Typical Features

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

Application Field

FA40-220SXXH3N4(-T)(-TS) *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	Current			
	(W)	Vo (V)	Io (m A)	u F	mVp-p	%
FA40-220S05H3N4	40	5	8000	7000	100	82
FA40-220S12H3N4	40	12	3333	6000	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	1667	800	200	86
FA40-220S48H3N4	40	48	833	400	200	87

Note 1: Due to the instrument error of the test equipment, the minimum efficiency is defined as -2% of the typical value;
Note 2: The typical value of output efficiency is based on the product being fully loaded and aged for half an hour;
Note 3: The test method for ripple and noise adopts the twisted pair test method. For specific test methods and matching, please see the following (Ripple & Noise Test Instructions);

Input Specification

Items	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	220	265	VAC
	DC input	120	300	380	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	100VAC	-	-	0.80	A
	220VAC	-	-	0.45	

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	Vo	5V	-	±2.0	±4.0	%
			Other	-	±2.0	±3.0	%
Line Regulation	Nominal load	Vo		-	-	±0.5	%
Load Regulation	Nominal input voltage, 20%~100% load	Vo		-	-	±3.0	%
Minimum Load	Single Output			10	-	-	%
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

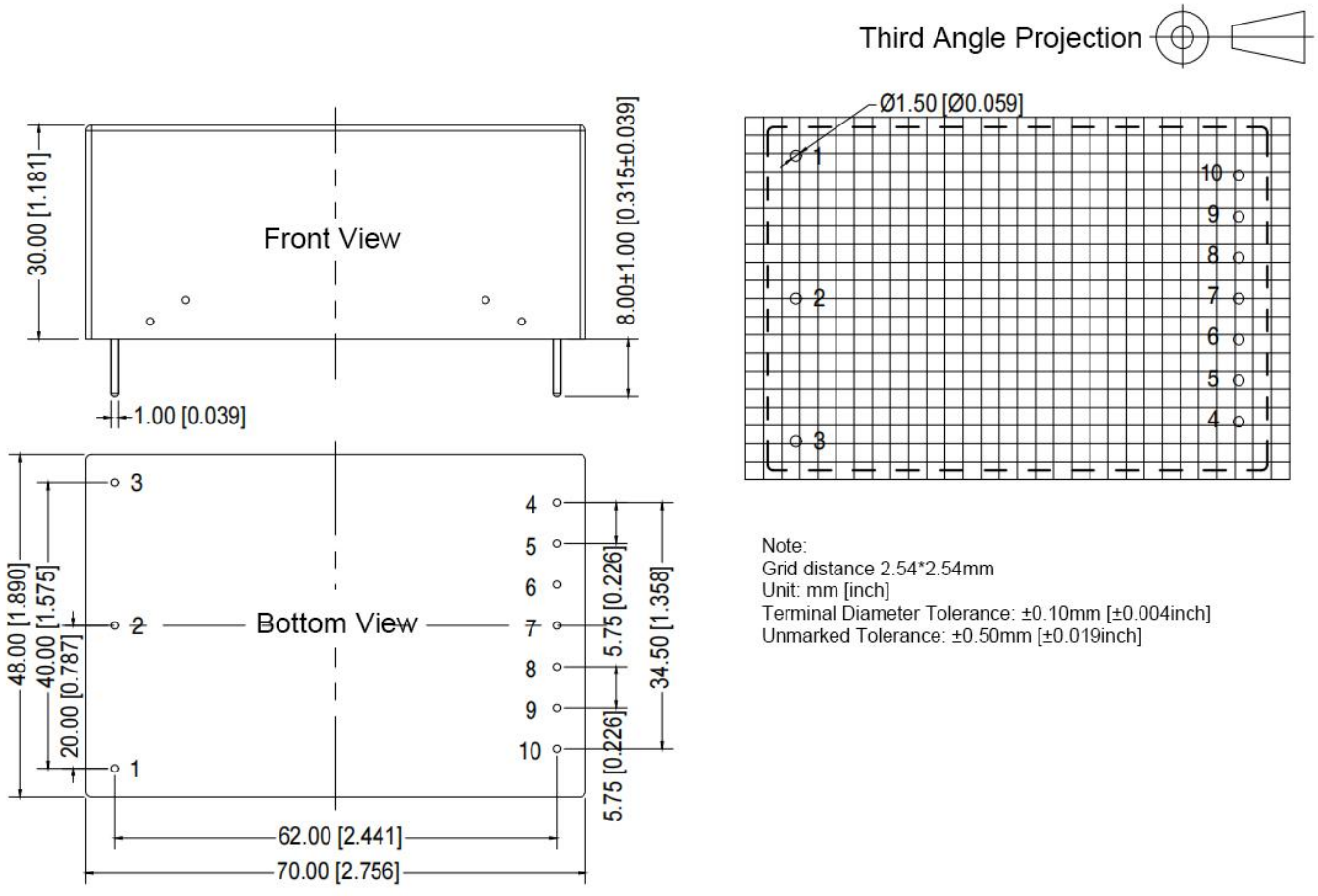
Items	Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	-	61	65	73	KHz
Operating Temperature	-	-40	-	+75	℃
	Derating based on Temperature Derating Curve, for details please check from ”Product Characteristics Curve” at back				
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave soldering	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			

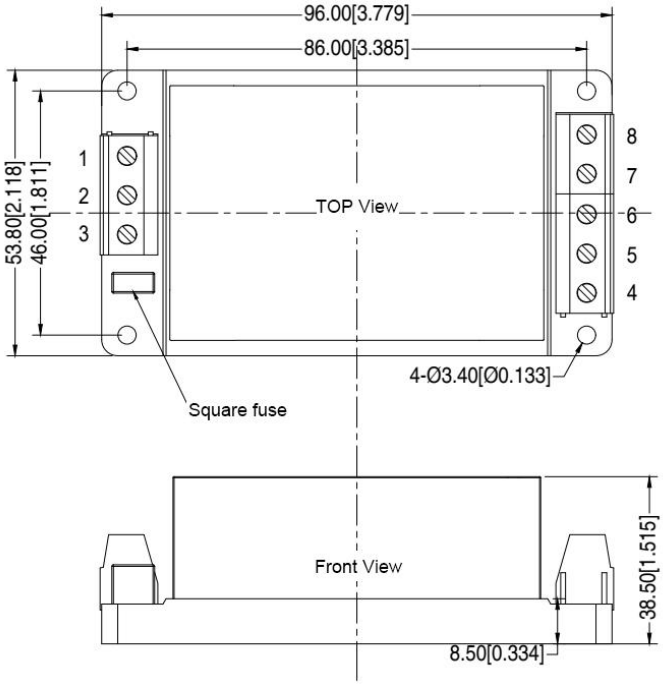
Electromagnetic Compatibility(EMC) Characteristics

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

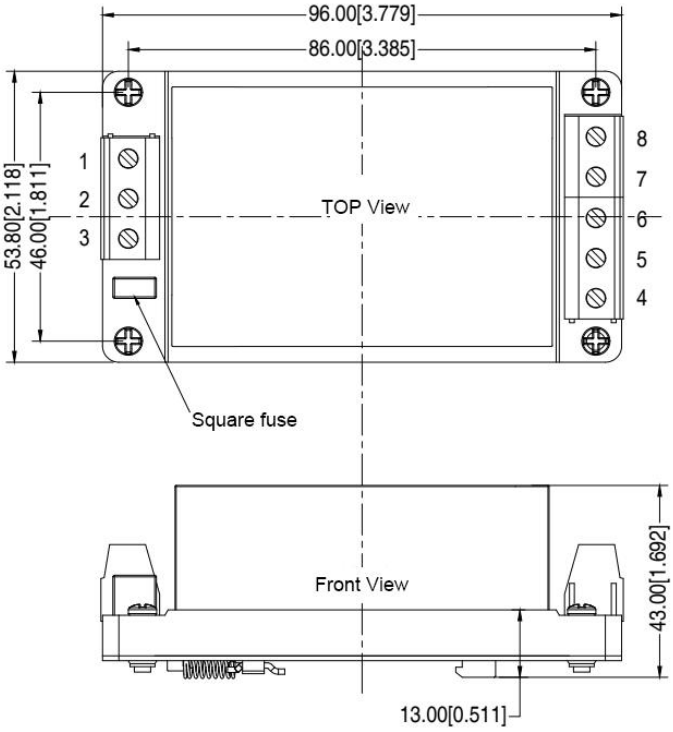
H3 Dimension



H3-T Dimension



H3-TS Dimension



Packing Code	L x W x H	
H3	70.0X48.0X30.0 mm	2.756X1. 890X1.181inch

H3-T	96.0X53.8X38.5 mm	3.779X2.118X1.515inch
H3-TS	96.0X53.8X43.0 mm	3.779X2.118X1.692inch

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
H3-T/H3-TS	FG	AC(N)	AC(L)	+Vo	NP	NP	NP	GND	/	/

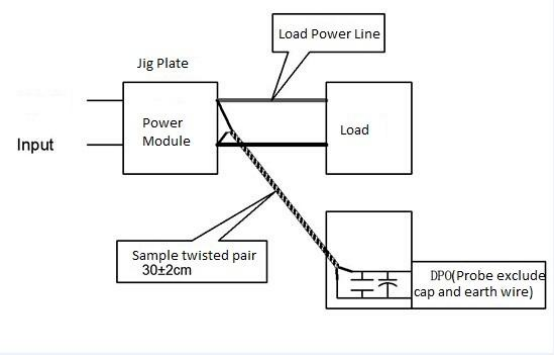
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

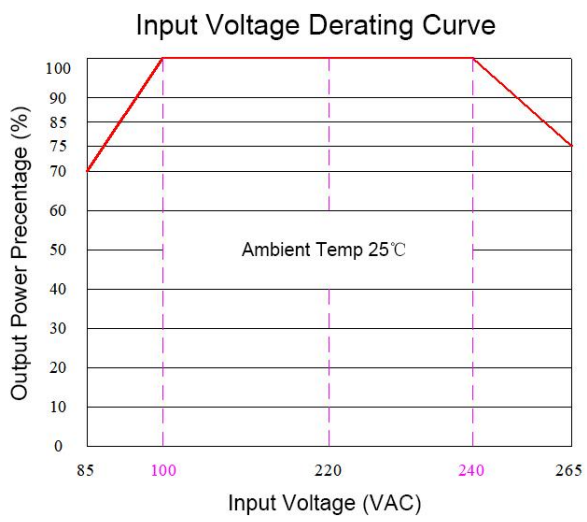
Test Method:

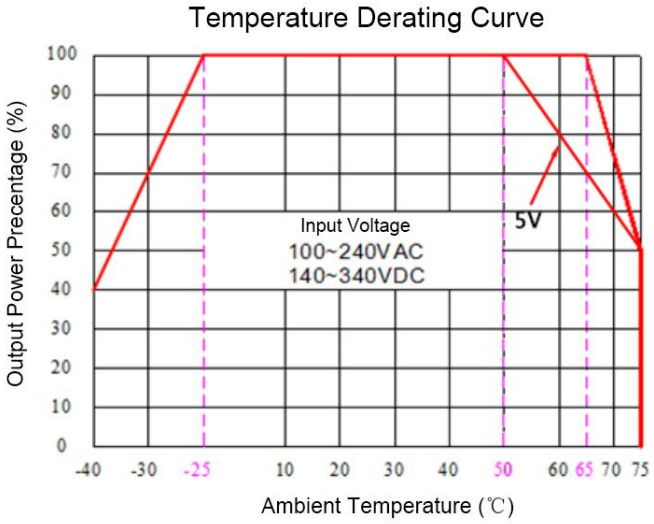
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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



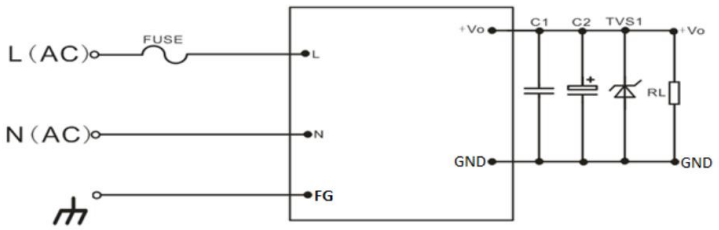


Note 1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 85~100VAC/ 240~265VAC/ 120~140VDC/ 340~380VDC.

Note 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



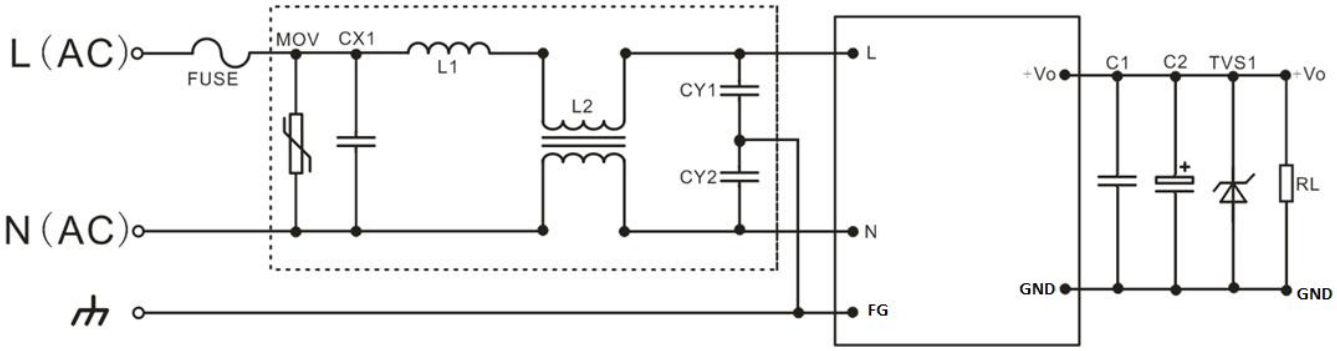
Recommended Circuit 1

Part No	C2(uF)	TVS1
FA40-220S05H3N4	470	SMBJ7.0A
FA40-220S12H3N4		SMBJ20A
FA40-220S17H3N4		SMBJ30A
FA40-220S17V5H3N4		
FA40-220S17V6H3N4		
FA40-220S24H3N4		
FA40-220S48H3N4		SMBJ60A

Note:

Output filter capacitor C2 is an electrolytic capacitor. It is recommended to use a high-frequency, low-resistance electrolytic capacitor. For the capacity and current flowing through, please refer to the technical specifications provided by each manufacturer. The voltage resistance of C2 capacitor should be reduced to at least 80%. C1 is a ceramic capacitor to remove high-frequency noise. It is recommended to use 0.1uF/50V/1206. TVS1 tube protects the subsequent circuit when the module is abnormal. It is recommended to use an external FUSE fuse, model: 3.15A/250V slow break.

2.EMC Recommended Circuit



Recommended Circuit 2

Component	Name	Recommend Value
FUSE	FUSE	5.0A/250Vac, slow fusing, necessary
MOV	Varistor	10D561K
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.

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

