2/Vo3	-	-	±1.5	%
Load Regulation	Nominal input Voltage 20%~100% load	Vo1	-	-	±2.0	%
		Vo2/Vo3	-	-	±5.0	%
No load power consumption	Input 115VAC		-	-	0.3	W
	Input 220VAC		-	-		
Minimum load			10			%
Turn-on Delay Time	Nominal input voltage, full load		-	1000	-	mS
Power-off Holding Time	Input 115VAC (full load)		-	80	-	mS
	Input 220VAC (full load)		-	100	-	
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			Continuous, Self-recovery			Hiccup
Drift Coefficient	-		-	±0.03%	-	%/°C
Over Current Protection	Full input voltage range		≥130% Io, Self-recovery			Hiccup
Over Voltage Protection	Full input voltage range		V01	5VDC Output	≤7.5VDC	

**General Specifications**

Item	Operating Condition		Min.	Typ.	Max.	Unit
Switching Frequency	-		-	65	-	KHz
Operating Temperature	-		-40	-	+70	°C
Storage Temperature	-		-40	-	+85	

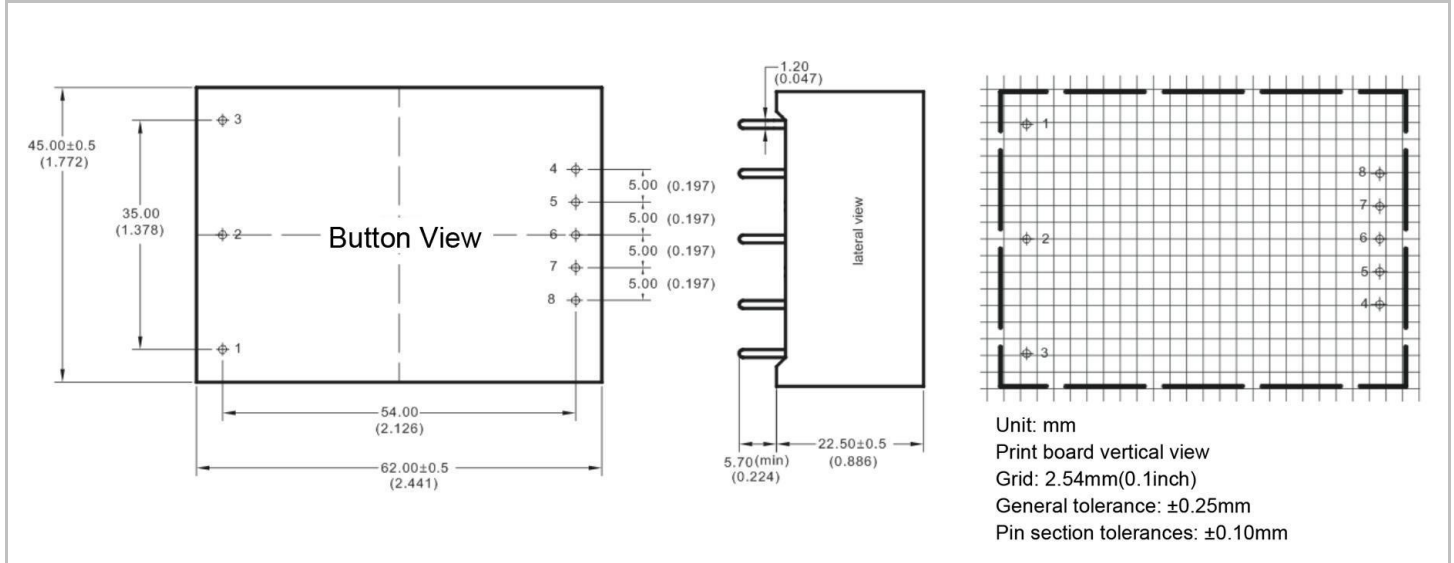


Soldering Temperature	Wave-soldering	260±4°C, timing 5-10S				
	Manual-soldering	360±8°C, timing 4-7S				
Relative Humidity	-	10	-	90	%RH	
Isolation Voltage	Input-Output	Test 1min, leakage current ≤5mA	4000	-	-	VAC
	Input-FG		2000			
	Vo1-Vo2/Vo3		500			
Insulation Resistance	Input-Output@DC500V	100	-	-	MΩ	
Safety Standard	-	EN62368、IEC62368				
Vibration	-	10-55Hz,10G,30Min, along X,Y,Z				
Safety Class	-	CLASS I				
Class of Case Material	-	UL94 V-0				
MTBF	-	MIL-HDBK-217F @25°C > 300,000H				

**EMC Characteristics**

Total Item	Sub Item	Test Standard	Class	
EMC	EMI	CE	CISPR22/EN55032 CLASS B (see recommended circuit Photo 1)	
		RE	CISPR22/EN55032 CLASS B (see recommended circuit Photo 1)	
	EMS	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**



Packing Code	L x W x H	
F2	62.0 x 45.0 x 22.5 mm	2.441 x 1.772 x 0.885inch

**Pin Definition**

Pin-out	1	2	3	4	5	6	7	8
Triple(H)	FG	AC(N)	AC(L)	+Vo2	COM	+Vo3	+Vo1	-Vo1

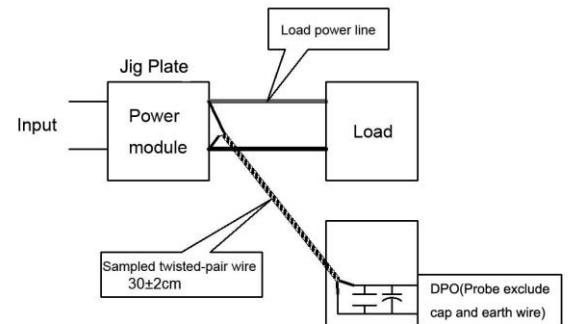
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

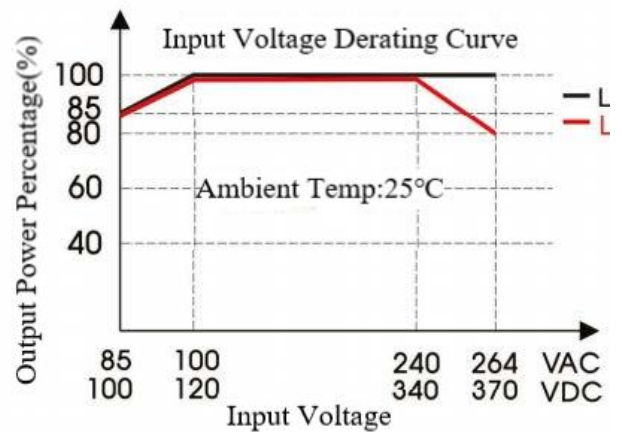
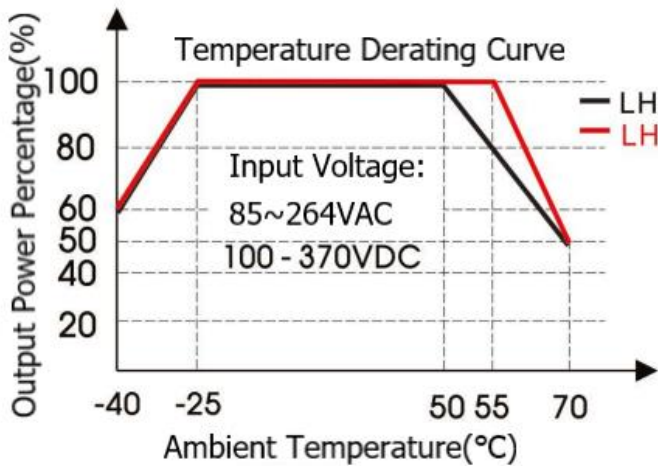
**Test Method:**

(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**

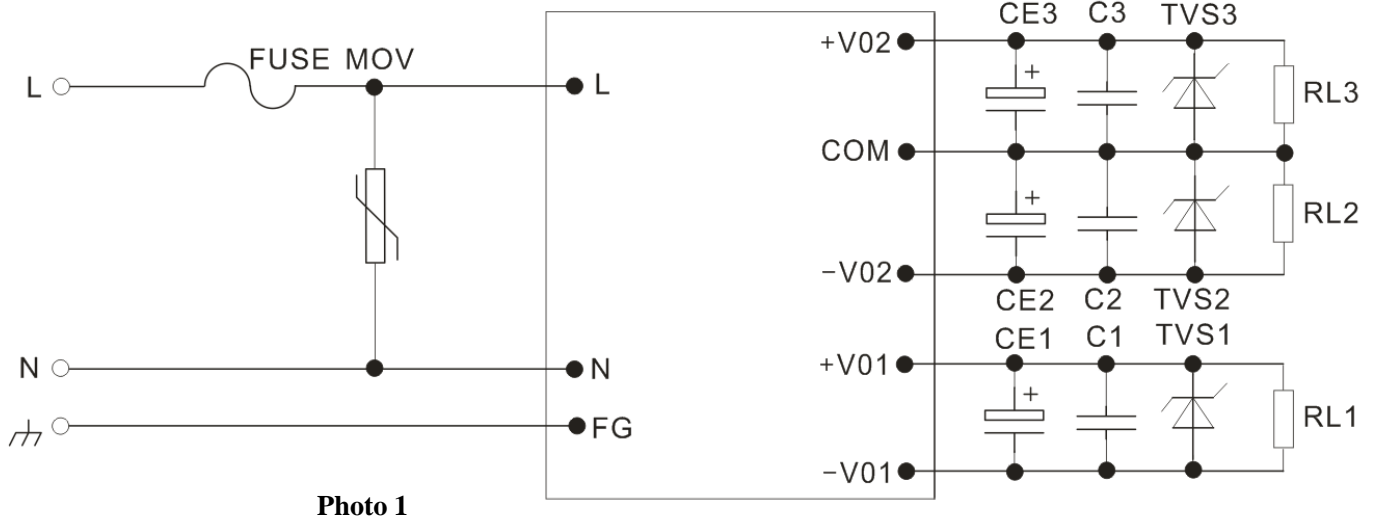


- Note
- 1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 85~100VAC /240~265VAC /120~140VDC /340~380VDC.
  - 2: Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

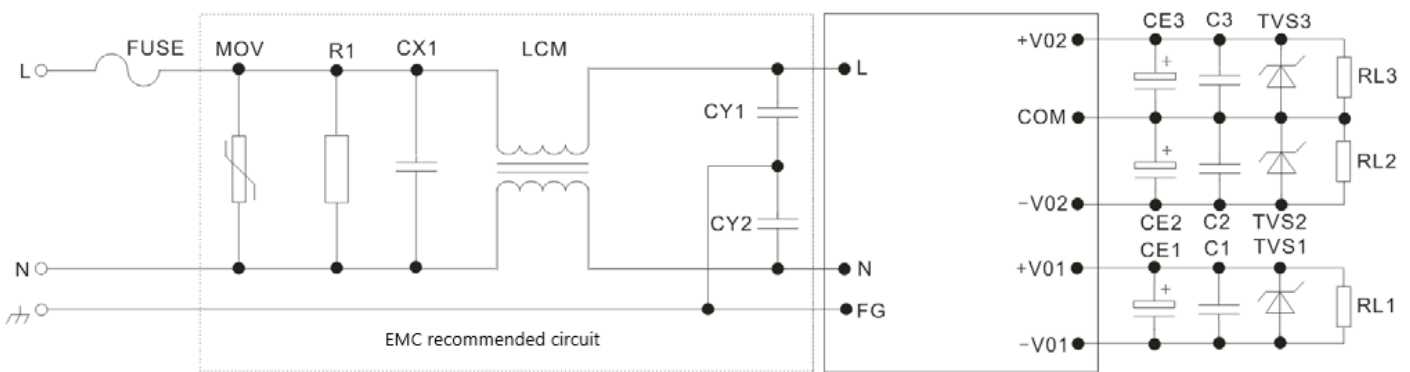


**Typical EMC Circuit and Recommended Spec**

**1. Typical Application Circuit**



**Photo 1**



**Photo 2**

- 1) FUSE, recommended 2A~250Vac slow fusing, block shape;
- 2) LMC is common mode inductor, recommend 30mH above;
- 3) CX1 is X capacitor, recommend 0.22uF/275V;
- 4) C1, C2 choose high-frequency and low-impedance electrolytic capacitor, capacitance smaller than capacitive load, and withstand voltage is 1.5 times above the output voltage.
- 5) C3, C4 choose 0.1uF ceramic chip capacitors, withstand voltage is 1.5 times above the output voltage;
- 6) TVS1, TVS2 is TVS tube,; 5V output recommend: SMBJ7.0A, 9V output recommend: SMBJ12.0A, 12V output recommend: SMBJ20.0A, 15V output recommend: SMBJ20.0A, 24V output recommend: SMBJ30.0A, 48V output recommend: SMBJ64.0A.

**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.