Typical Features

- Input Voltage Range 85-305VAC/120-430VDC
- No load power consumption ≤0.45W@220VAC
- Efficiency 85% (Typ.)
- Operating Temperature from -40℃ to +85℃
- Switching Frequency 65KHz
- Short-circuit protection & Over-current protection
- Isolation voltage 4000VAC
- Compliant with IEC/EN62368/UL62368
- Conform to CE
- Enclosed plastic case, flame class UL94-V0
- PCB DIP Mounting

Application Field

FA30-220SXXH2D4 Series *----- Compact size & high efficiency power supplies with global adapted input voltage (both AC & DC available), low ripple, low temperature rise, low no load power consumption, high reliability, safety isolated and good EMC performance. This series of products can be widely used in the fields of Electric power, Industrial, Instrument and Smart home devices, etc. The additional circuit diagram for EMC is recommended in this data sheet for the application with higher EMC requirement.*

Typical Product List

Certificate	Part No	Output Specification			Capacitive Load (Max) @220VAC	Ripple & noise 20MHz (Max)	Efficiency@ Full Load, 220VAC
		Power	Voltage	Current			
		(W)	Vo(V)	Io(mA)	u F	mVp-p	% (Typ.)
-	FA30-220S05H2D4	25	5	5000	2000	120	78
CE	FA30-220S09H2D4	30	9	3333	2000	100	80
CE	FA30-220S12H2D4	30	12	2500	1000	100	82
CE	FA30-220S15H2D4	30	15	2000	1000	100	83
CE	FA30-220S18H2D4	30	18	1667	600	120	85
CE	FA30-220S24H2D4	30	24	1250	500	150	85

Note 1: The suffix -T indicates a kind of chassis package, -TS indicates a kind of package of DIN Rail which width is 35mm.

Note 2: The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 3: The full load efficiency should be in ±2% of the typical value in this table. The efficiency is calculated by the way that the full output power is divided by the input power.

Note 4: The Ripple and Noise are tested by the twisted pair method according to the test instruction in the datasheet.

Note 5: Please contact Aipu sales for other output voltages requirement in this series but not listed in this table.

Input Specifications

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	-	-	0.62	A
	220VAC	-	-	0.37	
Surge Current	115VAC	-	-	10	
	220VAC	-	-	20	
No Load Power Consumption	Input 115VAC	-	-	0.45	W
	Input 220VAC	-	-		
Recommended External Fuse	-	1A-3A/300VAC Time-delay fuse			
Hot Plug	-	Unavailable			
Remote Control	-	Unavailable			

Output Specifications

Item		Operating Condition	Min.	Typ.	Max.	Unit
Voltage Accuracy		Full input voltage range, any load	-	±2.0	±3.0	%
Line Regulation		Rated Load	-	-	±0.5	%
Load Regulation		Nominal input voltage, 20%~100% load	-	-	±2.0	%
Minimum Load		Single Output (10% load @<0°C)	0	-	-	%
Turn-on Delay Time		Input 115Vac (full load)	-	2000	-	mS
		Input 220Vac (full load)	-		-	
Holde Up Time		Input 115VAC (full load)	-	200	-	mS
		Input 220VAC (full load)	-	100	-	
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%	-5.0	-	+5.0	%
	Recovery time		-5.0	-	+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
Ripple & Noise		-	-	-	150	mV

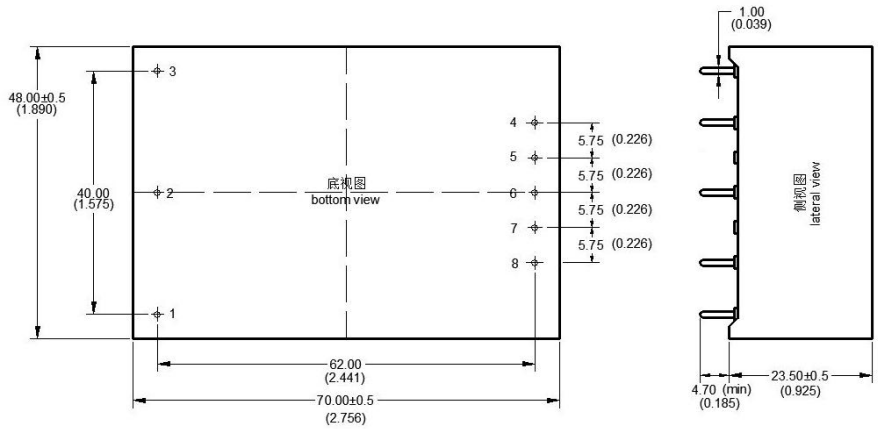
General Specifications

Items	Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	Refer to the Temperature Derating Graph	-40	-	+85	℃
Storage Temperature	-	-40	-	+105	
Soldering Temperature	Wave-soldering	260±4℃, timing 5-10S			
	Manual-soldering	360±8℃, timing 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	I/P-O/P, Test 1 min, leakage current ≤5mA	4000	-	-	VAC
	I/P-FG, Test 1 min, leakage current ≤5mA	2500	-	-	VAC
Insulation Resistance	I/P-O/P, @DC500V	100	-	-	MΩ
Safety Standard	-	IEC/EN62368			
Vibration	-	10-55Hz,10G, 30 Min, along X,Y,Z			
Safety Class	-	CLASS II			
Flame Class of Case	-	UL94-V0			
MTBF	-	MIL-HDBK-217F@25℃ > 300,000H			
Unit Weight	Part No.	Weight (Typ.)			
	FA30-220SXXH2D4	130g			
	FA30-220SXXH2D4-T	175g			
	FA30-220SXXH2D4-TS	215g			

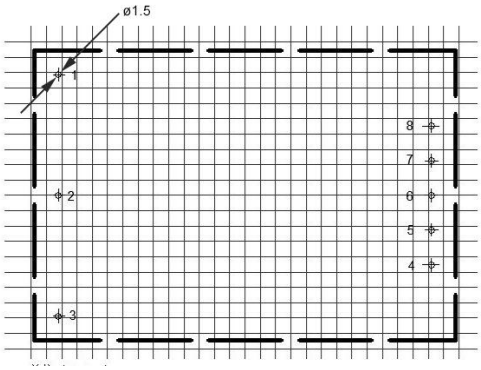
EMC Performances

Total Item		Sub Item	Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS B (with the Recommended Circuit 2)
		RE	CISPR32/EN55032	CLASS B (with the Recommended Circuit 2)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (with the Recommended Circuit 1)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (with the Recommended Circuit 1)
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	Line to line ±2KV / line to ground ±4KV Perf.Criteria B (with the Recommended Circuit 2)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B
		Voltage dips and interruptions	IEC/EN61000-4-11	0%~70% Perf.Criteria B

H2 Mechanical Dimensions



Pin No.	Function
1	FG
2	AC(N)
3	AC(L)
4	+Vout
5, 6, 7	No Pin
8	-Vout



PCB layout vertical view

Grid 2.54x2.54(0.10x0.10)

Note:

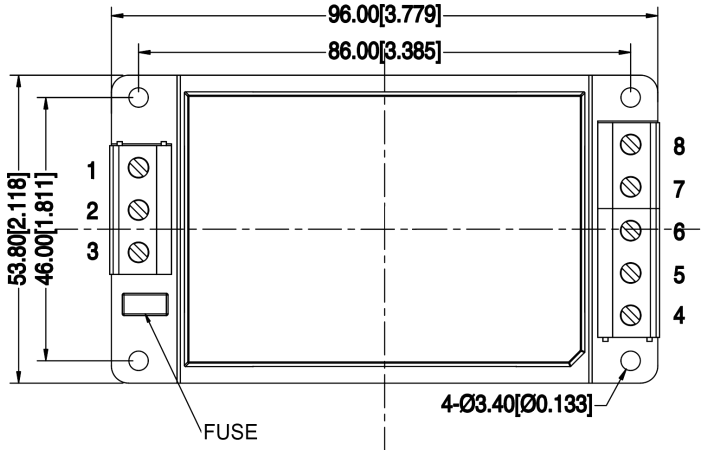
Unit: mm(inch)

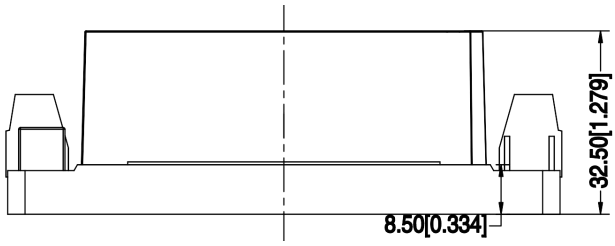
Pin diameter tolerance: ±0.10 (±0.004)

General tolerance: ±0.25 (±0.010)

FG can be floating without function.

H2 -T Mechanical Dimensions





Terminal No.	Function
1	FG
2	AC(N)
3	AC(L)
4	+Vout
5, 6, 7	No Connection
8	-Vout

Note:

Unit: mm[inch]

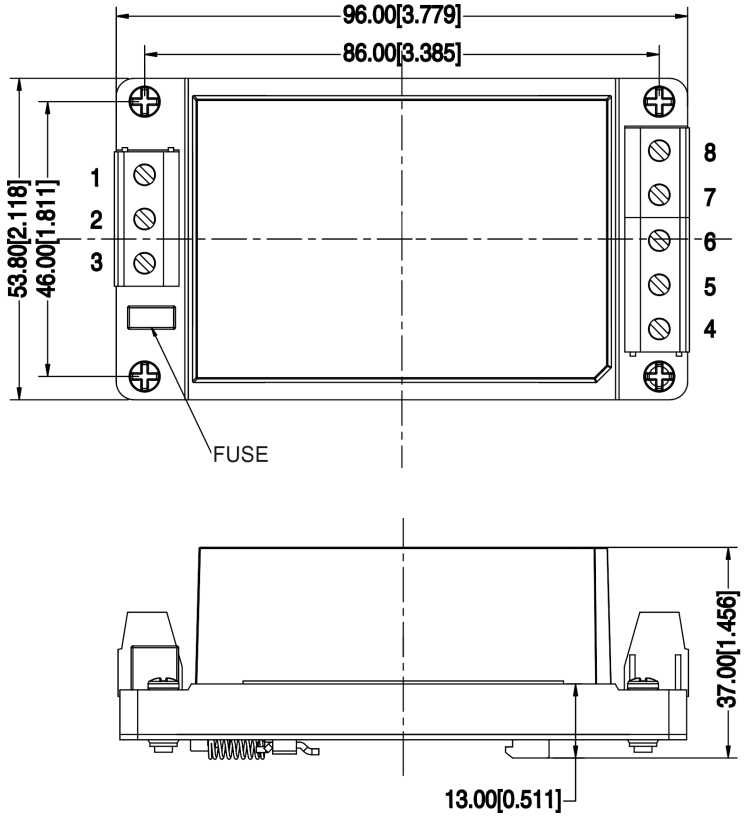
Lead wires gauge: 24-12 AWG

Screwing torque: 0.4 N.m Max

General tolerance: ±1.00 [±0.039]

FG can be floating without function.

H2 -TS Mechanical Dimensions



Terminal No.	Function
1	FG
2	AC(N)
3	AC(L)
4	+Vout
5, 6, 7	No Connection
8	-Vout

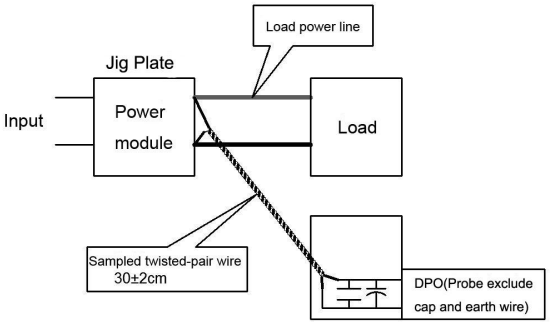
Note:
Unit: mm[inch]
Lead wires gauge: 24-12 AWG
Screwing torque: 0.4 N.m Max
General tolerance: ±1.00 [±0.039]
FG can be floating without function.

Package Code	Dimensions L x W x H	
H2	70.0X 48.0X23.5 mm	2.756X1.890X0.925 inch
H2 -T	96.0X53.8X32.5 mm	3.779X2.118X1.279 inch
H2 -TS	96.0X53.8X37.0 mm	3.779X2.118X1.456 inch

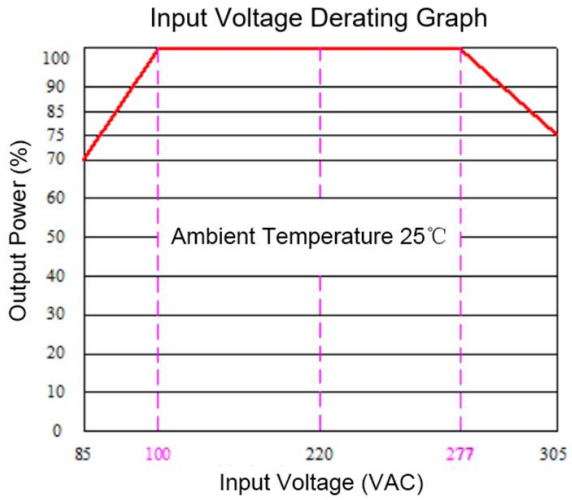
Ripple & Noise Test Instruction (Twisted Pair Method, 20MHz Bandwidth)

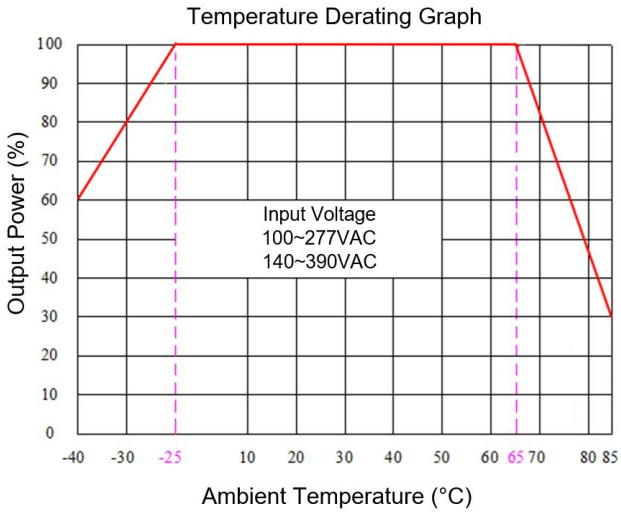
1) The Ripple & noise test needs 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the Sample Mode.

2) The test diagram is shown on the right. The converter output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be start after input power on.



Product Characteristics Graphs





Note 1: The output power should be derated based on the input voltage derating graph at 85~100VAC/277~305VAC & 120~140VDC/390~430VDC.

Note 2: This product should operate at a nature air condition, please contact us if it need be used at a closed space.

Recommended Circuits Diagrams for Application

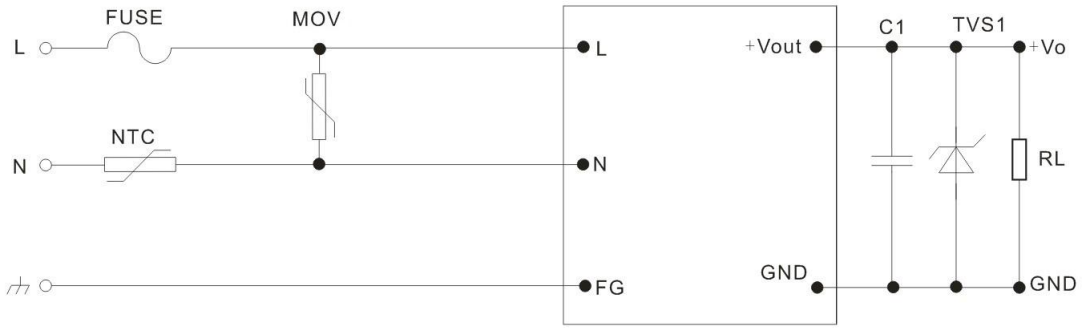


Figure - Circuit 1

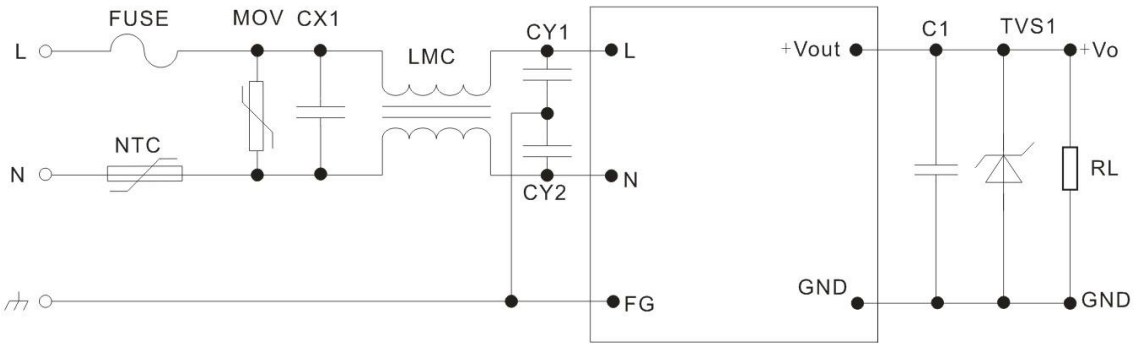


Figure - Circuit 2

Note:

1, Output filter capacitor C1 is used to suppress the high-frequency noise, 0.1uF ceramic SMD capacitor is recommended. The withstand voltage of C1 should be derated to be at least 80%.

2, 600W TVS is recommended to protect the output circuit when the power supply operates at an abnormal condition. SMBJ7.0A for 5V output, SMBJ12.0A for 9V output, SMBJ20A for 12V & 15V outputs, SMBJ30.0A for 24V output and SMBJ64A for 48V output.

3, 10D561K/3500A MOV is recommended to protect the power supply against the lightning surge.

4, The circuit diagram #1 is for the typical application, diagram #2 is for the higher EMC requirement. The components parameters values are recommended below:

1) MOV: 10D561K/3500A
2) NTC: 10D-9
3) CY1 & CY2: Y1/102M/400VAC
4) CX1: X2/104K/310VAC
5) LCM (Common mode choke): 15mH-30mH/1A
6) FUSE: 3.15A/300V Time-delay fuse (Necessary)

Application Notice

1.The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.

2. A fuse should be connected at input.

3. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.

4. The product performance in this datasheet cannot be guaranteed if it works at over-load condition.

5. Unless otherwise specified, all values or indicators in this datasheet are tested at Ta=25℃, humidity<75%RH, nominal input voltage and rated load (pure resistance load).

6. All values or indicators in this datasheet had been tested based on Aipupower test specifications.

7.The specifications are specially for the parts listed in this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.

8. Aipupower can provide customization service.

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