Typical Features

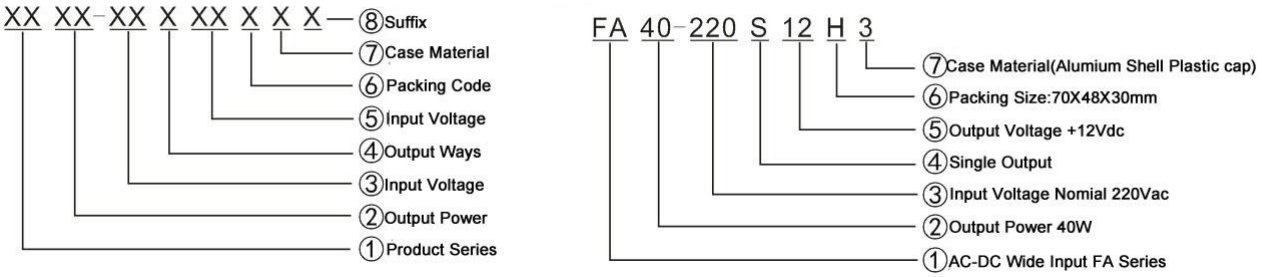
- ◆Wide input voltage range 85~265VAC/120-380VDC
- ◆No load power consumption≤0.6W
- ◆Transfer Efficiency 85%(Typical)
- ◆Switching Frequency: 65KHz
- ◆Protections: over current, short circuit, over voltage, over temperature
- ◆Isolation Voltage: 3750Vac
- ◆ Fully enclosed metal housing H3
- ◆PCB Mounting

Application Field

FA40-220SXXH3 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, with good EMC performance. EMC and Safety specification meet international EN55032, IEC/EN61000 standard. It is widely used in industrial, office and civil applications. Please refer to this datasheet when module being used in a bad EMC environment.

Product Named Method

For example:



Typical Product List

Model	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	%
FA40-220S05H3	40	5.0	8000	-	-	2000	80	82
FA40-220S12H3		12	3333	-	-	1000	120	86
FA40-220S12V8H3		12.8	3125	-	-	680	120	86
FA40-220S24H3		24.0	1666	-	-	220	120	88
*FA40-220S48H3		48.0	833	-	-	220	160	88

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.

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	115VAC	-	-	750	mA
	230VAC	-	-	450	
Inrush Current	115VAC	-	-	10	A
	230VAC	-	-	20	
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Recommended External Input Fuse	-	3.15A~250VAC slow fusing/block form			
Remote Control Terminal	-	Unavailable			

Output Specification

Items	Operating Conditions		Min.	Typ.	Max.	Unit
Voltage Accuracy	Full input voltage range, any load	Vo1	-	-	±2.0	%
		Vo2	-	-	-	%
Line Regulation	Nominal load	Vo1	-	-	±0.2	%
		Vo2	-	-	-	%
Load Regulation	Nominal input voltage, 20%~100% load	Vo1	-	-	±0.5	%
		Vo2	-	-	-	%
No Load Power Consumption	115VAC Input		-	-	0.6	W
	220VAC Input		-	-		
Minimum Load	Single Output		5%	-	-	%
	Positive Negative Dual Output Common Ground		-	-	-	%
	Positive Negative Dual Output but Isolated		-	-	-	
Turn-on Delay Time	Nominal input voltage(full load)			1000		mS
Power-off Holding Time	Input 110VAC(full load)		-	20	-	mS
	Input 220VAC(full load)		-	60	-	
Output Voltage Overshoot	Full input voltage range(full load)		-	-	10	%
Dynamic Response	25%~50%~25% 50%~75%~50%		Overshoot range（%）:≤±5%;			%
			Recovery time(mS) ≤5.0mS			mS

Short-Circuit Protection	Full input voltage range	Continuous, Self-recovery			Hiccup
Drift Coefficient	-	-	±0.03%	-	%/℃
Over-current Protection	Full input voltage range	⩾150% Io self-recovery			Hiccup
Over-voltage Protection	Output 5.0VDC	⩽7.5			VDC
	Output 12VDC	⩽18			
	Output 12.8VDC	⩽20			
	Output 15VDC	⩽22			
	Output 24VDC	⩽36			
	Output 48VDC	⩽72			
Ripple& Noise	Vo⩽5.0V, ⩽80mVp-p	Vo=48V,⩽180mVp-p		Other⩽120 mVp-p	mV
	Note: Ripple& Noise is tested by Twisted Pair Method, details please see Ripple& Noise Test at back.				

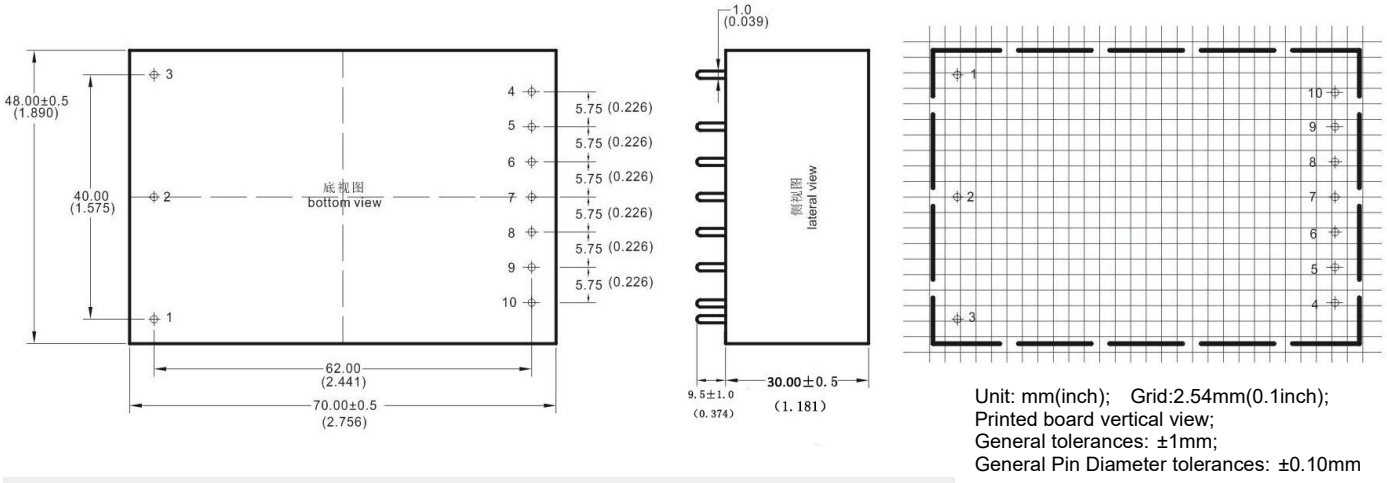
General Specification

Items	Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	-	60	65	70	KHz
Operating Temperature	-	-40	-	+75	℃
Storage Temperature	-	-40	-	+100	
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Input-Output Test 1min,leakage current⩽3mA	-	-	3750	VAC
Insulation Resistance	Input-Output@DC500V	-	-	100	MΩ
MTBF	-	⩾300,000H @25℃			
Vibration	-	10-55Hz,10G,30Min,alongX,Y,Z			
Class of Case Material	-	UL94V-0			

Electromagnetic Compatibility(EMC) Characteristics

Total Items		Sub Items	Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS A
		RE	CISPR22/EN55032	CLASS A
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B
		ESD	IEC/EN61000-4-2	Contact ±4KV / Air ±8KV Perf.CriteriaB
		Surge	IEC/EN61000-4-5	±1KV Perf.CriteriaB
		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

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	TRIM

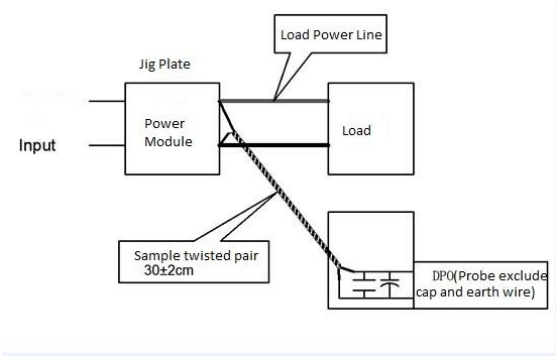
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

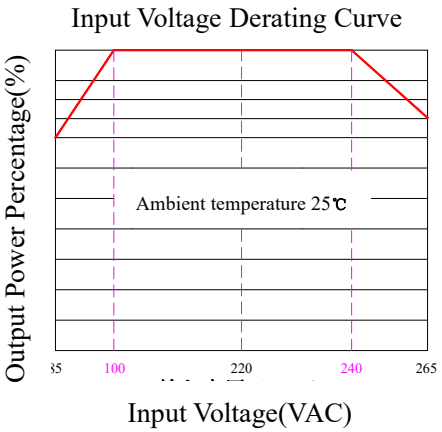
Test Method:

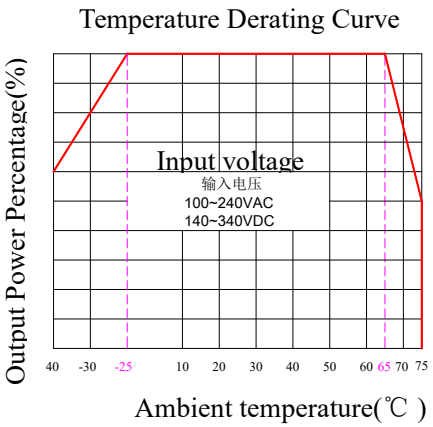
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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/ 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 Application and Recommend Circuit

1.Typical Application Circuit

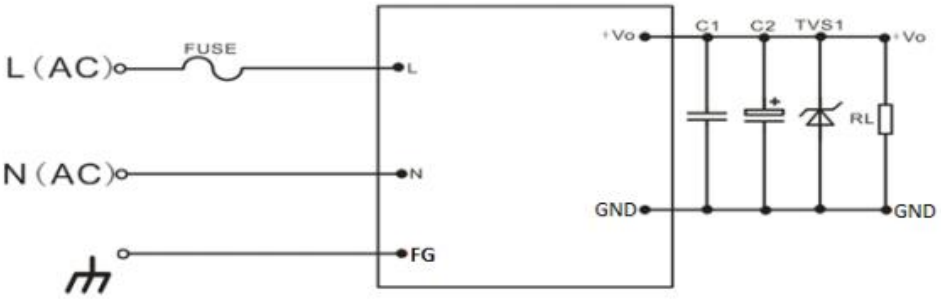


Photo 1:Typical application circuit

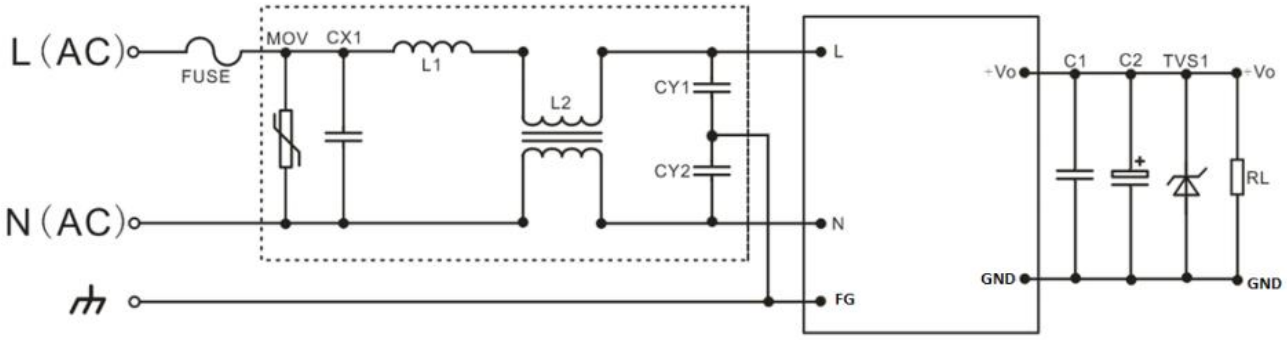
Part No	C2(uF)	TVS1
FA40-220S05H3	470	SMBJ7.0A
FA40-220S12H3	330	SMBJ15A
FA40-220S12.8H3	330	SMBJ20A
FA40-220S24H3	220	SMBJ30A
*FA40-220S48H3	100	SMBJ75A

Note:

Output filter capacitor C2 is electrolytic capacitors, 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 solutions and recommended circuits



Component	Name	Model	Recommend Value
FUSE	FUSE	5.0A/250Vac	5.0A/250Vac,slow fusing, necessary
MOV	Varistor	10D561K	10D561K
CX1	X capacitor	0.22uF/275Vac	0.22uF/275Vac
L1	Differential mode inductor	6.8uH/3.0A	6.8uH/3.0A I inductor
L2	Common mode inductor	UU9.8 30mH min	30mH/3.0A
CY1	Y capacitor	102M-400Vac	102M-400Vac
CY2			

Photo 2:Highly demanding EMC recommended circuit

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.

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