

Typical Features

- ◆ Wide input voltage range: 85-305VAC/120-430VDC
- ◆ No load power consumption ≤ 0.3W
- ◆ Transfer efficiency (typ. 82%)
- ◆ Switching Frequency 65KHz
- ◆ Protections: Short Circuit, over current
- ◆ Isolation 4000Vac
- ◆ Meet IEC62368/UL60950/EN62368 Standard
- ◆ Fully enclosed plastic housing, meet UL94 V-0
- ◆ PCB mounting



Application Field

FA10-220DXXE2D4 Series----- a compact size, high efficient, meet CE standard 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, good EMC performance, meet EN55032, IEC/EN61000 standard. It widely used in power, industrial, instrument and smart home applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

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(mA)	Vo2(V)	Io2(mA)			
/	FA10-220D05E2D4	10	5	1000	5	1000	1000/1000	80/80	76
	FA10-220D09E2D4	10	9	556	9	555	1000/1000	80/80	80
	FA10-220D12E2D4	10	12	416	12	416	470/470	100/100	82
	FA10-220D15E2D4	10	15	333	15	333	330/330	120/120	82
	FA10-220D24E2D4	10	24	208	24	208	220/220	150/150	82

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

Note 3: The fluctuation range of full load efficiency(%, TYP) is ±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	305	VAC
	DC Input	120	310	430	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.20	A
	220VAC	-	-	0.15	

Surge Current	115VAC	-	-	10
	220VAC	-	-	20
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	-	±2.0	±3.0	%
		Vo2	-	±2.0	±4.0	%
Line Regulation	Nominal Load	Vo1	-	-	±0.5	%
		Vo2	-	-	±1.5	%
Load Regulation	Nominal input voltage 20%~100% load	Vo1	-	-	±2.0	%
		Vo2	-	-	±3.0	%
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
Power-off Holding Time	Input 115VAC(full load)		-	150	-	mS
	Input 220VAC(full load)		-	200	-	
Dynamic Characteristics	Overshoot range	25%~50%~25% 50%~75%~50%	-5.0	-	+5.0	%
	Recovery time		-5.0	-	+5.0	mS
Output Overshooting	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		≥120% Io, Self-recovery			Hiccup
Ripple & Noise	-		-	50	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
Switching Frequency	-	-	65	-	KHz

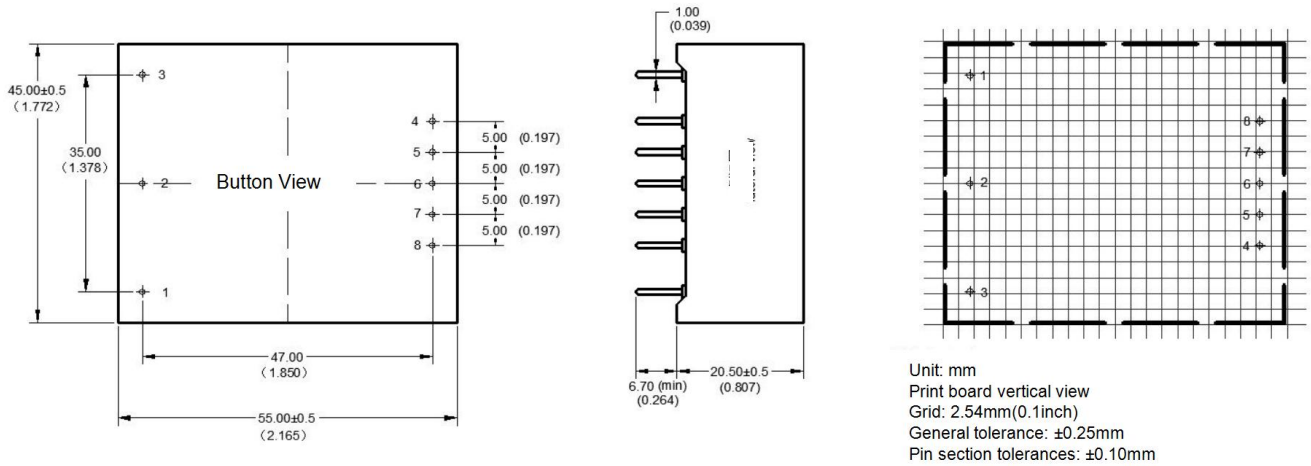
Operating Temperature	-	-40	-	+75	°C
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave-soldering	260±4°C, timing 5-10S			
	Manual-soldering	360±8°C, timing 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Input-Output Test 1min, leakage current≤5mA	4000	-	-	VAC
Insulation Resistance	Input-Output@DC500V	100	-	-	MΩ
Safety Standard	-	EN60950、IEC60950			
Vibration	-	10-55Hz, 10G, 30Min, along X, Y, Z			
Safety Class	-	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
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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, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B
	EMI	Conduction disturbance	CISPR22/EN55032	CLASS B ((Recommended Circuit 1)
		Radiation disturbance	CISPR22/EN55032	CLASS B ((Recommended Circuit 1)

Packing Dimension



Packing Code	L x W x H	
E2	55 x 45.0 x 20.5 mm	2.165 × 1.772 × 0.807inch

Pin Definition

Pin-out	1	2	3	4	6	8
Dual (D)	FG	AC(N)	AC(L)	+Vo2	COM	-Vo1

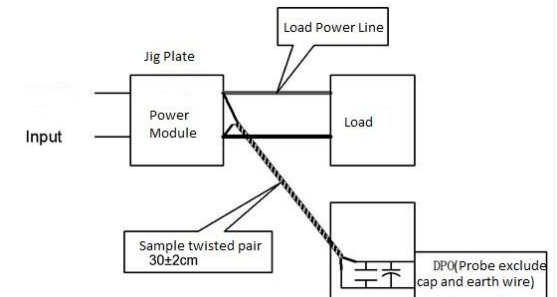
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

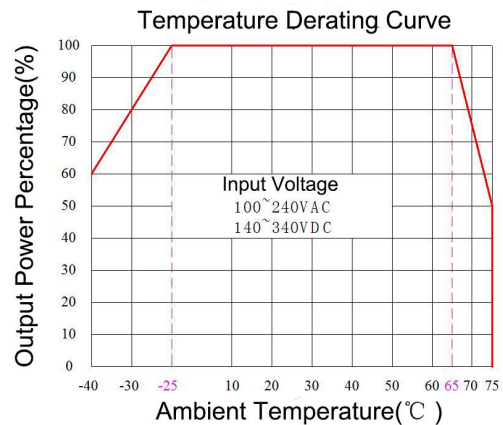
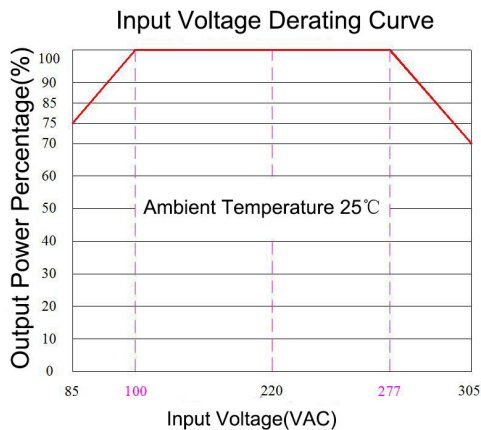
Test Method:

(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.



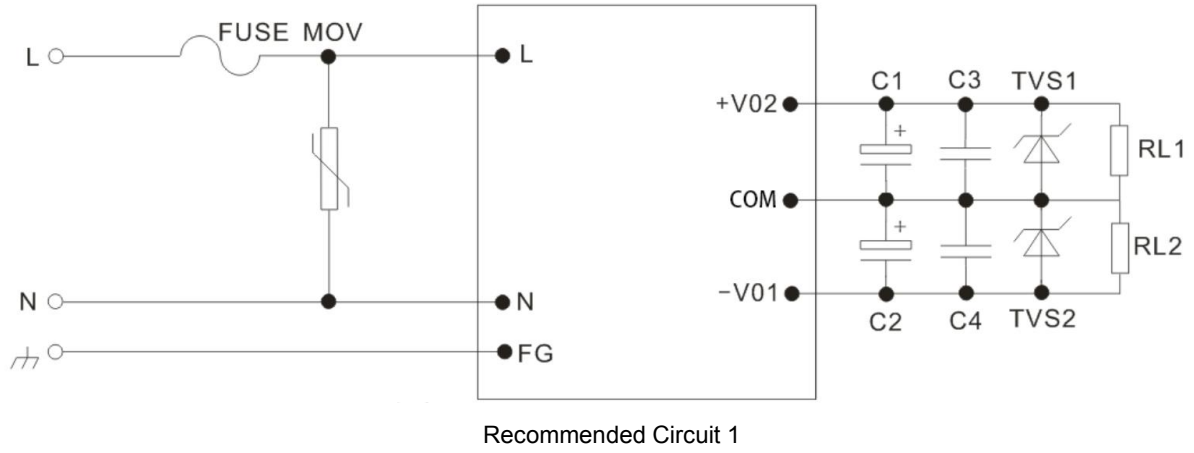
Product Characteristic Curve



Note

- 1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 85~100VAC/ 277~305VAC/ 120~140VDC/ 390~430VDC.
- 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 Specification



Note 1:

- 1) FUSE, recommend to use 2A~250Vac, slow fusing, block form;
- 2) MOV is varistor, recommended model 10D561K;
- 3) C1, C2 choose high frequency low impedance electrolytic capacitor, the capacitance lower than capacitive load, withstand voltage value is above 1.5 times more than output voltage;
- 4) C3, C4 choose 0.1uF ceramic chip capacitor, withstand voltage value is above 1.5 times more than output voltage;
- 5) TVS1, TVS2 is TVS tube: 5V output recommended: SMBJ7.0A, 9V output recommended: SMBJ12.0A, 12V output recommended: SMBJ20A, 15V output recommended: SMBJ20.0A, 24V output recommended: SMBJ30.0A, 48V output recommended: SMBJ64A.

Note :

1. The product should be used within the specification range, otherwise it will cause permanent damage to the product;
2. The product input terminal must be connected to a fuse;
3. If the product works below the minimum required load, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
4. If the product works beyond the product load range, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
5. Unless otherwise specified, the above data are measured at Ta=25°C, humidity<75%, input nominal voltage and output rated load (pure resistance load);
6. All the above index test methods are based on our company's standards;
7. The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard model products will exceed the above requirements. For specific circumstances, please contact our technical personnel directly
8. Our company can provide product customization;
9. Product specifications are subject to change without prior notice. Please pay attention to the latest manual published on our official 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>