

Typical Features

- ◆ Wide input voltage range 85-305VAC/100-430VDC
- ◆ Efficiency up to 90% (Typ.)
- ◆ No load power consumption 0.2W (Typ.) @220VAC
- ◆ Operating temperature from -40℃ to +85℃
- ◆ Switching frequency 65KHz
- ◆ Short circuit, over current & over voltage protections
- ◆ Isolation Voltage 4200VAC
- ◆ Altitude during operating 5000m Max
- ◆ With CE certificate
- ◆ Safety Class II



Application Field

FA30-220SXXG2N5 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 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 EMC circuit diagram is recommended for the application with high EMC requirement.

Typical Product List

Certificate	Part No.	Input Voltage Range		Output Specification			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 (A)	u F	mVp-p	%
CE	FA30-220S3V3G2N5	220	85-305	19.8	3.3	6	6600	100	85
CE	FA30-220S05G2N5			30	5	6	6600	100	86
CE	FA30-220S09G2N5			30	9	3.33	4400	100	88
CE	FA30-220S12G2N5			30	12	2.5	4400	100	90
CE	FA30-220S15G2N5			30	15	2	3300	100	90
CE	FA30-220S24G2N5			30	24	1.25	1000	150	88
CE	FA30-220S48G2N5			30	48	0.625	470	150	90

Note 1: Please contact Aipu sales for other output voltages requirements of this series but not in this table.

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 minimum efficiency could be -2% of the typical value in this table.

Input Specifications					
Items	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	220	305	VAC
	DC input	100	310	430	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	Input 115VAC	-	-	0.75	A
	Input 220VAC	-	-	0.5	
Surge Current	Input 115VAC	-	25	-	A
	Input 220VAC	-	50	-	
No Load Power Consumption	Input 115VAC	-	-	0.45	W
	Input 220VAC	-	0.2		
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Recommended External Fuse	-	2A/300VAC, Time-delay fuse			
Hot Plug	-	Unavailable			
ON/OFF Control	-	Unavailable			

Output Specifications							
Items		Operating Conditions		Min.	Typ.	Max.	Unit
Voltage Accuracy		Full input voltage range, any load	Vo	-	±2.0	±3.0	%
Line Regulation		Nominal load	Vo	-	-	±1.0	%
Load Regulation		Nominal input voltage, 20%~100% load	Vo	-	-	±1.5	%
Minimum Load		Single Output		0	-	-	%
Temperature Drift Coefficient		-		-	-	±0.03%	%/℃
Turn-on Delay Time		Input 220VAC (full load)		-	-	1500	mS
Power-off Hold up Time		Input 115VAC (full load)		8	-	-	mS
		Input 220VAC (full load)		65	-	-	
Dynamic Response	Overshoot range	25%~50%~25%		-10.0	-	+10.0	%
	Recovery time	50%~75%~50%		-	-	+5.0	mS
Output Overshoot		Full input voltage range		≤10			%Vo
Short-Circuit Protection				Continuous, Self-recovery			Hiccup
Over-current Protection		Input 220VAC		200%≥ Io ≥120%, self-recovery			Hiccup
Over-voltage Protection		3.3VDC output		≤6.3VDC			Hiccup
		5VDC output		≤16VDC			Hiccup
		9VDC output		≤16VDC			Hiccup
		12VDC output		≤16VDC			Hiccup
		15VDC output		≤25VDC			Hiccup
		24VDC output		≤35VDC			Hiccup
		48VDC output		≤63VDC			Hiccup
Ripple & Noise		5%-100% load, 20MHz bandwidth		-	60	150	mV
Note: The Ripple & Noise is tested by the Parallel-line method (please refer to the following Test Instruction).							

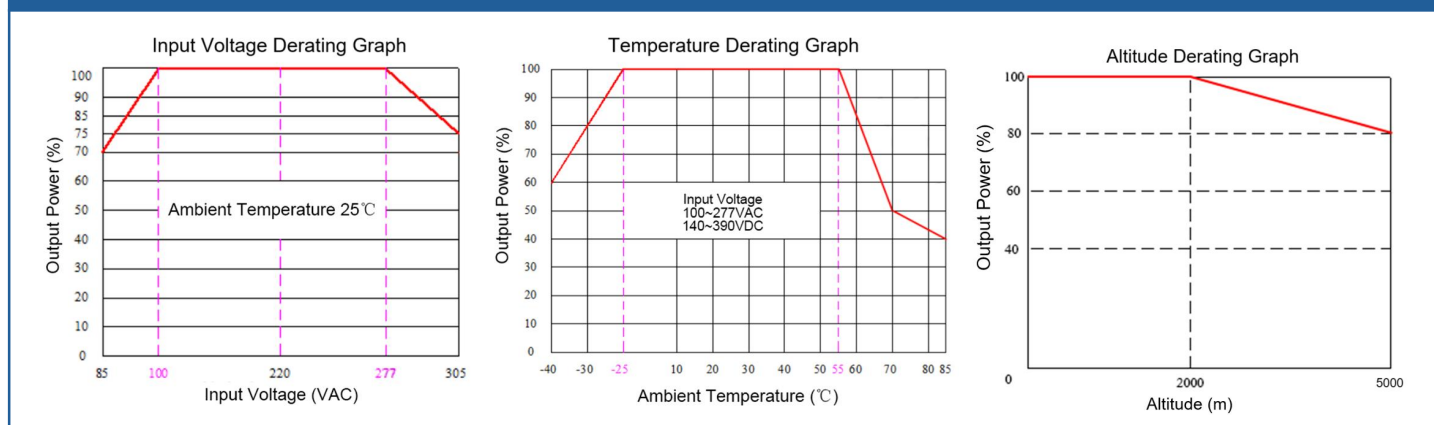
General Specifications

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	Input-Output, 1min, leakage current ≤5mA	4200	-	-	VAC
Insulation Resistance	Input-Output, @DC500V	100	-	-	MΩ
MTBF	MIL-HDBK-217F@25℃	2799	-	-	K Hours
Safety Standard	-	EN/IEC62368			
Vibration	-	10-55Hz, 10G, 30 Min, along X,Y,Z			
Safety Class	-	CLASS II			
Case Flame Class	-	UL94-V0			
Weight & Dimensions	Part No.	Weight (Typ)	Dimensions L x W x H		
	FA30-220SXXG2N5	100g	69.50 X 39.00 X 25.50 mm		2.736 X 1.535 X 1.004 inch

EMC Performance

Total Items	Sub Items	Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032 CLASS B (with the Recommended Circuit)
		RE	CISPR32/EN55032 CLASS B (with the Recommended Circuit)
	EMS	RS	IEC/EN61000-4-3 10V/m Perf. Criteria A (with the Recommended Circuit)
		CS	IEC/EN61000-4-6 3Vr.m.s Perf. Criteria A (with the Recommended Circuit)
		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)
		EFT	IEC/EN61000-4-4 ±2KV Perf. Criteria B
		Voltage dips & interruptions	IEC/EN61000-4-11 0%~70% Perf. Criteria B

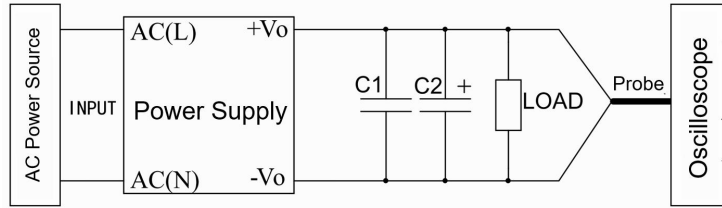
Product Characteristics Graphs



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

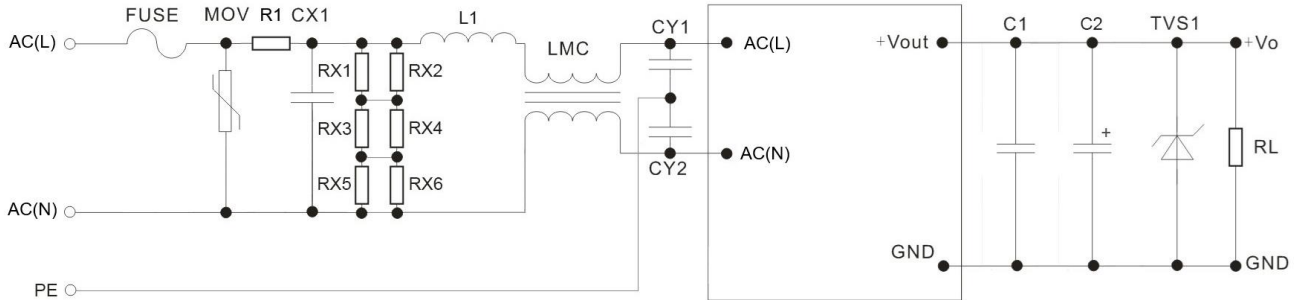
Note 2: This product should operate under the condition of natural air, please contact us if it could be used at a closed space.

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-resistance 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 input power on.

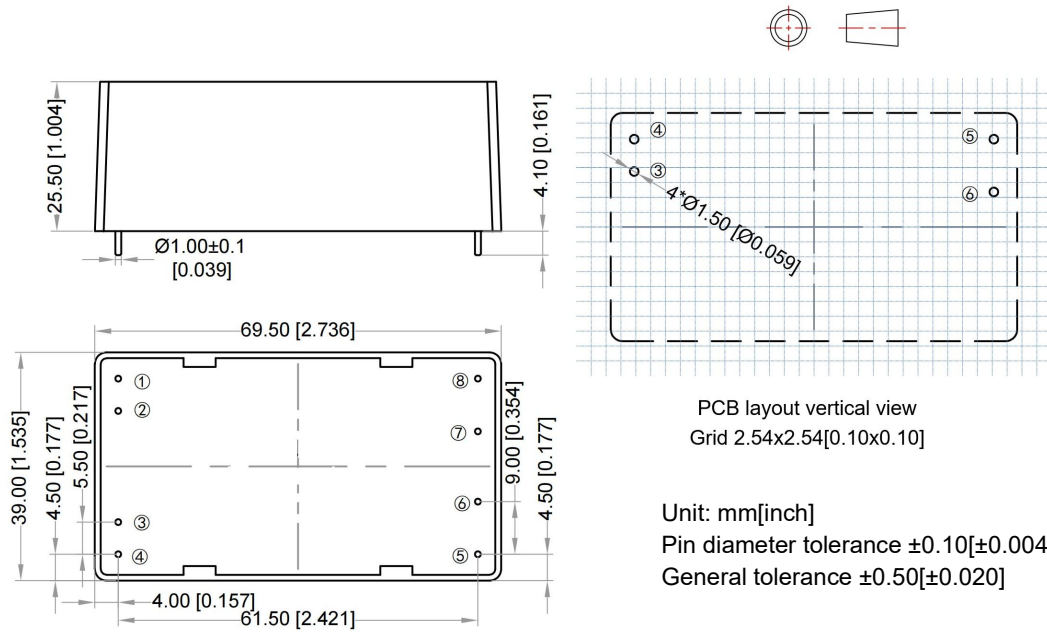
Recommended EMC Circuit for Application



Part No.	FUSE (*)	MOV	R1 (*)	CX1	RX1,RX2 RX3,RX4 RX5,RX6	L1	LMC	CY1 CY2	C1	C2	TVS1
FA30-220S3V3G2N5	3.15A/ 300V (Time- delay Fuse)	14D561K/ 4500A	6.8Ω /5W (Wire- wound Resistor	X2/ 334K/ 305VAC	1206/ 1.5M	1.2mH/ 0.75A	20mH 0.75A	Y1/ 2.2nF/ 400VAC	1uF /100V	10uF /50V	SMBJ7.0A
FA30-220S05G2N5											SMBJ7.0A
FA30-220S09G2N5											SMBJ12A
FA30-220S12G2N5											SMBJ20A
FA30-220S15G2N5											SMBJ20A
FA30-220S24G2N5											SMBJ30A
FA30-220S48G2N5										10uF /63V	SMBJ64A

Note: Both the * marked Fuse & R1 are required for the application, not optional.

Mechanical Dimensions



Pin-out Function Description

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

Application Notice

1. The products should be used according to the specifications, otherwise it could be permanently damaged.
2. A fuse should be connected at input.
3. The product performance cannot be guaranteed if it works at a lower load than the minimum load defined.
4. The product performance cannot be guaranteed if it works under over-load condition.
5. Unless otherwise specified, all values or indicators on this datasheet are tested at $T_a=25^{\circ}\text{C}$, humidity $<75\%\text{RH}$, nominal input voltage and rated load (pure resistance load).
6. All values or indicators on this datasheet had been tested based on Aipupower test specifications.
7. 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.
8. Aipupower can provide customization service.

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