Typical Features

- ◆ Wide input voltage range 85-528VAC/120-745VDC
- ◆ No-load power consumption ≤0.4W@230VAC
- ◆ Efficiency up to 82% (Typ.)
- ◆ Operating temperature from -40℃ to +85℃
- ◆ Switching frequency 65KHz
- ◆ Short circuit & over current protections
- ◆ Isolation voltage 4000VAC
- ◆ Altitude during operation 4000m Max
- ◆ Compliant with IEC/EN62368/UL62368
- ◆ Safety Class II
- ◆ PCB DIP mounting

Application Field

FA10-380SXXF2N4 Series --- Compact size & high efficiency modular power supplies with global adapted input voltage range (both AC & DC available), low ripple, low temperature rise, low standby power consumption, high efficiency, high reliability & safety isolated. This series of products can be widely used in the fields of Industrial, Office devices, Electric power and Household products, etc. Additional circuit diagram for EMC is recommended for the application with high EMC requirement.

Typical Product List

Certificate	Part No.	Input Voltage Range		Output Specifications			Max. Capacitive Load @220VAC	Ripple & Noise 20MHz (Max)	Efficiency @full load 220VAC (Typ.)
		Nominal	Range	Power	Voltage	Current			
		(VAC)	(VAC)	P(W)	Vo(VDC)	Io(mA)	(uF)	mVp-p	%
-	FA10-380S05F2N4	220	85-528	10	5	2000	10000	100	82
-	FA10-380S12F2N4				12	833	1000	120	80
-	FA10-380S24F2N4				24	416	680	150	82

Note 1: The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 2: 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 3: The suffix -T indicates the chassis package, -TS indicates the package of DIN Rail which width is 35mm.

Note 4: Please contact Aipu sales for other output voltages requirements of this series but not listed in this table.

Input Specifications

Item	Test Condition	Min.	Typ.	Max.	Unit
Input voltage range	AC Input	85	220	528	VAC
	DC Input	120	310	745	VDC
Input frequency range	-	47	50	63	Hz

Standby power consumption	Input 115VAC	-	-	0.40	W
	Input 220VAC				
Input current	Input 115VAC	-	-	0.25	A
	Input 220VAC	-	-	0.15	
Surge current	Input 115VAC	-	-	16	A
	Input 220VAC	-	-	30	
Leakage current	-	0.5mA TYP/230VAC/50Hz			
Hot-plug	-	Unavailable			
Recommended external fuse	-	3.15A/600VAC Time-delay fuse			
ON/OFF control	-	Unavailable			

Output Specifications

Item		Test Condition	Min.	Typ.	Max.	Unit
Output 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	-	-	±1.0	%
Ripple & Noise		5%-100% load, 20MHz bandwidth	-	-	150	mVp-p
Dynamic Response	Overshoot range	25%~50%~25%	-5.0	-	+5.0	%
	Recovery time	50%~75%~50%	-	-	5.0	mS
Minimum load		Single output	0	-	-	%
Temperature drift coefficient		-	-	-	±0.03	%/℃
Turn-on delay time		Input 220VAC (full load)	-	-	2500	mS
Power-off Hold up time		Input 220VAC (full load)	-	50	-	mS
		Input 480VAC (full load)	-	100	-	
Output Overshoot		Full input voltage range	≤10			%Vo
Short circuit protection			Continuous, Self-recovery			Hiccup
Over current protection		Input 220VAC	110%Io	-	250%Io	mA

Note: The Ripple & Noise is tested by the Parallel-line method, please refer to the following test instruction.

General Specifications

Item	Test Condition		Min.	Typ.	Max.	Unit
Switching frequency	-		61	65	73	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 1min, leakage current <5mA	4000	-	-	VAC
Insulation resistance	I/P-O/P	@DC500V	100	-	-	MΩ
MTBF	MIL-HDBK-217F@25℃		300	-	-	K Hours

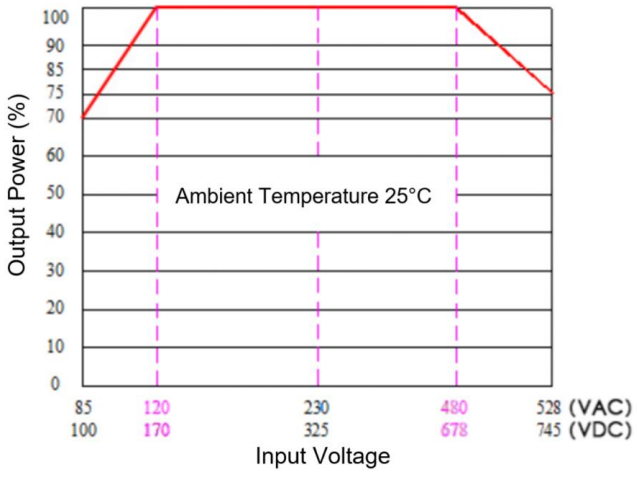
Safety standard	-		IEC/EN62368	
Vibration	-		10-55Hz,10G,30 Min, along X, Y, Z	
Safety class	-		CLASS Ⅱ	
Weights & Dimensions	Part No.	Weight (Typ.)	Dimensions L x W x H	
	FA10-380SXXF2N4	100g	62.0 x 45.0 x 22.5 mm	2.441 × 1.772 × 0.885inch
	FA10-380SXXF2N4-T	140g	95.5 x 53.8 x 31.5 mm	3.759 × 2.118 × 1.240inch
	FA10-380SXXF2N4-TS	180g	95.5 x 53.8 x 36.0 mm	3.759× 2.118 × 1.417inch

EMC Performance

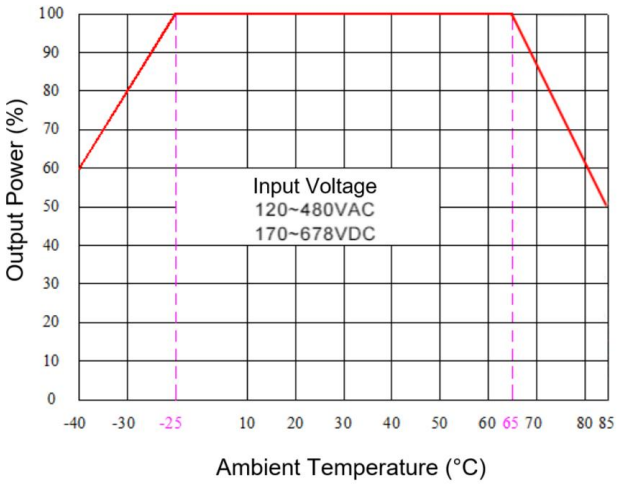
Items			Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS B (with the Recommended Circuit 2)
		RE	CISPR32/EN55032	CLASS B (with the Recommended Circuit 2)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf. Criteria B
		CS	IEC/EN61000-4-6	10Vr.m.s Perf. Criteria A
		ESD	IEC/EN61000-4-2	Contact ±6KV /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

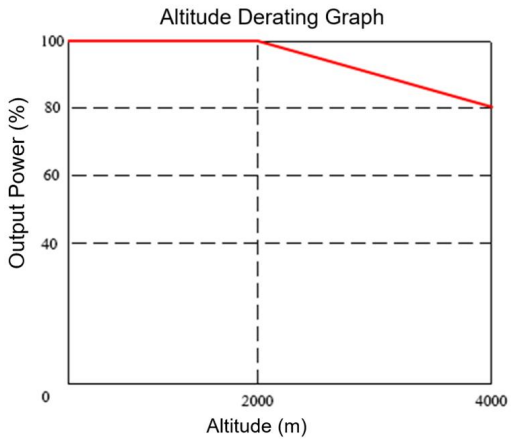
Product Characteristics Graphs

Input Voltage Derating Graph



Temperature Derating Graph





Note 1: The output power should be derated based on the input voltage derating graph at 85~120VAC/120~170VDC & 480~528VAC /678~745VDC.

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

Recommended Circuit for Application

1. Typical application circuit diagram

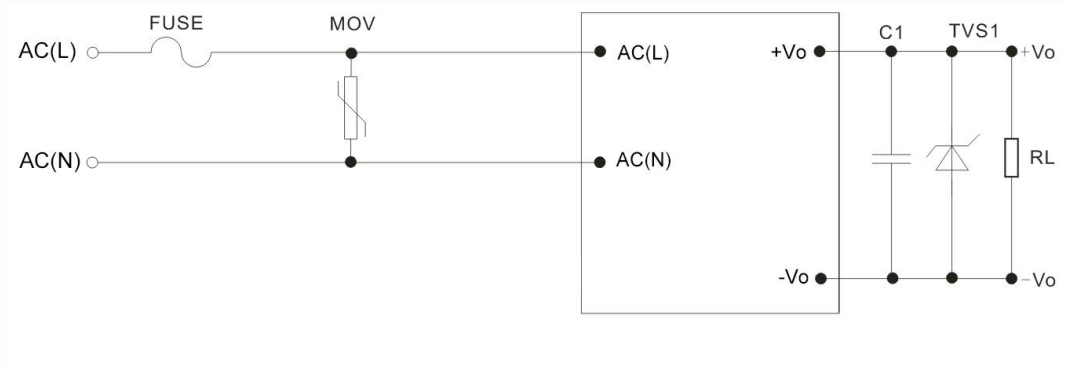


Figure - Circuit 1

Output volt.	5V	12V	24V
TVS1	SMBJ7.0A	SMBJ20A	SMBJ30A

Note:

C1 is a ceramic capacitor to suppress the high frequency ripple. TVS is recommended to protect the output circuit under abnormal condition. 3.15A/600VAC time-delay fuse & 14D911K/4500A MOV are recommended.

2. Recommended EMC circuit diagram (for high EMC requirement)

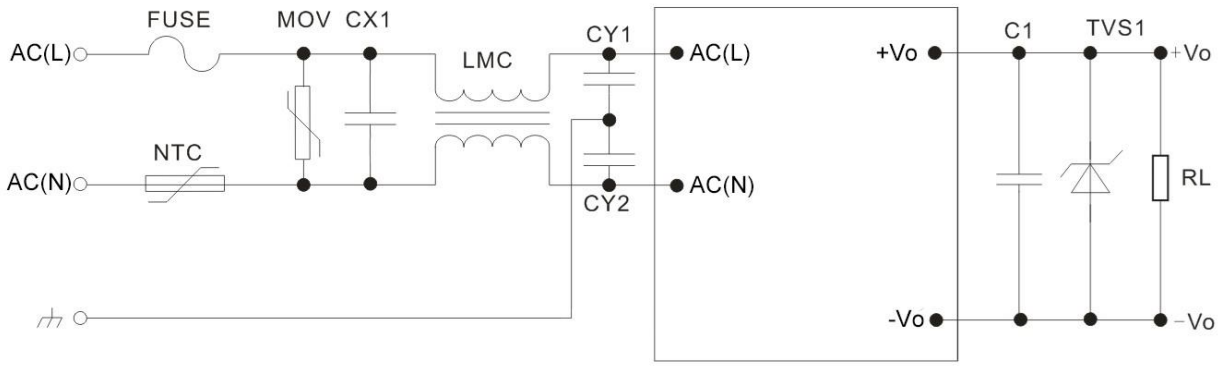
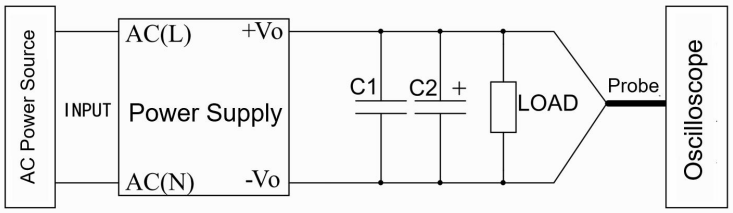


Figure - Circuit 2

Component	Recommended values	Component	Recommended values
MOV	14D911K/4500A	NTC	5D-9
CX1	X2/104K/530VAC	LMC	UU9.8, 25mH/0.5A
FUSE	3.15A/600VAC, time-delay fuse (Required)	CY1, CY2	Y1/102M/400VAC

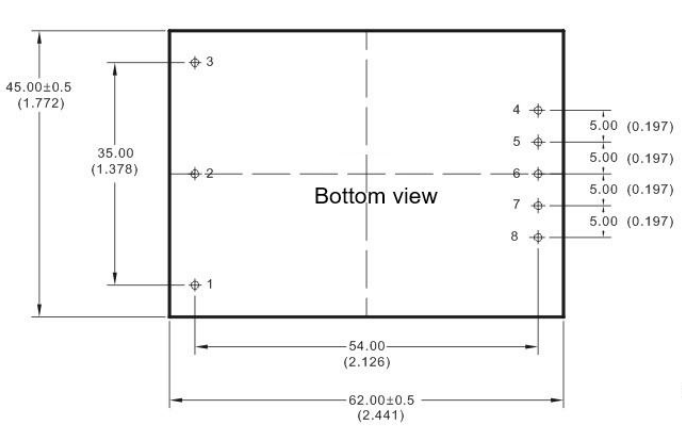
Note: C1 & TVS1 same recommended as the typical application.

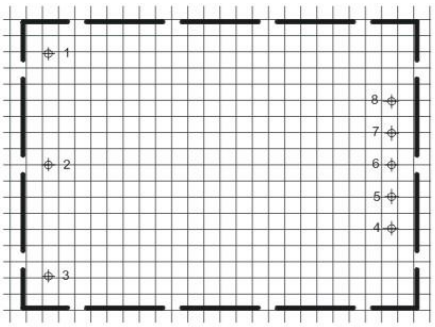
Ripple & Noise Test Instruction (Parallel-line method, 20MHz Bandwidth)



1. The Ripple & Noise test needs the cables in parallel, an oscilloscope that should be set at the Sample Mode, bandwidth 20MHz. 100M bandwidth probe with cap and ground removed. One polypropylene capacitor C1(0.1uF) and one high-frequency low-impedance electrolytic capacitor C2(10uF) are connected in parallel with the probe.
2. Refer to the test diagram, 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 test can start at the converter output terminals after the input power on.

Mechanical Dimensions





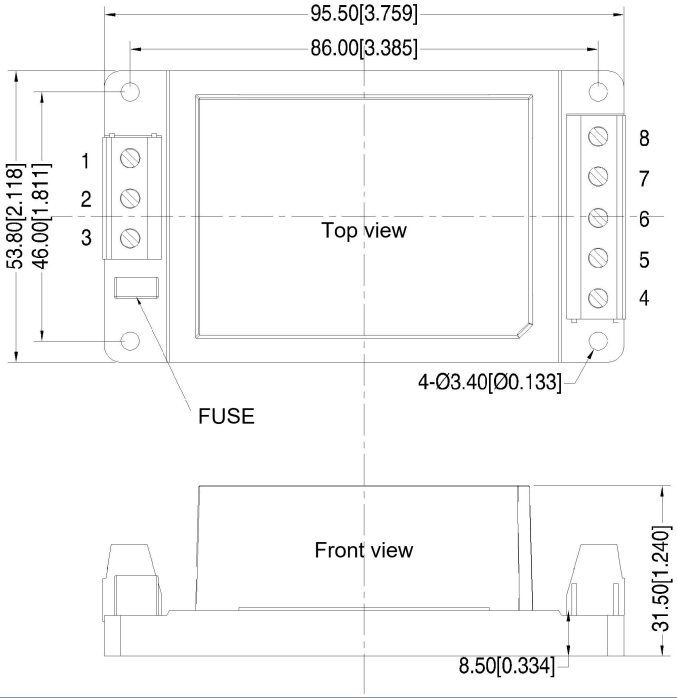
PCB layout vertical view
Grid 2.54x2.54(0.10x0.10)

Unit: mm(inch)
General tolerance: ±0.25(±0.010)
Pin diameter tolerance: ±0.10(±0.004)

Pin-out Function Description

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

-T Package Dimensions

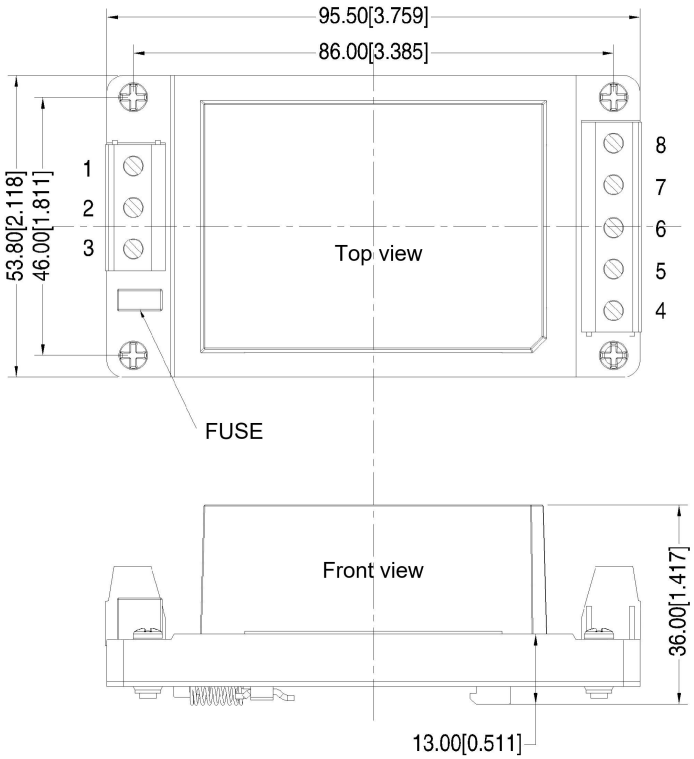


Note:
Unit: mm[inch]
Lead wires gauge: 24-12AWG
Screwing torque: 0.4 N.m Max
General tolerance: ±1.00[±0.039]

Terminal Function Description

Terminal No.	1	2	3	4	5	6	7	8
Function	NC	AC(N)	AC(L)	+Vo	NC	NC	NC	-Vo

-TS Package Dimensions



Note:
Unit: mm[inch]
Lead wires gauge: 24-12AWG
Screwing torque: 0.4 N.m Max
General tolerance: ±1.00[±0.039]

Terminal Function Description

Terminal No.	1	2	3	4	5	6	7	8
Function	NC	AC(N)	AC(L)	+Vo	NC	NC	NC	-Vo

Application notice

1.The product should be used according to the specifications, otherwise it could be permanently damaged.

2. The product performance cannot be guaranteed if it works at a lower load than the minimum load defined.

3. The product performance cannot be guaranteed if it works under over-load condition.

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

5. All values or indicators on this datasheet have been tested based on Aipupower test specifications.

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

7. Aipupower can provide customization service.

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