Typical Features

- ◆Wide input voltage range 85~265VAC/120-380VDC
- ◆No load power consumption≤0.3W
- ◆Transfer Efficiency 85%(Typical)
- ◆Switching Frequency: 65KHz
- ◆Protections: over current, short circuit
- ◆Isolation Voltage: 3750Vac
- ◆ Safety Class: CLASS II
- ◆PCB Mounting

Application Field

FA40-220SXXH3N4 *Series-----a compact size, high efficient, power converter offered by Aipu.*
It features universal input voltage, taking both DC and AC input, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, safe and reliable. It is widely used in industrial, office and civil applications.

Typical Product List

Item No	Output Specification					Max. Capacitive Load	Ripple & Noise 20MHz	Efficiency @full load, nominal input voltage (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	%
*FA40-220S3V3H3N4	23	3.3	7000	-	-	7000	250	76
*FA40-220S05H3N4	35	5	7000			7000	250	78
*FA40-220S09H3N4	40	9.0	4444	-	-	6000	250	80
FA40-220S12H3N4	40	12.0	3333	-	-	6000	250	83
*FA40-220S15H3N4	40	15	2667	-	-	5000	250	83
FA40-220S17H3N4	40	17	2353	-	-	5000	200	85
FA40-220S17V5H3N4	40	17.5	2290	-	-	5000	200	85
FA40-220S17V6H3N4	40	17.6	2290	-	-	5000	200	85
*FA40-220S24H3N4	40	24.0	1667	-	-	3000	200	86

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:"*" are models under developing.
Note 3: The typical value of output efficiency is based on product is full loaded and burned-in after half an hour.
Note 4: Fluctuation range of full load efficiency (%,TYP) is ±2%. Full load efficiency=Total output power / module's Input power.
Note 5:The lowest efficiency is -2% of typical value due to instrument tolerance of test equipment.
Note 6:Ripple& Noise is tested by Twisted Pair Method, details please see Ripple& Noise Test at back.

Technical Parameters: Test Condition: Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25℃.

Input Specification

Items	Operating Conditions	Min. (Vac)	Typ.(Vac)	Max. (Vac)	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	100VAC	-	-	0.8	A
	220VAC	-	-	0.4	
Inrush Current	115VAC	-	-	16	A
	220VAC	-	-	30	
No Load Power Consumption	Input 115VAC	-	-	0.3	W
	Input 230VAC	-			
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Hot Plug	-	Unavailable			
Remote Control Terminal	-	Unavailable			

Output Specification

Items	Operating Conditions		Min.	Typ.	Max.	Unit
Voltage Accuracy	Full input voltage range, any load	Vo1	-	±2.0	±3.0	%
		Vo2	-	-	-	%
Line Regulation	Nominal load	Vo1	-	-	±0.5	%
		Vo2	-	-	-	%
Load Regulation	Nominal input voltage, 20%~100% load	Vo1	-	-	±2.0	%
		Vo2	-	-	-	%
Minimum Load	Single Output		10	-	-	%
	Positive Negative Dual Output Common Ground		-	-	-	
	Positive Negative Dual Output but Isolated		-	-	-	
Turn-on Delay Time	Input 220VAC (full load)			800		mS
Power-off Holding Time	Input 220VAC (full load)		-	80	-	mS
Dynamic Response	25%~50%~25% 50%~75%~50%		Overshoot range(%):≤±5%;			%
			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%	-	%/℃
Over-current Protection	Input 220VAC		≥130% Io self-recovery			Hiccup
/						

General Specification

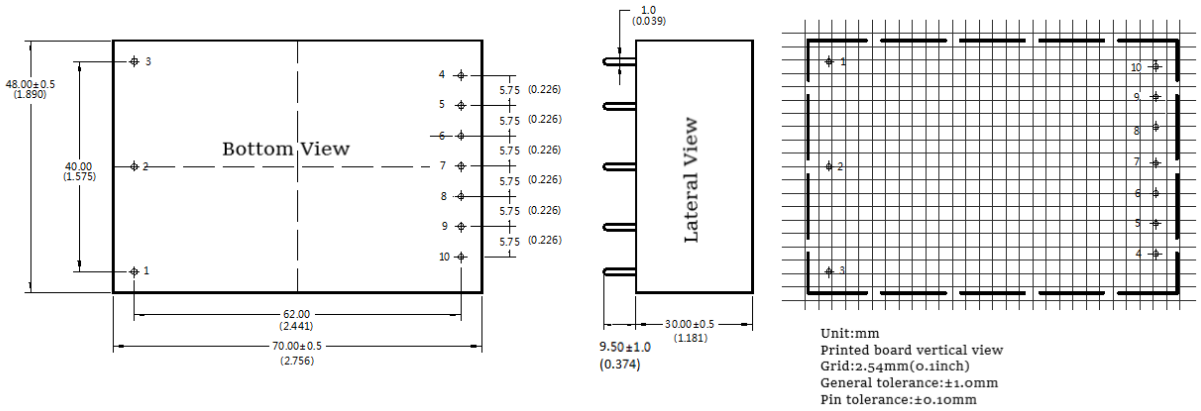
Items	Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	-	61	65	73	KHz
Operating Temperature	-	-40	-	+75	℃
	Derating based on Temperature Derating Curve, for details please check from ”Product Characteristics Curve” at back				
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave soldering	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	3750	-	-	VAC
	Input-FG, Test 1min,leakage current≤5mA	2000			
Insulation Resistance	Input-Output@DC500V	100	-	-	MΩ
Vibration	-	10-55Hz,10G,30Min, alongX,Y,Z			
MTBF	-	MIL-HDBK-217F@25℃＞300,000H			

Electromagnetic Compatibility(EMC) Characteristics

Total Items		Sub Items	Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B(see recommended circuit Photo 2)
		RE	CISPR22/EN55032	CLASS B(see recommended circuit Photo 2)
	EMS	RS	IEC/EN61000-4-3	10V/m Criteria B (see recommended circuit Photo 2)
		CS	IEC/EN61000-4-6	3Vr.m.s Criteria B (see recommended circuit Photo 2)
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.CriteriaB
		Surge	IEC/EN61000-4-5	Line to Line ±1KV CriteriaB (see recommended circuit Photo 2)
				Line to Line ±2KV CriteriaB (see recommended circuit Photo 2)
		EFT	IEC/EN61000-4-4	±2.0KV Criteria B (see recommended circuit Photo 2)
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

/

Dimension



Packing Code	L x W x H	
H3	70.0X48.0X30.0 mm	2.2756X1. 898X1.181inch

Pin Definition

Pin	1	2	3	4	5	6	7	8	9	10
Single(S)	FG	AC(N)	AC(L)	NP	+Vo	NP	NP	NP	GND	NP

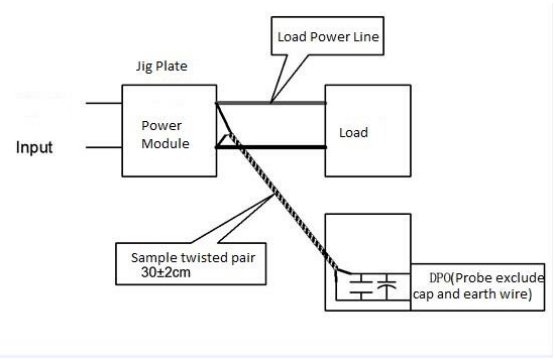
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

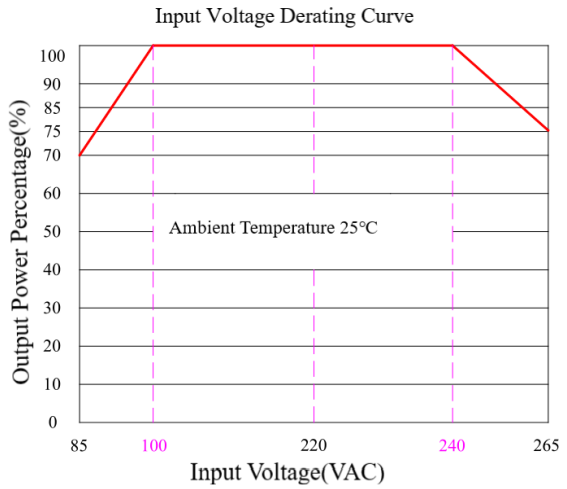
Test Method:

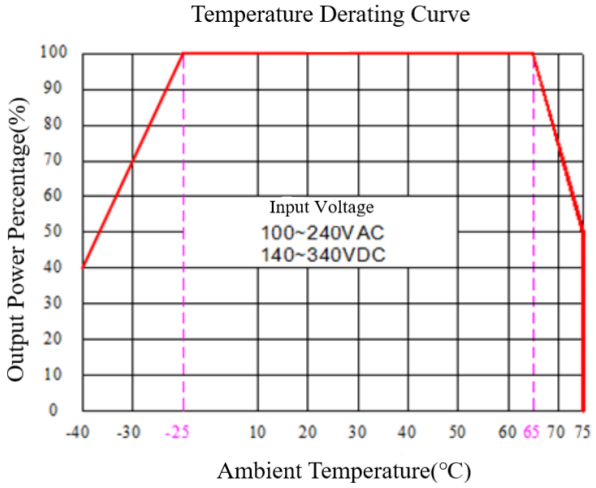
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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 Derating Curve





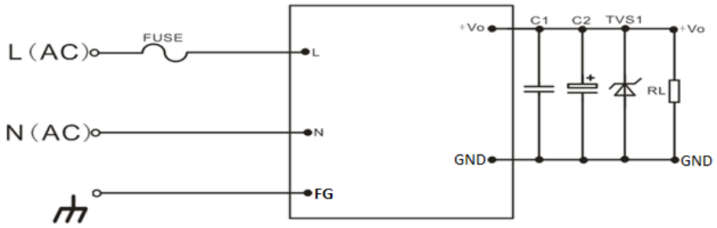
Note

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 Application and Recommend Circuit

1.Typical Application Circuit



Part No	C2(uF)	TVS1
FA40-220S3V3H3N4	470	SMBJ7.0A
FA40-220S05H3N4		
FA40-220S09H3N4		SMBJ20A
FA40-220S12H3N4		
FA40-220S15H3N4		
FA40-220S17H3N4		SMBJ30A
FA40-220S17V5H3N4		
FA40-220S17V6H3N4		

Photo 1:Typical application circuit

Note:

Output filter capacitor C2 is electrolytic capacitor, recommend to use high frequency and low resistance one, for capacitance and current of capacitor please refer to manufacture's datasheet. Capacitance withstand voltage derating should be 80% or above.

C1 is ceramic capacitor, to filter high frequency noise, recommend 0.1uF/50V/1206. TVS is a recommended component to protect post-circuits if converter fails, recommend to use. External input FUSE model is recommended to use 3.15A/250VAC, slow-fusing.

2.EMC Recommended Circuit

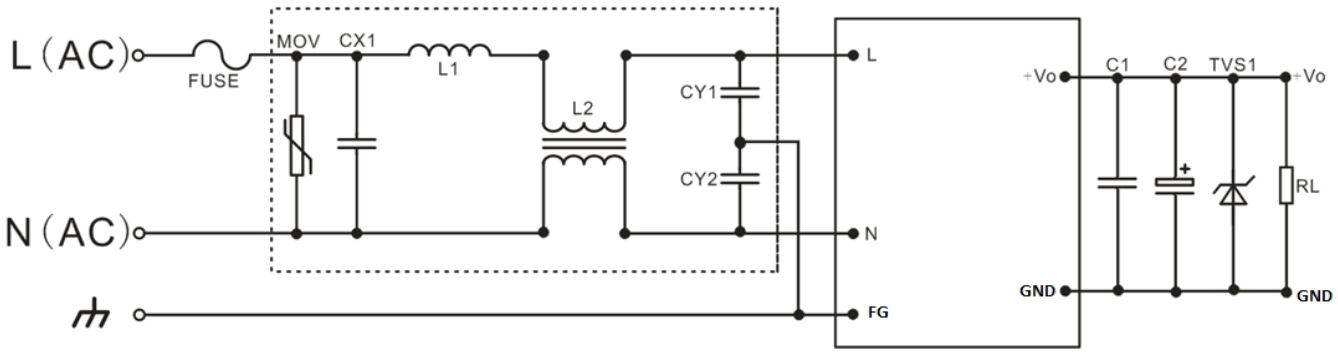


Photo 2: For Higher request of EMC recommended circuit

Component	Name	Recommend Value
FUSE	FUSE	5.0A/250Vac, slow fusing, necessary
MOV	Varistor	14D561K
CX1	X capacitor	0.22uF/275Vac
L1	Differential mode inductor	6.8uH/3.0A I inductor
L2	Common mode inductor	UU9.8 30mH/3.0A
CY1	Y capacitor	102M-400Vac
CY2		

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 worked 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 Ta=25℃, 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.