AC/DC Converter
FA25-220DXXH2D4 Series

Typical Features

- ◆ Wide Input Voltage Range: 85-265VAC/120-380VDC
- ◆ No load power consumption ≤0.5W
- ◆ Transfer Efficiency: 83%(typ.)
- ◆ Switching Frequency: 65KHz
- ◆ Protections: Short-circuit, Over-current
- ◆ Isolation voltage: 4000Vac
- ◆ Meet IEC60950/UL60950/EN60950 test standard
- ◆ Fully enclosed plastic housing, meet UL94 V-0
- ◆ PCB Mounting

Application Field

FA25-220DXXH2D4 Series**-----*****a compact size, high efficient power converter offered by Aipu.***
It features universal input voltage range, AC and DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, with good EMC performance, meet EN55032, IEC/EN61000 standard. The series widely used for power, industry, instrument, smart home application, etc.
The application circuit in the datasheet is strongly recommended for harsh EMC environment.

Typical Product List

-	Part No	Output Specification					Max. Capacitive Load (MAX)	Ripple& noise 20MHz (MAX)	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	%
/	FA25-220D12H2D4	25	+12	1041	-12	1041	1000/1000	100/100	82
	FA25-220D15H2D4	25	+15	833	-15	833	820/820	100/100	83

Note 1: Due to limited space, the above is only a partial list of products. If you need products outside the list, please contact our sales department.

Note 2: "*" represents a model under development.

Note 3: The typical value of output efficiency is based on the product being aged for half an hour at full load.

Note 4: The full load efficiency (%, TYP) in the table fluctuates by ±2%. The full load efficiency is the total output power divided by the input power of the module.

Note 5: The test method for ripple and noise adopts the twisted pair test method. For specific test methods and matching, please refer to the following (Ripple & Noise Test Instructions).

Note 6: -T is a wiring package, -TS is a guide rail package, and the guide rail width is 35mm.

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 Range	-	47	50	63	Hz

Input Current	115VAC		/	/	0.5	A
	220VAC		/	/	0.30	
Surge Current	115VAC		/	/	10	
	220VAC		/	/	20	
Leakage Current	-		0.5mA TYP/230VAC/50Hz			
External Fuse Recommend Value	-		Unavailable			
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	±3.0	%
		Vo2	-	±1.0	±3.0	%
Line Regulation	Nominal Load	Vo1	-	-	±1.0	%
		Vo2	-	-	±1.0	%
Load Regulation	Nominal input voltage,20%~100% load	Vo1	-	-	±1.0	%
		Vo2	-	-	±1.0	%
No load power consumption	Input 115VAC	-	-		0.5	W
	Input 220VAC	-	-			
Minimum Load	Single Output		0	-	-	%
	Dual output common ground		-	-	-	%
	Dual output isolated		-	-	-	
Turn-on Delay Time	Input Normal voltage (full load)		-	500	-	mS
Power-off Holding Time	Input 115VAC(full load)		-	30	-	mS
	Input 220VAC(full load)		-	50	-	
Dynamic Response	25%~50%~25% 50%~75%~50%		Overshoot range (%):≤±5.0			%
			Recovery time(mS):≤5.0			mS
Output Over-shoot	Full input voltage range		≤10%Vo			%
Short circuit protection			Continuous, Self-recovery			Hiccup
Drift Coefficient	-		-	±0.03%	-	%/℃
Over Current Protection	Input 220VAC		⩾120% Io, Self-recovery			Hiccup

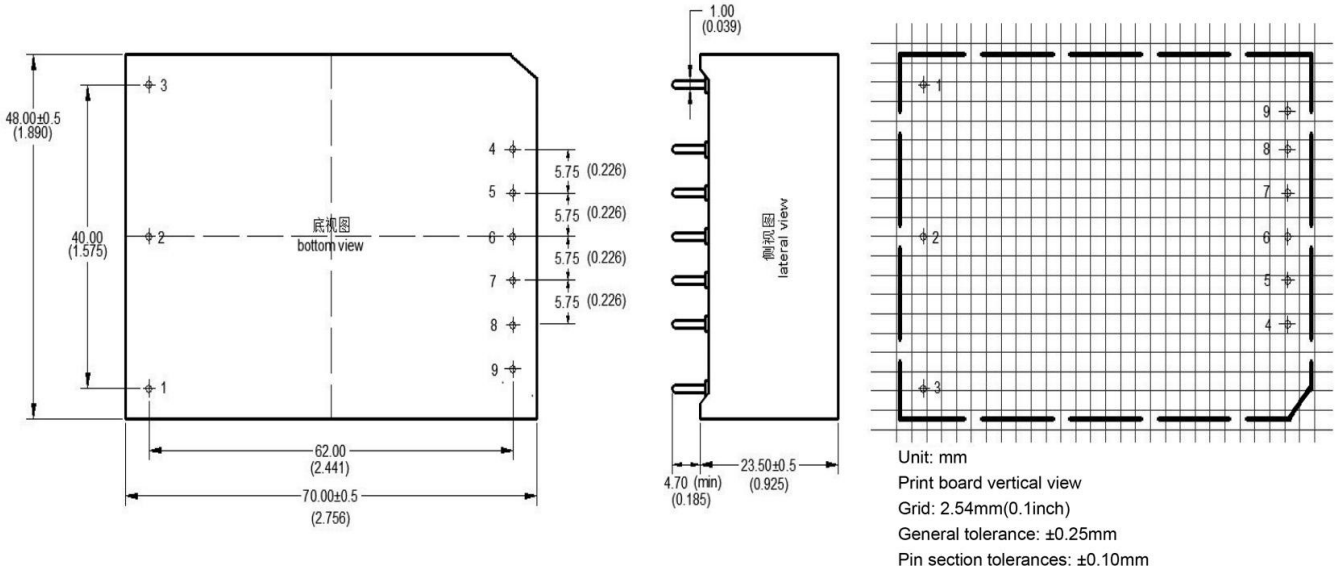
General Specifications

Items	Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-40	-	+75	℃
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
Insulation Resistance	Input-Output@DC500V	100	-	-	MΩ
Safety Standard	-	EN60950, IEC60950			
Vibration	-	10-55Hz,10G,30Min, alongX,Y,Z			
Safety Class	-	CLASS Ⅱ			
Class of Case Material	-	UL94 V-0			
MTBF	-	MIL-HDBK-217F@25℃＞300,000H			

EMC Characteristics

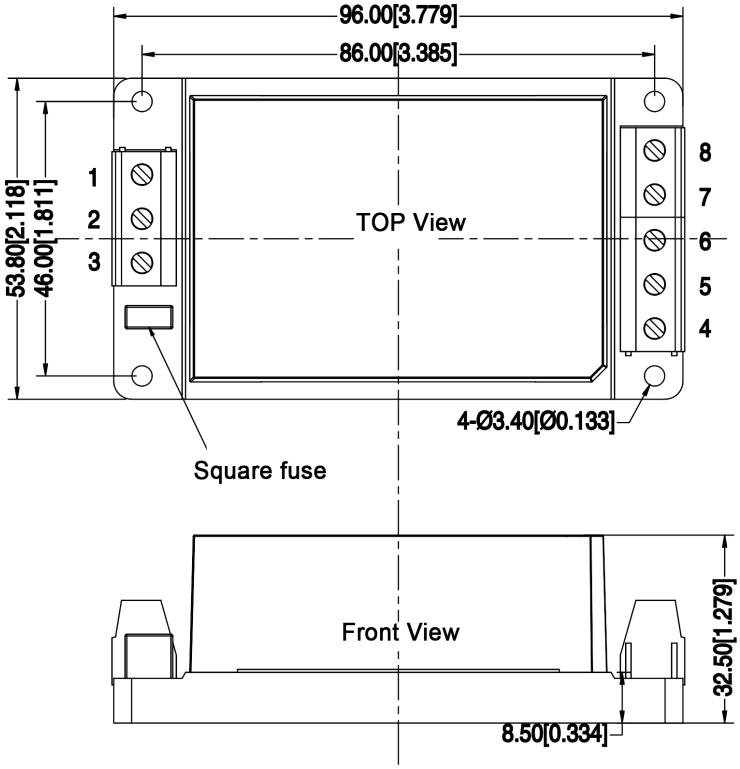
Total Item		Sub Item	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B (Recommended Circuit 1)
		RE	CISPR22/EN55032	CLASS B (Recommended Circuit 1)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (Recommended Circuit 1)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (Recommended Circuit 1)
		ESD	IEC/EN61000-4-2	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

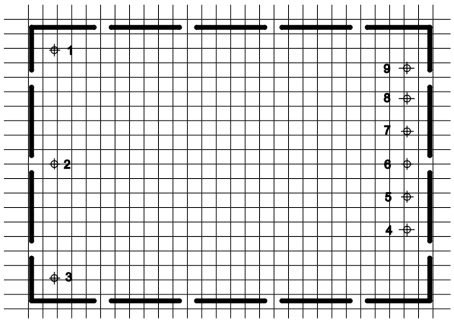
Packing Dimension



Unit: mm
Print board vertical view
Grid: 2.54mm(0.1inch)
General tolerance: ±0.25mm
Pin section tolerances: ±0.10mm

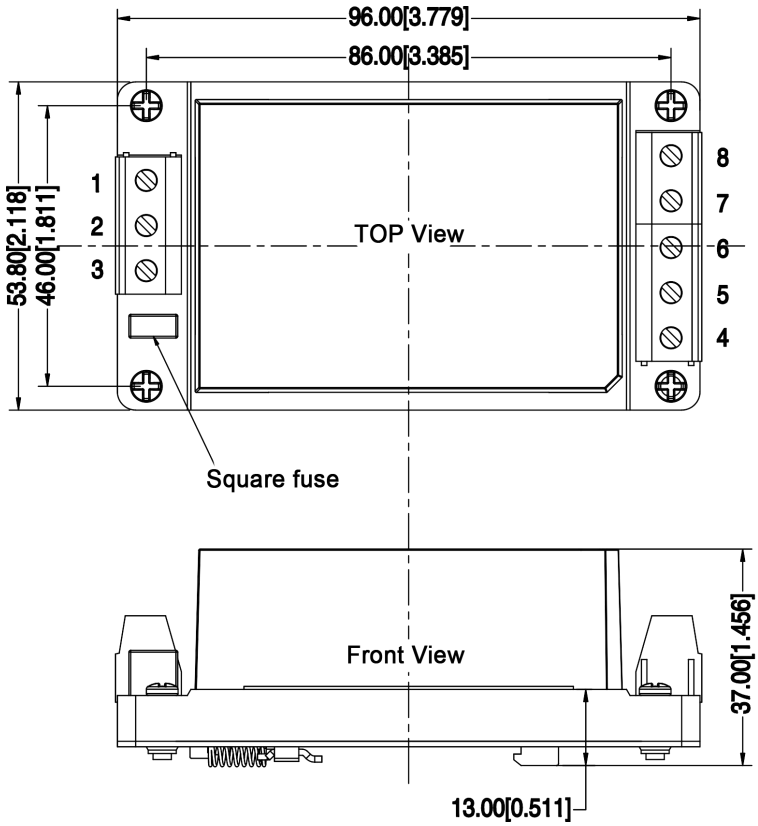
H2-T Packing Dimension

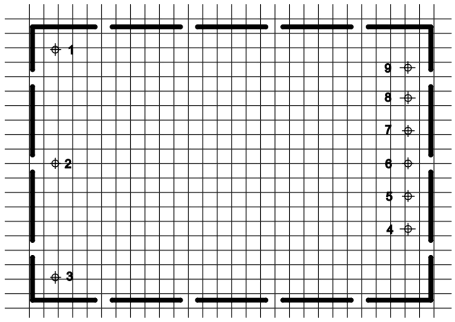




Unit: mm
Printed board vertical view
Lattic spacing: 2.54mm (0.1inch)
Unmarked dimension tolerance ±0.5mm
Unmarked pin diameter tolerance ±0.10mm

H2-TS Packing Dimension





Unit: mm
Printed board vertical view
Lattic spacing: 2.54mm (0.1inch)
Unmarked dimension tolerance ±0.5mm
Unmarked pin diameter tolerance ±0.10mm

Part No.	L x W x H	
H2	70.0X48.0X23.5 mm	2.756X1.890X0.925inch
H2-T	96.0X53.8X32.5 mm	3.779X2.118X1.279inch
H2-TS	96.0X53.8X37.0 mm	3.779X2.118X1.456inch

Pin Definition

Pin	1	2	3	4	5	6	7	8
Single (S)	FG	AC（N）	AC（L）	+Vo	NP	COM	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.

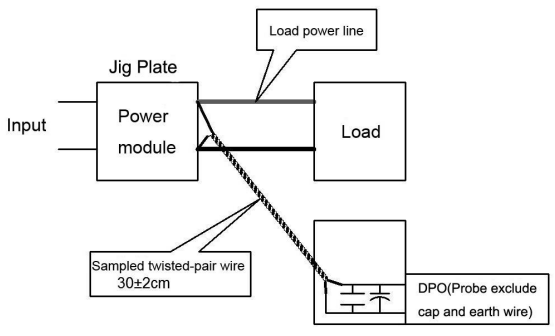
Ripple& Noise Test: (Twisted Pair Method 20MHZ bandwidth)

Test Method:

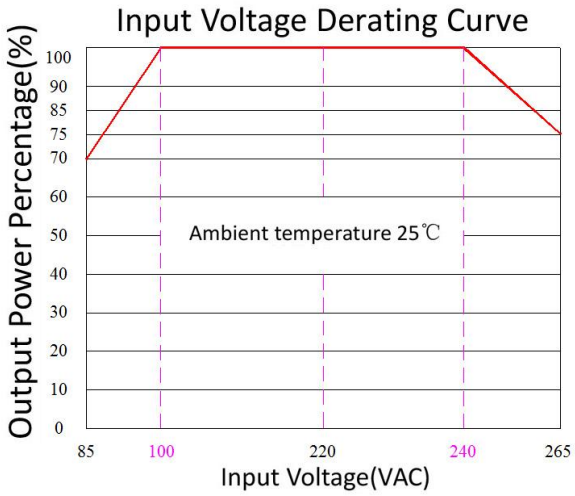
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

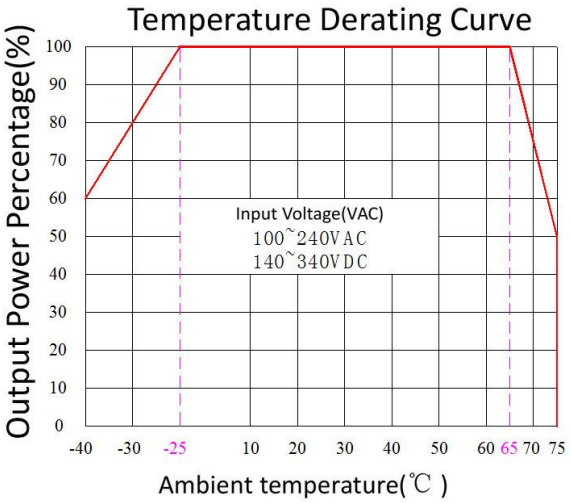
(2)Output Ripple &Noise Test Method:

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.

EMC solution recommended circuit

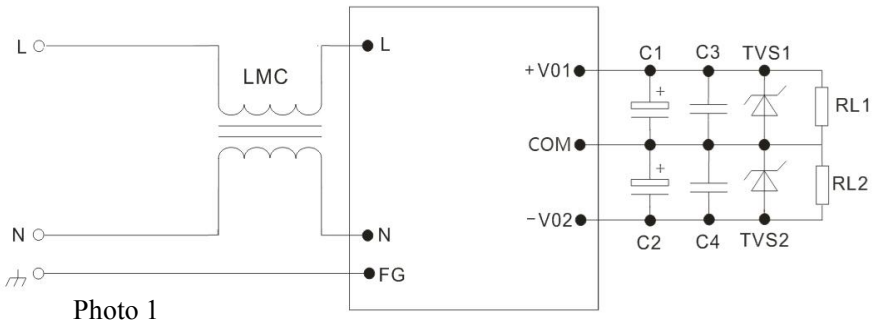


Photo 1

Note:

1). LMC is common-mode inductor, recommended to use above 25mH;

2) C1, C2 choose high frequency low impedance electrolytic capacitors, the capacitance value less than capacitive load. Withstand voltage is 1.5 times more than output voltage;

3) C3, C4 choose ceramic chip capacitor, withstand voltage is 1.5 times more than output voltage;

4) TVS1, TVS2 is TVS Tube,

5V output recommend: SMBJ7.0A，9V output recommend:SMBJ12.0A, 12V output recommend: SMBJ20A,15V output recommend: SMBJ20.0A, 24V output recommend:SMBJ30.0A, 48V output recommend: SMBJ64A.

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 operated below the minimum load request, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;

4.If the product worked beyond the load range, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;

5.Unless otherwise specified, data in this datasheet are tested under conditions of **Ta=25℃, humidity<75%** when inputting nominal voltage and outputting rated load(pure resistance load);

6.All index testing methods in this datasheet are based on our Company's corporate standards.

7.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;

8.We can provide customized product service;

9.The product specification may be changed at any time without prior notice.

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

