Typical Features

- ◆ Wide input voltage range: 85-265VAC/120-380VDC
- ◆ No load power consumption≤0.3W
- ◆ Efficiency (typ. 84%)
- ◆ Switching Frequency: 65KHz
- ◆ Protections: short circuit, over current, over temperature
- ◆ Isolation Voltage 4000Vac
- ◆ Compliance with IEC/EN62368/UL62368
- ◆ Conform to CE & RoHS regulation
- ◆ Encapsulated in plastic case, Flame class UL94V-0
- ◆ PCB mounting

Application Field

FA15-220EXXXXF2D4 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	Model	Output Specification					Max. Capacitive Load	Ripple& Noise 20MHz (TYP.)	Efficiency @ Full Load, 220Vac (TYP.)
		Power	Voltage 1	Current 1	Voltage 2	Current 2			
		(W)	Vo1(V)	Io1(m A)	Vo2(V)	Io2(m A)	u F	mVp-p	%
TUV-CE	FA15-220E0512F2D4	15	5	2000	12	400	1000/680	80/100	77
	FA15-220E0515F2D4	15	5	2000	15	333	1000/680	80/100	78
	FA15-220E0524F2D4	15	5	2000	24	200	1000/470	80/100	78
	FA15-220E12F2D4	15	12	625	12	625	470/470	100/100	84

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 ±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	100	310	380	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.30	A

	220VAC	-	-	0.18	
Surge Current	115VAC	-	-	10	
	220VAC	-	-	20	
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	-	±2.0	±3.0	%
			Vo2	-	±5.0	±8.0	%
Line Regulation		Rated Load	Vo1	-	-	±0.5	%
			Vo2	-	-	±1.5	%
Load Regulation		Rated input voltage 20%~100% load	Vo1	-	-	±1.0	%
			Vo2	-	-	±5.0	%
No load power consumption		Input 115VAC		-	-	0.3	W
		Input 220VAC		-	-		
Minimum load		Single Output		0	-	-	%
		Dual output common grounded		-	-	10	%
		Dual output isolated		-	-	10	
Turn-on Delay Time		Nominal input voltage (full load)		-	1000	-	mS
Hold Up Time		Input 115VAC (full load)			80		mS
		Input 220VAC (full load)		--	100	-	
Output Dynamic Characteristics	Overshoot range	25%~50%~25% 50%~75%~50%		-5.0	-	+5.0	%
	Recovery time			-	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
Ripple & Noise		-		-	±0.03%	-	%/℃
		-		-	50	100	mV
		Note: It is tested by Twist Pair Method, for details please refer to the Ripple & Noise test instruction in Page 4.					

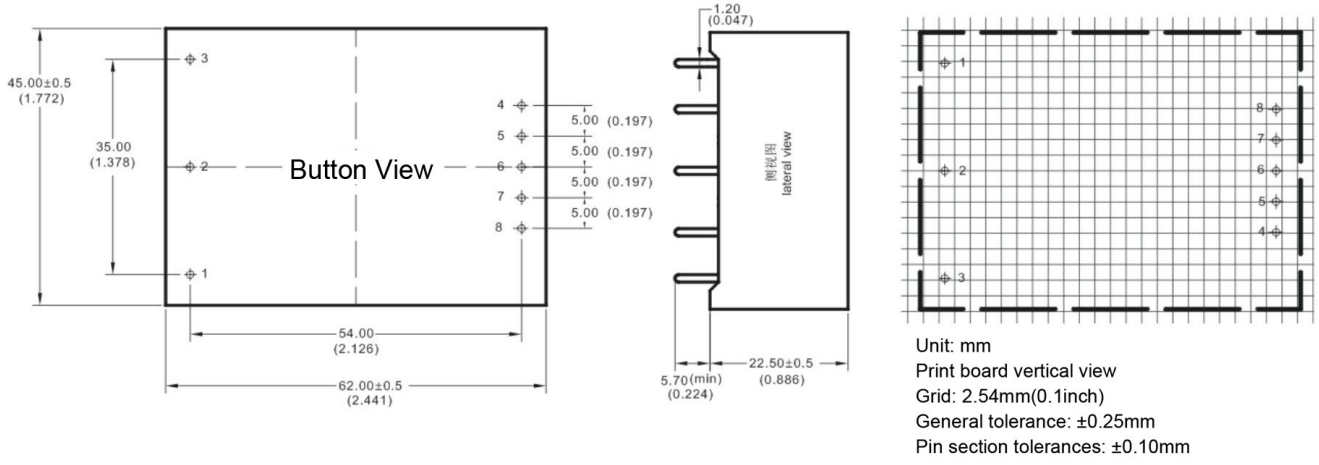
General Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-30	-	+75	℃
Storage Temperature	-	-30	-	+85	
Soldering Temperature	Wave-soldering	260±4℃, timing 5-10S			
	Manual-soldering	360±8℃, timing 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Between Input & Output, 1 min	4000	-	-	VAC
Insulation Resistance	Between Input & Output, @DC500V	100	-	-	MΩ
Safety Standard	-	IEC/EN62368 UL62368			
Vibration	-	10-55Hz,10G,30 Min, along X,Y,Z			
Safety Class	-	CLASS II			
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 1）
		RE	CISPR22/EN55032	CLASS B (Recommended Circuit 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 & Interruptions	IEC/EN61000-4-11	0%~70% Perf.Criteria B

F2 Packing Dimensions



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

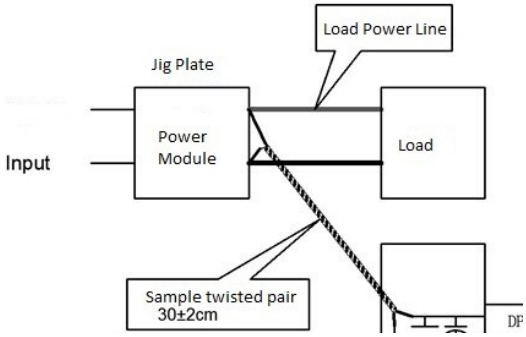
Pin definition

Pin-out	1	2	3	4	5	7	8
Single(S)	FG	AC(N)	AC(L)	+Vo2	-Vo2	+Vo1	-Vo1

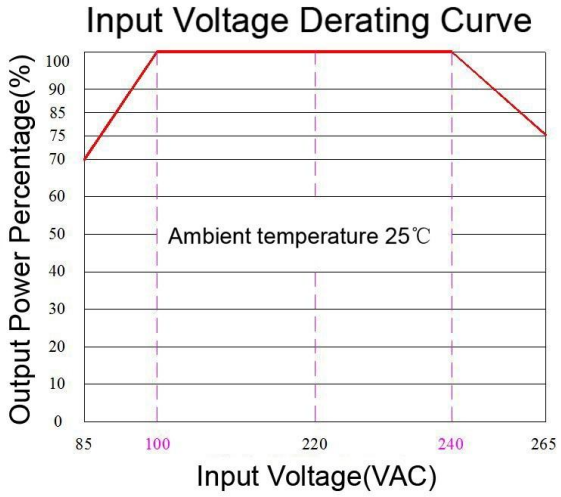
Ripple& Noise Test Instruction: (Twisted Pair Method 20MHZ bandwidth)

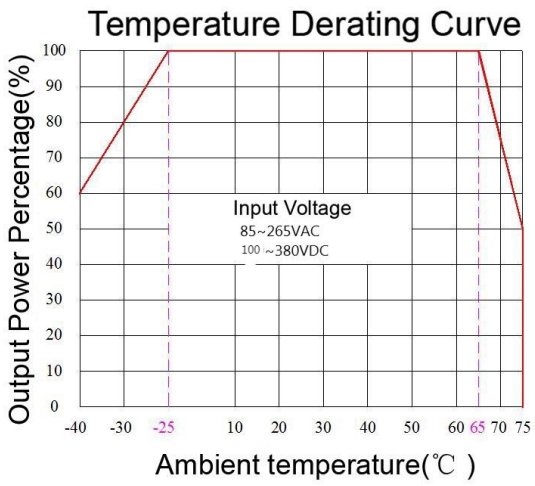
1) Ripple noise test need 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set on the Sample 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



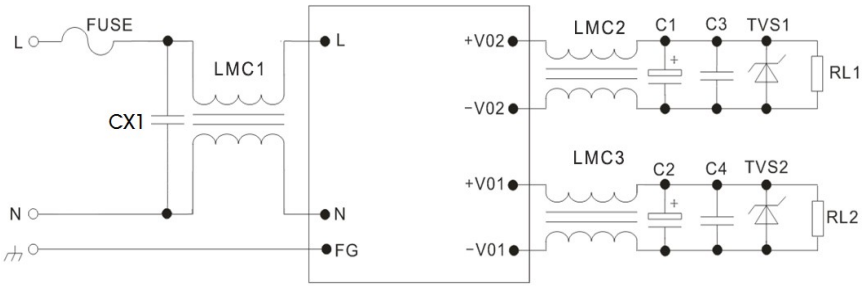


Note

1: The rated output power should be decreased based on the Input Voltage Derating Curve when the input voltage at 85~100VAC/240~265VAC/ 120~140VDC/ 340~380VDC.

2: This product should operate at a natural air environment. Please contact us if it is used at a closed space.

Application and EMC Circuit Recommended



Recommended Circuit 1

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 models 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.

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