

Typical Features

- ◆ Input voltage range: 85-265VAC/120-380VDC
- ◆ No-load power consumption $\leq 0.3W$
- ◆ Efficiency (typ. 82%)
- ◆ Switching frequency: 65KHz
- ◆ Protections: SCP, OCP, OVP, OTP
- ◆ Isolation voltage: 4000Vac
- ◆ Encapsulated in plastic case, Flame class UL94V-0
- ◆ PCB mounting



Application Field

FA15-220HXXXXXXF2D4 Series----- a compact size, high efficiency power supply with multi-advantages of universal input voltage, both AC & DC input available, low ripple, low temperature rise, low no load power consumption, high reliability and safety isolated. They can be widely used in electricity power, industrial, instrument and smart home applications. The application circuit in the datasheet is recommended for higher EMC requirement.

Typical Product List

Certificate	Part No.	Output Specification							Max. Capacitive Load	Ripple & Noise 20MHz (Max)	Efficiency @220Vac Full load (Typical)
		Power	Vo1	Io1	Vo2	Io2	Vo3	Io3			
		(W)	(V)	(mA)	(V)	(mA)	(V)	(mA)	u F	mVp-p	%
-	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
-	FA15-220H121212F2D4	15	12	1000	12	125	-12	125	1000/470	100/100	83

Note 1: Please contact with Aipu sales for other output voltages requirement if you need in this series.

Note 2: The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 3: The full load efficiency should be in $\pm 2\%$ of the typical value in this table. The efficiency is calculated by the way that the full output power is divided by the 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	-	47	50	63	Hz
Input Current	115VAC	-	-	0.30	A
	220VAC	-	-	0.20	
Surge Current	115VAC	-	-	20	
	220VAC	-	-	30	

Leakage Current	-	0.5mA TYP/230VAC/50Hz
External fuse recommended	-	1A-2A/250VAC Time-delay fuse
Hot plug	-	Unavailable
Remote control terminal	-	Unavailable

Output Specifications

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	%
Line Regulation	Rated Load		Vo1	-	-	±0.5	%
			Vo2/Vo3	-	-	±1.5	%
Load Regulation	Rated 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
Holde Up Time	Input 115VAC (full load)			-	80	-	mS
	Input 220VAC (full load)			-	100	-	
Dynamic Response	Overshoot range	25%~50%~25%		-5.0	-	+5.0	%
	Recovery time	50%~75%~50%		-5.0	-	+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	Input 220VAC			≥130% Io, Self-recovery			Hiccup
Over Voltage Protection	Full input voltage range	Vo1	5V	≤7.5			VDC
			12V	≤18			
Ripple & Noise	-			-	50	100	mV
	Note: It is tested by Twist Pair Method, for details please refer to the Ripple & Noise test instruction in Page 4.						

General Specifications

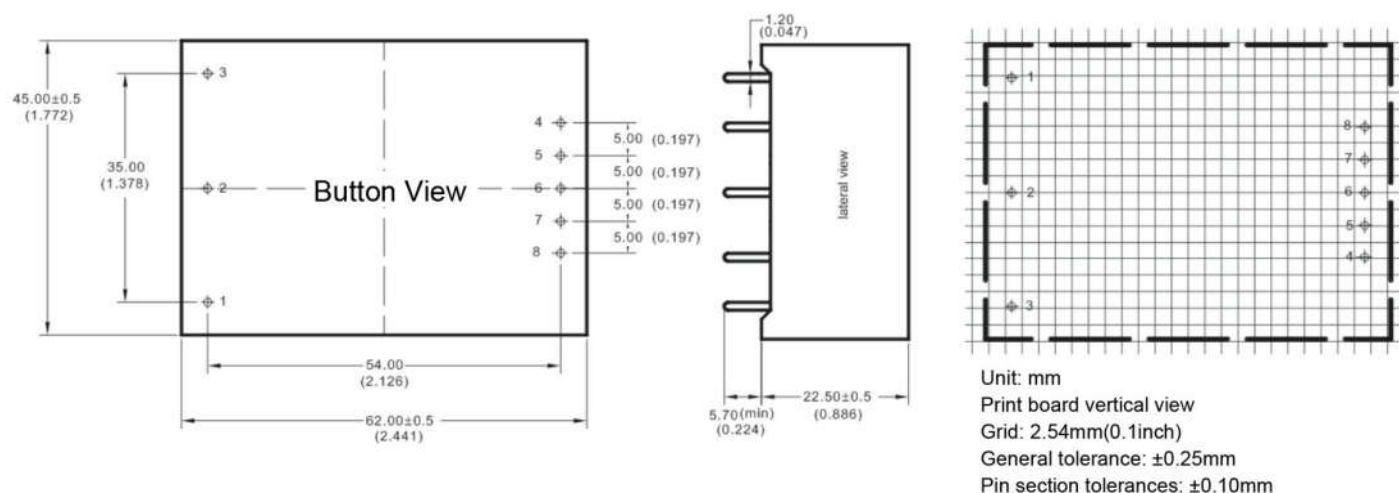
Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-40	-	+70	°C
Storage Temperature	-	-40	-	+85	

Soldering Temperature	Wave-soldering		260±4℃, 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
	Input-FG		2000			
	Vo1-Vo2/Vo3		500			
Insulation Resistance	Input-Output@DC500V		100	-	-	MΩ
Safety Standard	-		IEC/EN62368			
Vibration	-		10-55Hz, 10G, 30 Min, along X,Y,Z			
Safety Class	-		CLASS I			
Flame Class of Case	-		UL94 V-0			
MTBF	-		MIL-HDBK-217F@25℃>300,000H			

EMC Performance

Total Item		Sub Item	Test Standard	Performance/Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B (Recommended Circuit 2)
		RE	CISPR22/EN55032	CLASS B (Recommended Circuit 2)
	EMS	ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.Criteria B (Recommended Circuit 2)
		Surge	IEC/EN61000-4-5	±1KV Perf.Criteria B (Recommended Circuit 2)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B (Recommended Circuit 2)
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

Mechanical Dimensions



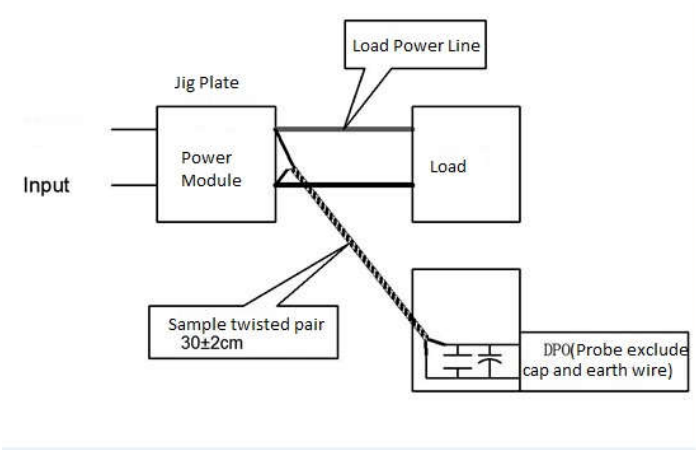
Packaging Code	L x W x H	
F2	62.0 x 45.0 x 22.5 mm	2.441 × 1.772 × 0.885inch

Pin Definition

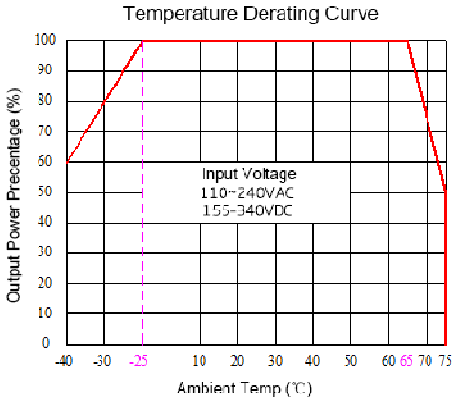
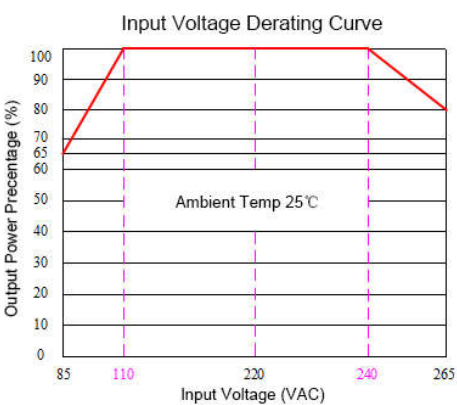
Pin-out	1	2	3	4	5	6	7	8
Triple(H)	FG	AC (N)	AC (L)	+Vo2	COM	-Vo3	+Vo1	-Vo1

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

- 1) Ripple noise test need 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set on the Sample Mode.
- 2) Please refer to the output ripple noise test diagram. The convertor output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be started after input power on.

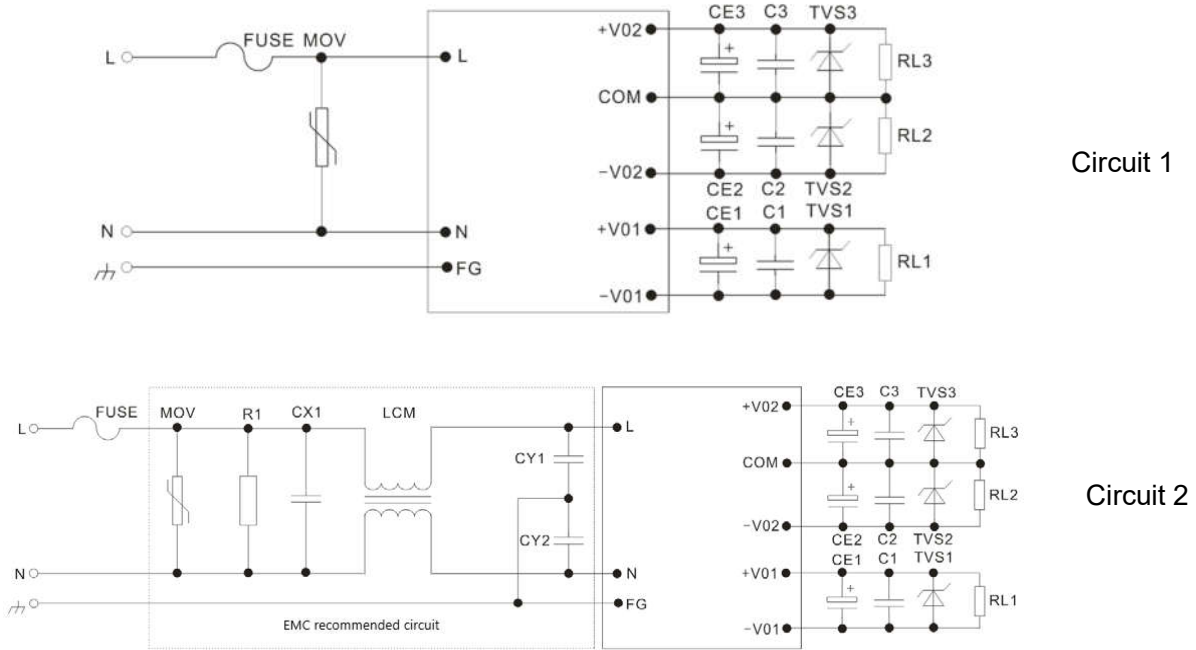


Product Performance Curve



- Note
1. The rated output power should be decreased based on the Input Voltage Derating Curve when the input voltage at 85~110VAC/240~265VAC/ 120~155VDC/ 340~380VDC.
2. This product should operate at a natural air environment. Please contact us if it is used at a closed space.

Typical Recommended Circuits for application



Note 1:

- 1) Time-delay fuse 2A/250Vac is recommended.
- 2) LMC is Common mode inductor, above 30mH is recommended.
- 3) CX1 is X capacitor, 0.22uF/275V is recommended.
- 4) C1 & C2 should be high frequency low impedance electrolytic capacitors, the capacity values should be lower than capacitive load, withstand voltage be at least 1.5 times of output voltage.
- 5) C3 & C4 should be 0.1uF ceramic chip capacitors, withstand voltage value be at least 1.5 times of output voltage.
- 6) TVS1 & TVS2 are recommended as following, SMBJ7.0A for 5V output, SMBJ12.0A for 9V output, SMBJ20A for 12V & 15V output, SMBJ30.0A for 24V output, SMBJ64A for 48V output.

Note 2:

1. The product should be used according to the specifications in this manual, otherwise it could be permanently damaged.
2. A fuse should be used at input
3. The product performances in this manual cannot be guaranteed if it works at a lower load than the minimum load defined.
4. The product performances in this manual cannot be guaranteed if it works at over-load condition.
5. Unless otherwise specified, all values or indicators in this manual are tested at Ta=25℃, humidity<75%RH, rated input voltage and rated load (pure resistance load).
6. All values or indicators in this manual had been tested based on Aipupower test specifications.
7. The specifications are specially for the parts listed in this manual, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirement.
8. Aipupower can provide customization service.
9. The product specifications may be modified without a prior notice. Please refer to the published data sheet in Aipupower website.

Guangzhou Aipu Electron Technology Co., Ltd

Address: Building 4, HEDY Park, No.63, Punan Road, Huangpu Dist, Guangzhou, China.

Tel: 86-20-84206763 Fax: 86-20-84206762 HOTLINE: 400-889-8821

E-mail: sales@aipu-elec.com Website: <https://www.aipupower.com>