



Typical Features

- ◆ Wide input voltage range:176-528VAC/248-745VDC
- ◆ No-load power consumption≤0.5W
- ◆ Transfer efficiency 82%
- ◆ Switching frequency: 65KHz
- ◆ Output Short Circuit, Over Current, Over Voltage Protection
- ◆ Isolation voltage: 4000Vac
- ◆ Conform to IEC62368/UL62368/EN62368 test standard
- ◆ Conform to CE, RoHS
- ◆ Plastic case, meets flammability UL94 V-0
- ◆ PCB mounting, Chassis mounting, Din-rail mounting available



Application Field

FA30-380SXXH2N4(-T) (-TS) Series----- a compact size, high efficient power converter offered by Aipu. It features universal input voltage, DC and AC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, good EMC performance. EMC and safety specifications meet EN55032, IEC/EN61000 standard. It widely used in power, industrial, instrument, smart home applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Typical Product List

Certificate	Item No	Output Specification			Max. Capacitive Load	Ripple& Noise 20MHz (Max)	Efficiency @ Full Load 230Vac (Typical)
		Power	Voltage	Current			
		(W)	(V)	(mA)			
-	*FA30-380S05H2N4	30	5	6000	7000	100	78
	FA30-380S12H2N4	30	12	2500	5000	120	82
	*FA30-380S15H2N4	30	15	2000	2000	120	82
	*FA30-380S24H2N4	30	24	1250	1000	150	83

Note 1: Suffix "-T" means chassis mounting, "-TS" for Din-rail mounting, rail width 35mm.

Note 2: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.

Note 3: Fluctuation range of full load efficiency(% ,TYP) is ±2%, full load output efficiency= total output power/module's input power.

Input Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	176	230	528	VAC
	DC Input	248	325	745	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	176VAC	/	/	0.40	A



	230VAC	/	/	0.32	
Surge Current	176VAC	/	35	/	
	230VAC	/	60	/	
No Load Power Consumption	Input 176VAC	/	/	0.5	W
	Input 230VAC	/	/		
Leakage Current	230VAC/50Hz	0.5mA RMS TYP			
External fuse recommended value	-	2.0-3.15A/500VAC slow-fusing, necessary			
Hot plug	-	Unavailable			
Remote control terminal	-	Unavailable			

Output Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Voltage Accuracy	Full input voltage Range, Any load	-	±2.0	±3.0	%
Line Regulation	Nominal Load	-	-	±0.5	%
Load Regulation	Nominal input Voltage 20%~100% load	-	-	±1.0	%
Minimum load	-	0	-	-	%
Turn-on Delay Time	Input 230Vac	-	2000	-	mS
	Input 400Vac	-		-	
Power-off Holding Time	Input 230VAC	-	35	-	mS
	Input 400VAC	-	100	-	
Dynamic Response	25%~50%~25% 50%~75%~50%	Overshoot range(%):≤±10.0			%
		Recovery time(mS):≤5.0			mS
Output Overshooting	Full input voltage range	≤10%Vo			%
Short Circuit Protection		Continuous, Self-recovery			Hiccup
Drift Coefficient	-	-	±0.02%	-	%/℃
Over Current Protection	Input 230VAC	≥120% Io, Self-recovery			Hiccup
Over Voltage Protection	5VDC Output	≤7.5			VDC
	12VDC Output	≤20			
	15VDC Output	≤20			
	24VDC Output	≤30			
Note 1: Ripple& noise is tested by twisted pair method. Details please refer to the following section (Ripple & Noise Test).					

General Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency	-	-	65	-	KHz

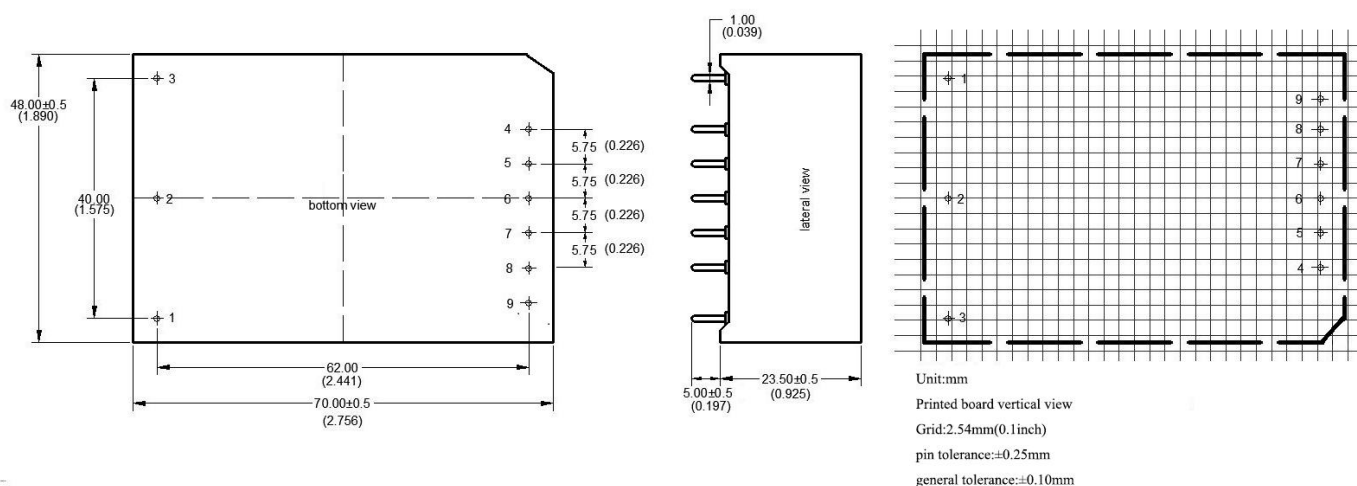


Operating Temperature	-	-40	-	+85	℃
	Derating based on Temperature Derating Curve, see “Product Characteristic Curve” at back.				
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave-soldering	260±4℃, timing 5-10S			
	Manual-soldering	360±8℃, timing 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	I/P-O/P test 1min, leakage current≤5mA	4000	-	-	VAC
	I/P-O/P @DC500V	100			MΩ
Safety Standard	-	IEC62368/EN62368/UL62368			
Vibration	-	10-55Hz,10G,30Min, along X,Y,Z			
Safety Class	-	CLASS I			
Class of Case Material	-	UL94 V-0			
MTBF	-	MIL-HDBK-217F@25℃>300,000H			

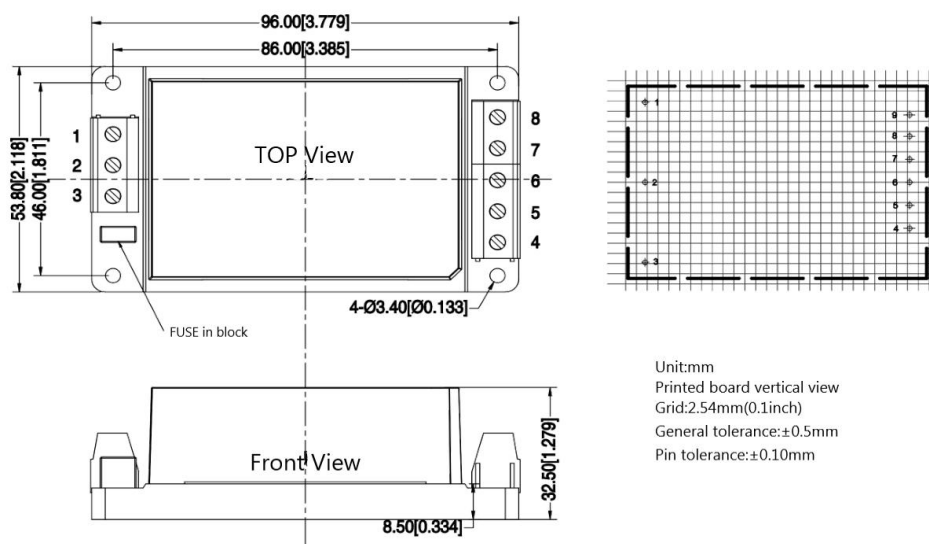
EMC Characteristics

Total Item		Sub Item	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B
		RE	CISPR22/EN55032	CLASS B
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria A
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria A
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	Line to line ±2KV Perf.Criteria B
				Line to line ±4KV Perf.Criteria B (see recommended circuit Photo 2,3)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B
				±4KV Perf.Criteria B (see recommended circuit Photo 2,3)
		Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11	0%~70% Perf.Criteria B

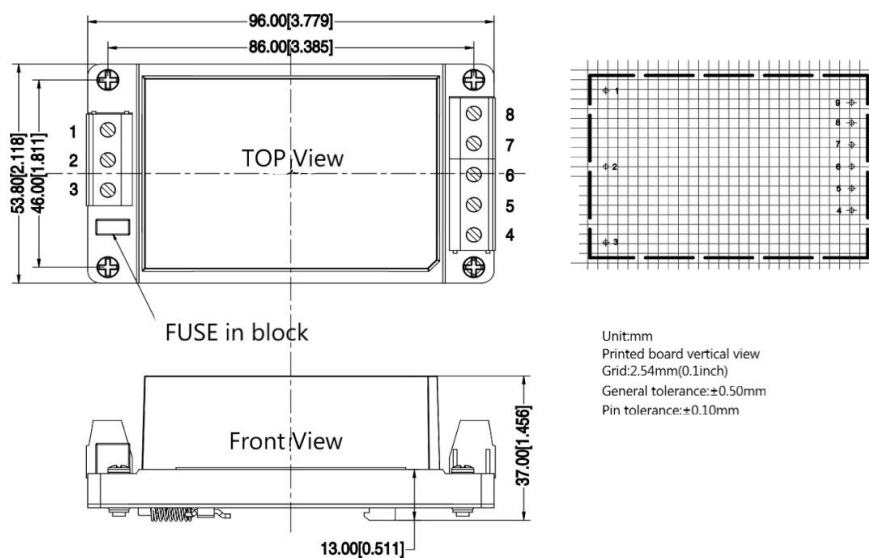
H2 Packing Dimension



H2-T Packing Dimension



H2-TS Packing Dimension





Packing Code	L x W x H	
H2	70.0X48.0X24.0 mm	2.756X1.890X0.945inch
H2-T	96.0X53.8X32.5 mm	3.780X2.118X1.280inch
H2-TS	96.0X53.8X37.0 mm	3.780X2.118X1.457inch

Pin Definition

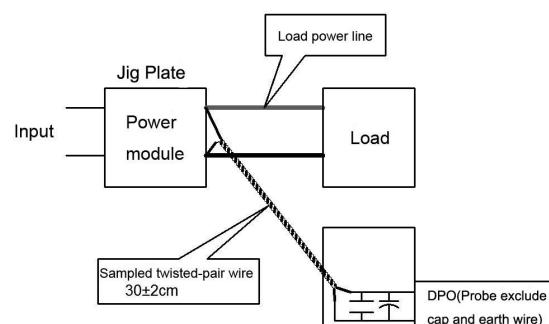
Pin-out	1	2	3	4	5	6	7	8
H2	FG	AC(N)	AC(L)	+Vo	NP	NP	NP	-Vo
H2-T	FG	AC(N)	AC(L)	+Vo	NC	NC	NC	-Vo
H2-TS	FG	AC(N)	AC(L)	+Vo	NC	NC	NC	-Vo

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

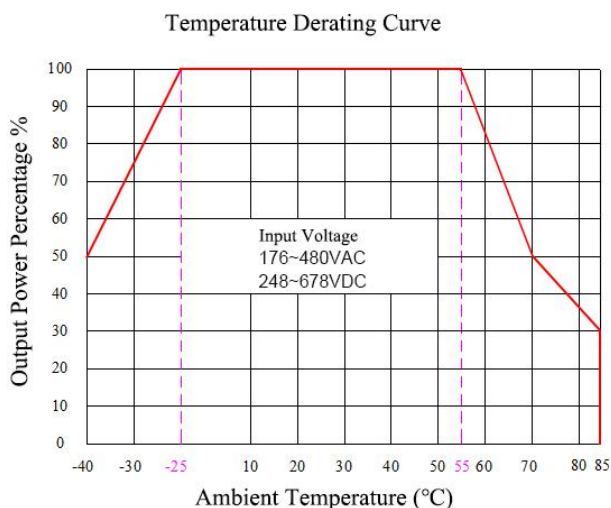
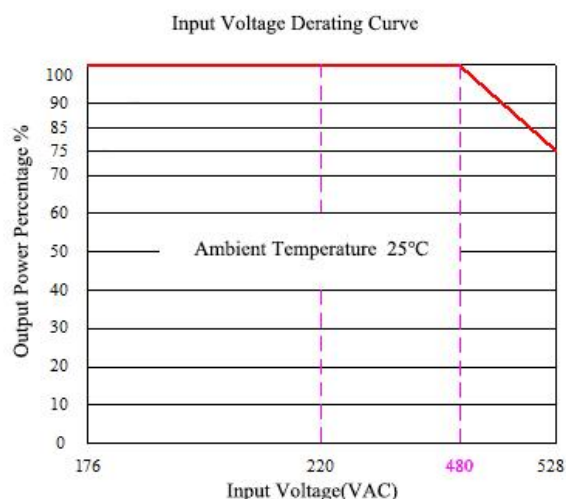
Test Method:

(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) 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 480~528VAC/675~745VDC.
- 2: Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

Typical EMC Circuit and Recommended Spec

1. Typical Application Circuit

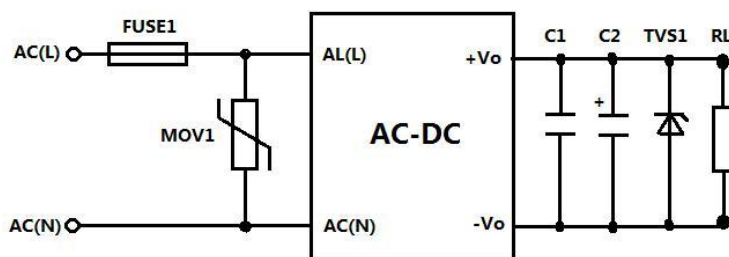


Photo 1

2. ECM Recommended Circuit

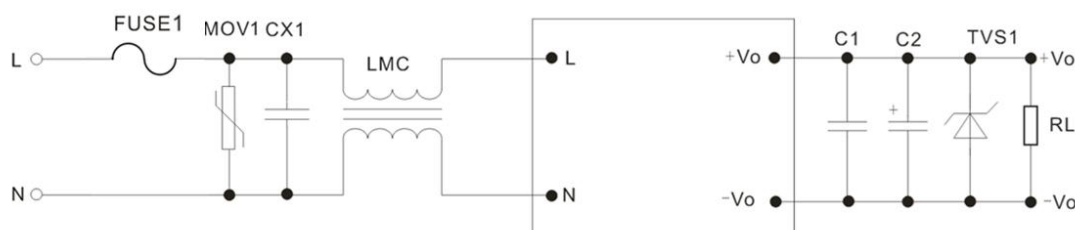


Photo 2

Model	FUSE1	MOV1	C1	C2	TVS1
FA30-380S05H2N4	2.5A/500VAC, slowing fusing, necessary	14D911K	1uF/50V	330uF/10V	SMBJ7.0A
FA30-380S12H2N4				220uF/16V	SMBJ20A
FA30-380S15H2N4				220uF/25V	SMBJ30A
FA30-380S24H2N4				220uF/35V	SMBJ30A

1. CX1 is X capacitor, the recommended model is 0.22uF/275Vac;
2. LMC is a common mode inductor, and the recommended inductance is 25mH;
3. The output filter capacitor C2 is an electrolytic capacitor. It is recommended to use a high-frequency, low-resistance electrolytic capacitor. Please refer to the technical specifications provided by each manufacturer for the capacity and flowing current. The withstand voltage of the C2 capacitor should be derated to at least 80%. C1 is a ceramic capacitor to remove high-frequency noise;
4. The TVS1 tube protects the downstream circuit when the module is abnormal and is recommended to be used.

3. Recommended circuit for general system in strong lightning surge surge environment

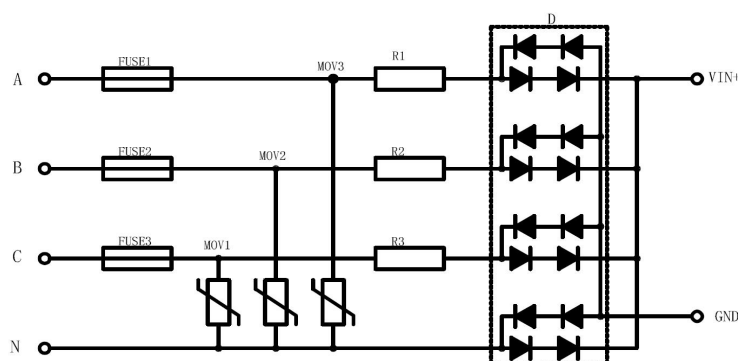


Photo 3: Recommended peripheral circuits for high requirements of 4KV differential mode surge - full wave rectification

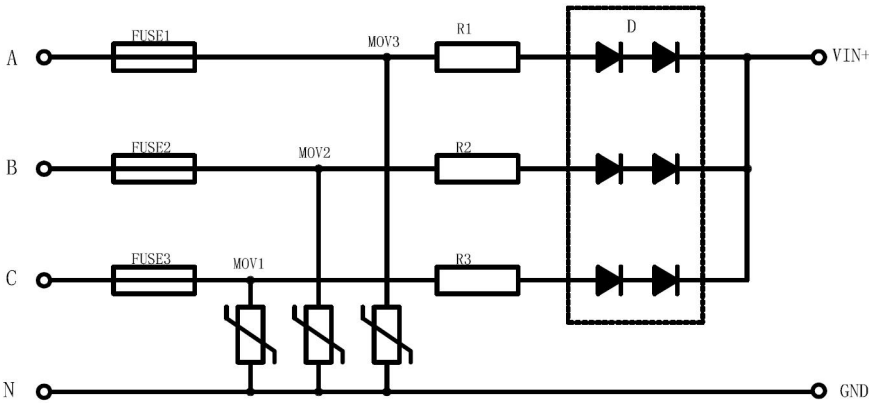


Photo 4: Recommended peripheral circuits for high 4KV differential mode surge requirements - half-wave rectification

Recommended parameter values for application circuits with higher EMC requirements	
Components	Recommended Value
MOV1,MOV2,MOV3	20D911K
D	2A/1000V
R1,R2,R3	10Ω/5W
FUSE1,FUSE2,FUSE3	2.5A/500VAC,slowing fusing, necessary

- 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 is not worked under the load range(below the minimum load or 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.