Typical Features

- ◆ Wide input voltage range:85-528VAC/120-745VDC
- ◆ No-load power consumption≤0.4W
- ◆ Transfer efficiency (typ. 82%)
- ◆ Switching frequency: 65KHz
- ◆ Protection: Short Circuit, Over Current
- ◆ Isolation voltage: 4000Vac
- ◆ Meet IEC62368/UL62368/EN62368 test standard
- ◆ Conform to CE, RoHS certificate
- ◆ Safety Class: CLASS II

Application Field

FA10-380SXXF2N4 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 ect. 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	Model	Output Specification			Max. Capacitive Load	Ripple& Noise 20MHz (Max.)	Efficiency@ Full Load, 220Vac (TYP.)
		Power	Voltage	Current			
		(W)	Vo1(V)	Io1(m A)	u F	mVp-p	%
-	FA10-380S05F2N4	10	5	2000	3000	100	76
-	FA10-380S12F2N4	10	12	833	1000	120	80
-	FA10-380S24F2N4	10	24	416	680	150	82

Note 1: Suffix ”-T”for chassis mounting, “-TS” suffix for DIN-Rail mounting, DIN-Rail width is 35mm;

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

Note 2: Due to the instrument error of the test equipment, the minimum efficiency is defined as -2% of the typical value.

Note 3: The test method for ripple and noise adopts the twisted pair test method. Please see the following (ripple & noise test instructions) for details.

Input Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	85	220	528	VAC
	DC Input	120	300	745	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	115VAC	/	/	0.25	A
	230VAC	/	/	0.15	
Surge Current	115VAC	/	/	16	

	220VAC	/	/	30	
No load power consumption	Input 115VAC	-	-	0.4	W
	Input 230VAC	-			
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
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		Single Output	0	-	-	%
Turn-on Delay Time		Input 220VAC (full load)	-	1000	-	mS
Power-off Holding Time		Input 220VAC (full load)	-	100	-	mS
Dynamic Response	Over shoot range	25%~50%~25% 50%~75%~50%	-5.0	-	+5.0	%
	Recovery time		-	-	+5.0	mS
Output Overshooting		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 Specifications

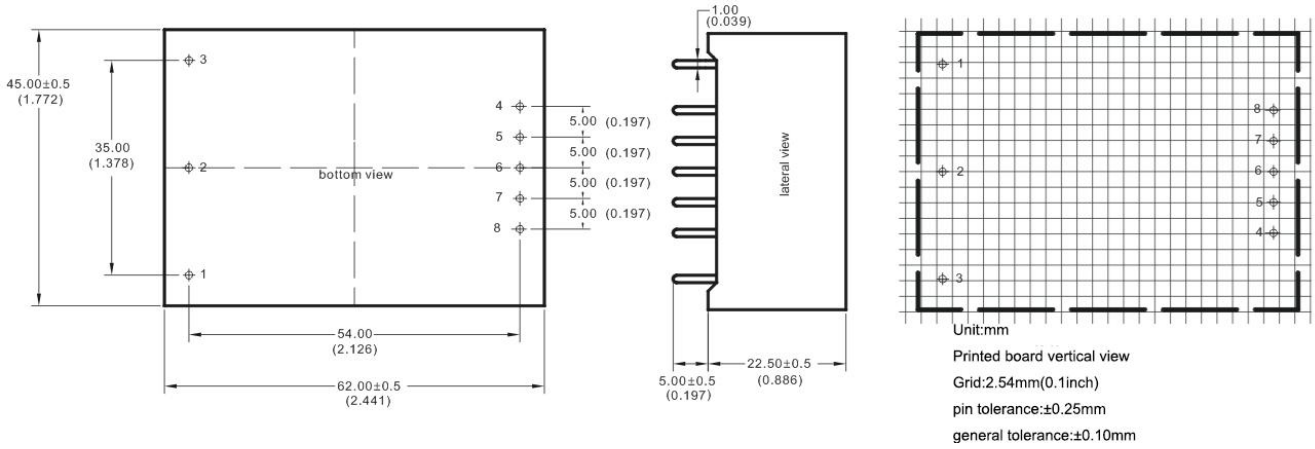
Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency	-	61	65	73	KHz
Operating Temperature	-	-40	-	+85	℃
	It is necessary to perform temperature derating based on the temperature derating curve. See the derating curve below (product characteristic curve).				
Storage Temperature	-	-40	-	+105	
Soldering Temperature	Wave-soldering	260±4℃, timing 5-10S			
	Manual-soldering	360±8℃, timing 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Input-Output,Test 1min, leakage current ≤5mA	4000	-	-	VAC
Insulation Resistance	Input-Output@DC500V	100	-	-	MΩ

Vibration	-	10-55Hz,10G,30Min,alongX,Y,Z
MTBF	-	MIL-HDBK-217F@25℃＞300,000H

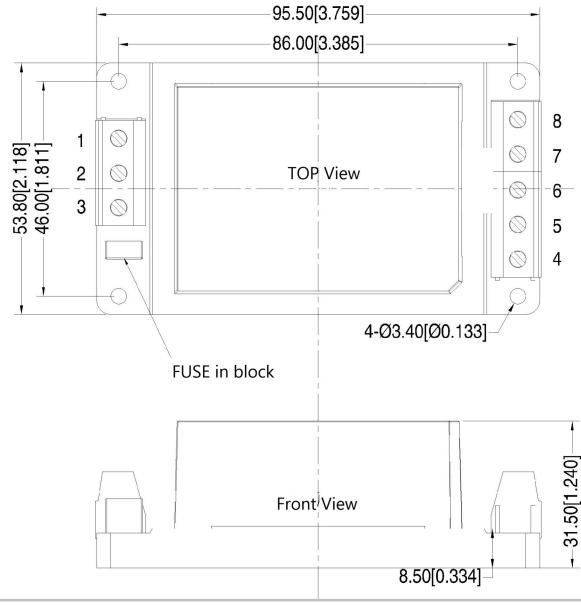
EMC Characteristics

Total Item		Sub Item	Class	
EMC	EMI	CE	CISPR22/EN55032, CLASS B	
		RE	CISPR22/EN55032, CLASS B	
	EMS	ESD	IEC/EN61000-4-2 ±6KV/8KV	Perf.Criteria B
		RS	IEC/EN61000-4-3 10V/m	Perf.Criteria A
		EFT	IEC/EN61000-4-4 ±2KV	Perf.Criteria B
			IEC/EN61000-4-4 ±4KV	Perf.Criteria B
		Surge	IEC/EN61000-4-5 line to line ±2KV	Perf.Criteria B
			IEC/EN61000-4-5 line to line ±4KV	Perf.Criteria B
		CS	IEC/EN61000-4-6 10Vr.m.s	Perf.Criteria A
		Power frequency magnetic field immunity	IEC/EN61000-4-8 10A/m	Perf.Criteria A
		Voltage dips and interruptions	IEC/EN61000-4-11 0%-70%	Perf.Criteria B

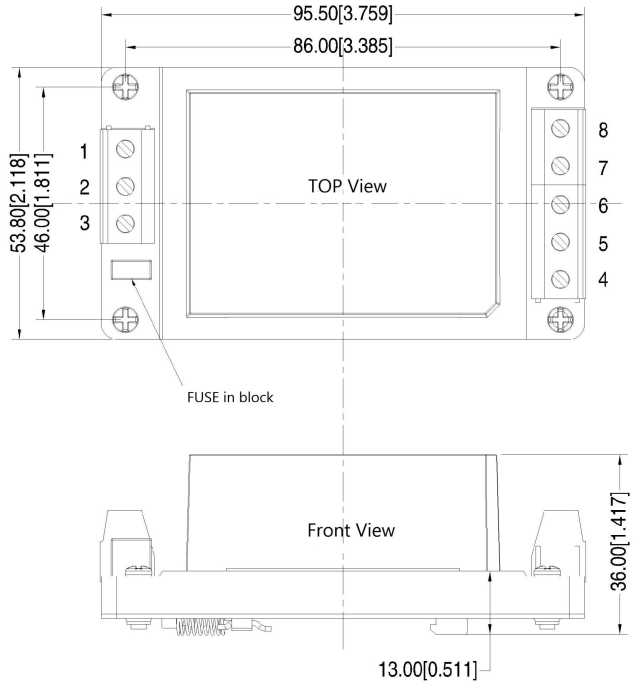
F2 Packing Dimension



F2-T Packing Dimension



F2-TS Packing Dimension



Packing Code	L x W x H	
F2	62.0 x 45.0 x 22.5 mm	2.441 × 1.772 × 0.885inch
F2-T	96.0 x 53.8 x 31.5 mm	3.780 x 2.118 x 1.240 inch
F2-TS	96.0 x 53.8 x36.0 mm	3.780 x 2.118 x 1.417 inch

Pin Definition

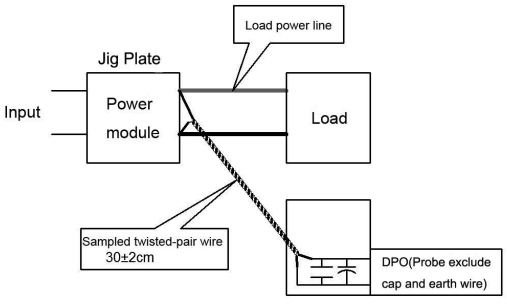
Pin-out	1	2	3	4	8
Single(S)	NP	AC(N)	AC(L)	+Vo	-Vo

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

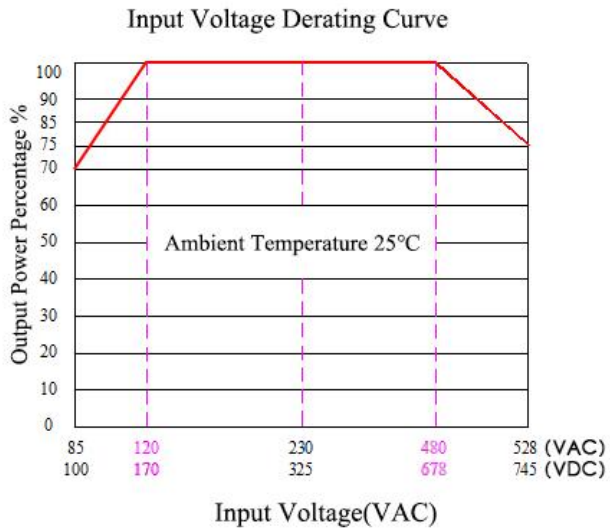
Test Method:

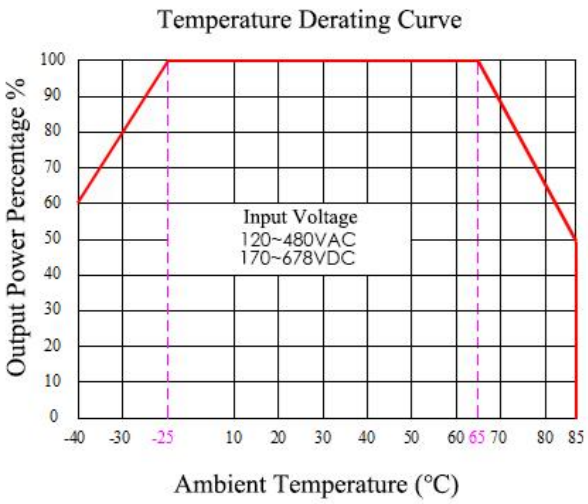
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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 85~120VAC/480~528VAC /100~170VDC /678~745VDC.

Note 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

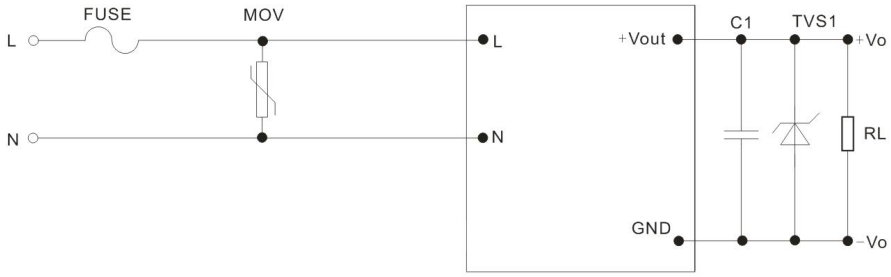


Photo 1

Output Voltage	5V	12V	24V
TVS tube recommended value	SMBJ7.0A	SMBJ20A	SMBJ30A

Note:The output capacitor C1 is a ceramic capacitor to remove high-frequency noise. The TVS tube protects the downstream circuit when the module is abnormal, necessary. It is recommended to connect an external FUSE fuse, model: 2A/500V slow-blow. It is recommended to connect an external MOV varistor, model: 14D911K.

2.EMC recommended circuit

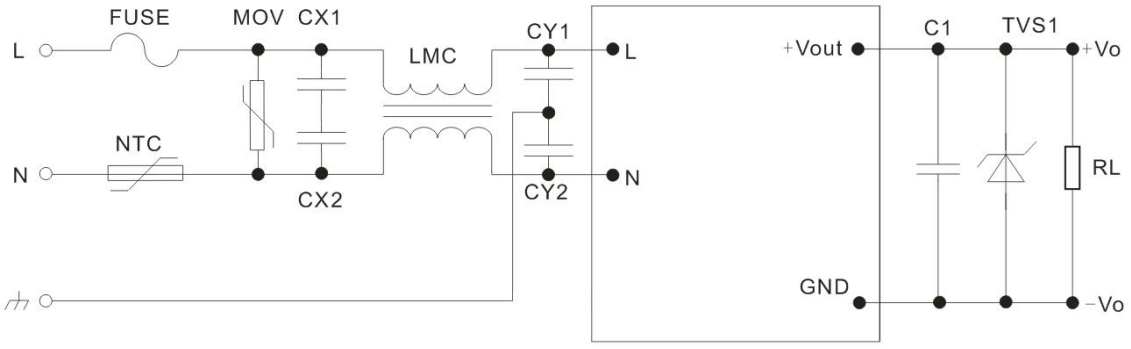


Photo 2

Component	Recommended Value	Component	Recommended Value
MOV	14D911K	NTC	5D-9
CX1, CX2	0.1uF/275VAC	LMC	UU9.8, 25mH, 0.5A
FUSE	2A/500V, slow-fusing, necessary	CY1, CY2	1nF/400VAC

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.

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