AC/DC Converter
DA36-220SXXG4N4 Series

Typical Features

- ◆ Wide input voltage range: 85-275VAC/120-390VDC
- ◆ No load power consumption ≤ 0.40W
- ◆ Transfer Efficiency 84%(TYP.)
- ◆ Switching Frequency: 65KHz
- ◆ Protections: short circuit, over current
- ◆ Isolation voltage: 3000Vac
- ◆ Safety Class: CLASS II
- ◆ PCB mounting

Application Field

DA36-220SXXG4N4 Series----- *a compact size, high efficient power module offered by Aipu. It features universal input voltage range, AC and DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation. These series have important application for power, industry, instrument and smart home field. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.*

Typical Product List

Certificate	Part No.	Output Specifications					Max. Capacitive Load	Ripple & Noise 20MHz (Max)	Efficiency@ Full Load, 220Vac (Typical)
		Power	Voltage1	Current1	Voltage 2	Current 2			
		(W)	Vo1(V)	Io1(m A)	Vo2(V)	Io2(m A)	u F	mVp-p	%
-	DA36-220S12G4N4	36	+12	3000	-	-	6000	180	84
-	DA36-220S24G4N4	36	+24	1500	-	-	6000	200	86

Note 1: "*" are models being developing.

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

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

Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	220	275	VAC
	DC input	120	300	390	VDC
Input Frequency range	-	47	50	63	Hz
Input Current	100VAC	/	/	0.75	A
	220VAC	/	/	0.45	
Surge Current	100VAC	/	/	20	
	220VAC	/	/	25	

No Load Power Consumption	Input 100VAC	-	-	0.40	W
	Input 220VAC	-			
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Recommended External Input Fuse	-	3.15A-5A/250VAC slow fusing			
Hot Plug	-	Unavailable			
Remote Control Terminal	-	Unavailable			

Output Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Voltage Accuracy	Input voltage 220V, any load	-	±1.0	±2.0	%
Line Regulation	Nominal load	-		±1.0	%
Load Regulation	Nominal input voltage, 20%~100% load			±1.5	%
Minimum Load	Single Output	10	-	-	%
	Dual output common ground	-	-	-	%
	Dual output but Isolated	-	-	-	
Start up Delay Time	Input 165Vac (full load)	-	600	-	mS
	Input 220Vac (full load)	-		-	
Power-off Holding Time	Input 165VAC (full load)	-	65	-	mS
	Input 220VAC (full load)	-		-	
Dynamic Response	25%~50%~25% 50%~75%~50%	Overshoot range(%):≤±5.0			%
		Recovery time(mS):≤5.0			mS
Output Overshoot	Full input voltage range	≤10%Vo			%
Short circuit Protection		Continuous, self-recovery			Hiccup
Temperature Drift	-	-	±0.03%	-	%/℃
Over Current Protection	Input 220VAC	≥130% Io, self-recovery			Hiccup
Ripple & Noise	-	-	120	180	mV
	Note: Ripple & noise is tested by Twisted Pair Method, for details please check “Ripple & Noise Test” at back.				

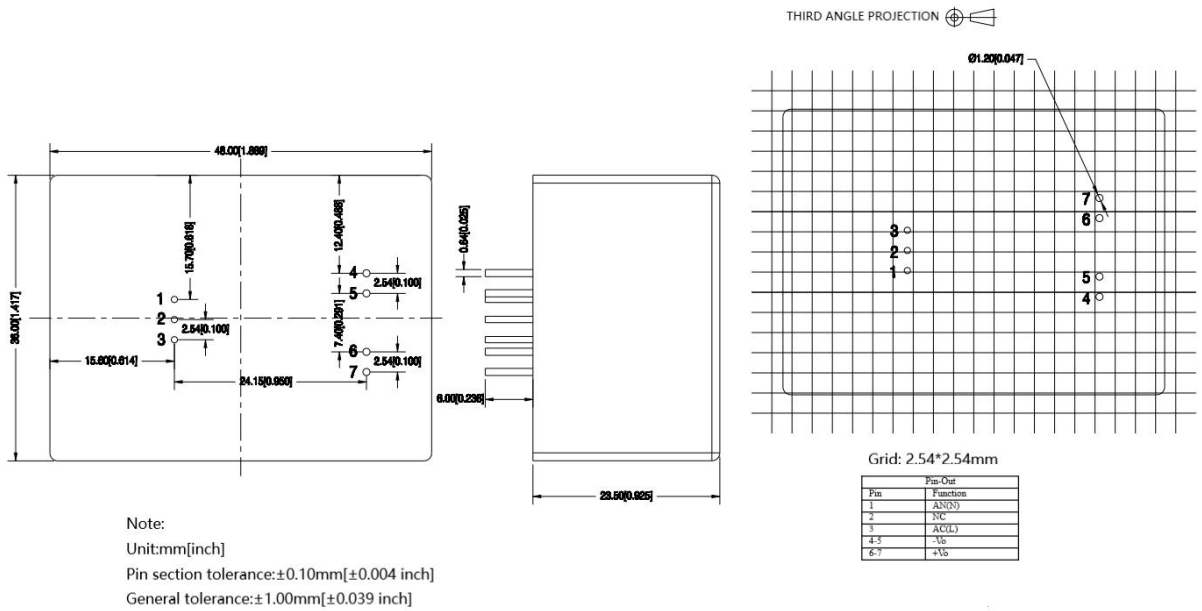
General Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Switching Frequency	-	50	-	70	KHz
Operating Temperature	-	-40	-	+75	℃
	Ripple and noise is tested by Twisted pair method, please refer to" Ripple & Noise Test" for specific info at back.				
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave soldering	260±4℃, time 5-10S			
	Manual soldering	360±8℃, time 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Input-Output, Test 1min, leakage current≤5mA	3000	-	-	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	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B (See Recommended Circuit on photo 1)
		RE	CISPR22/EN55032	CLASS B (See Recommended Circuit on photo 1)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria A
		CS	IEC/EN61000-4-6	10Vr.m.s Perf.Criteria A
		ESD	IEC/EN61000-4-2	±6KV/8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±1KV (See Recommended Circuit on photo 1) Perf.Criteria B
		EFT	IEC/EN61000-4-4	±1KV (See Recommended Circuit on photo 1) Perf.Criteria B

Dimension



Note:
Unit:mm[inch]
Pin section tolerance:±0.10mm[±0.004 inch]
General tolerance:±1.00mm[±0.039 inch]

Packing Code	L x W x H	
G4	48.00 x 38.00 x 23.50 mm	1.889 × 1.417 × 0.925 inch

Pin Specification

Pin	1	2	3	4-5	6-7
Single(S)	AC(N)	NC	AC(L)	-Vo	+Vo

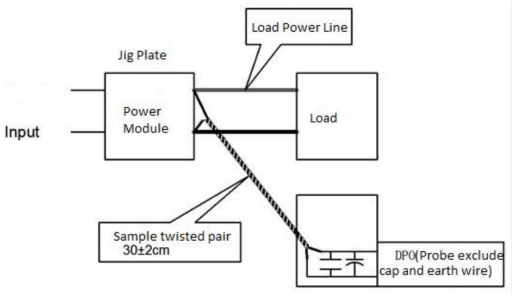
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

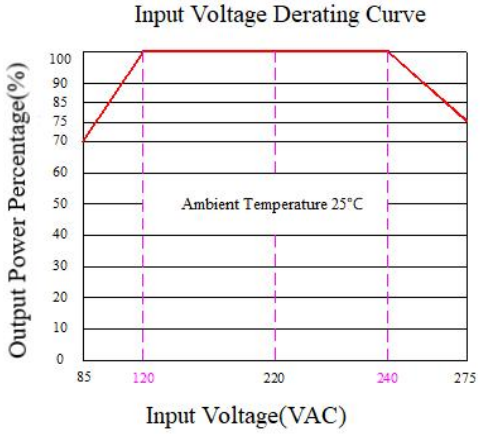
Test Method:

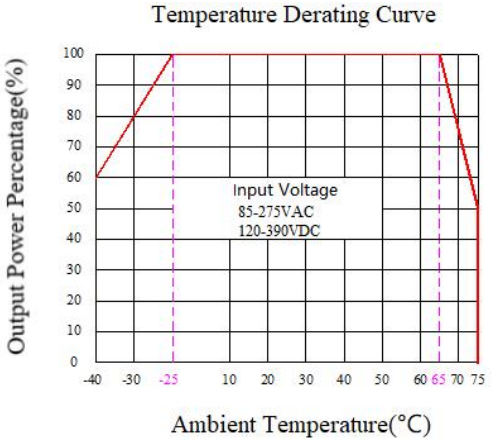
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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 based on Input voltage derating curve when it is 85~120VAC/240~275VAC/120~170VDC/340~390VDC.

Note 2: Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

Typical Application Circuit and EMC Recommended Circuit

1. EMC recommended circuit

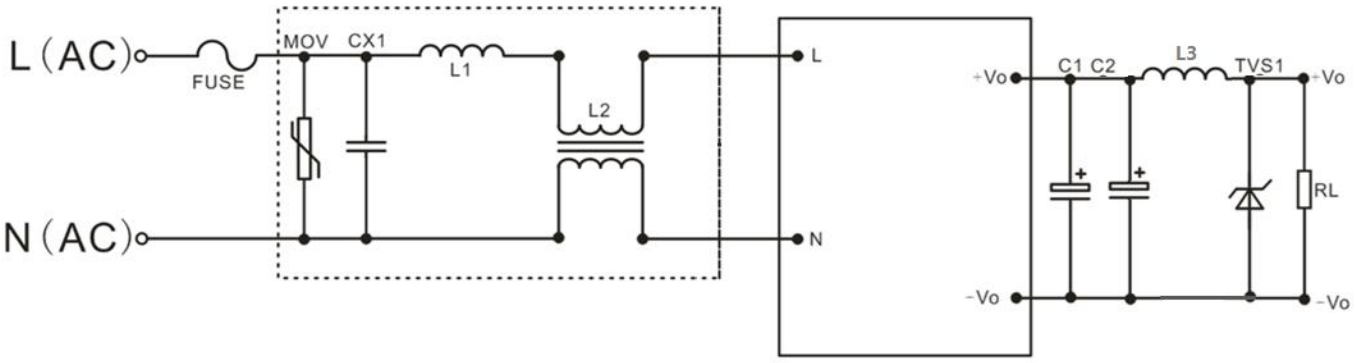


Photo 1: Circuit for higher EMC request

Components	Name	Recommended Value
FUSE	FUSE	5.0A/250Vac, slow fusing, necessary
MOV	Voltage dependent resistor	10D561K
CX1	X Capacitor	0.22uF/275Vac
L1	DM inductor	6.8uH/3.0A I inductor
L2	CM inductor	UU9.8 30mH min, 30mH/3.0A
L3	DM inductor	3.5uH/6.0A I inductor
C1,C2	Electrolytic capacitor	High frequency low resistance ones, 1000uF/16V
TVS1	Transient diode	SMBJ20.0A

Note 1:

1. The product should be used within the specification range, or it will cause permanent damage to it;
2. The input terminal should connect to fuse;
3. If the product is worked under the minimum requested load, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
4. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
5. Unless otherwise specified, parameters in this datasheet were measured under the conditions of **Ta=25℃**, **humidity<75%** with nominal input voltage and rated output load(pure resistance load);
6. All index testing methods in this datasheet are based on our Company's corporate standards;
7. 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;
8. We can provide product customization service,
9. Specifications are subject to change without prior notice, please follow up with our website for newest manual.

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