

Typical Features

- ◆ Wide input voltage range:85-305VAC/100-430VDC
- ◆ No-load power consumption≤0.3W
- ◆ Transfer efficiency: 86%(typ.)
- ◆ Switching frequency: 65KHz(typ.)
- ◆ Protection: Short Circuit, Over Current, Over Voltage
- ◆ Isolation voltage: 4000VAC
- ◆ 4000m altitude application
- ◆ Pass TUV/CE certificate
- ◆ Safety Class: CLASS II



Application Field

FA15-220SXXG2N4 Series ---a compact size, high efficient power converter offered by Aipu. It features universal input voltage range, DC and AC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation. It widely used in industrial, office power and home applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Typical Product List

Certificate	Part No.	Output Specification			Max. Capacitive Load (MAX)	Ripple& Noise 20MHz (MAX)	Efficiency @ Full Load 220Vac (Typical)
		Power	Voltage	Current			
		(W)	Vo(V)	Io(m A)			
CE	FA15-220S05G2N4	15	5	3000	5000	70	85
CE	FA15-220S12G2N4	15	12	1250	2000	120	85
CE	FA15-220S12V5G2N4	15	12.5	1200	2000	120	85
-	FA15-220S15G2N4	15	15	1000	2000	120	85
CE	FA15-220S24G2N4	15	24	625	1000	120	86

Note 1: The typical value of output efficiency is based on the product being aged for half an hour at full load;
 Note 2: Due to the instrument error of the test equipment, the minimum efficiency is defined as -2% of the typical value;
 Note 3: Due to limited space, the above is only a partial list of products. If you need products outside the list, please contact our sales department.
 Note 4: -T is a wiring package, and -TS is a guide rail package

Input Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	85	220	305	VAC
	DC Input	100	300	430	VDC
Input Frequency Range	-	47	50	63	Hz

Input Current	115VAC	-	-	0.45	A
	230VAC	-	-	0.3	
Surge Current	115VAC	-	-	30	
	230VAC	-	-	60	
No Load Consumption	Input 115VAC	-	-	0.3	W
	Input 230VAC	-			
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Hot plug	-	Unavailable			
Remote control	-	Unavailable			

Output Specification

Item		Operating Condition		Min.	Typ.	Max.	Unit
Voltage Accuracy		Full input voltage Range, Any load	Vo	-	-	±3.0	%
Line Regulation		Nominal Load	Vo	-	-	±0.5	%
Load Regulation		Nominal input Voltage 20%~100% load	Vo	-	-	±3.0	%
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%		-5.0	-	+5.0	%
	Recovery time	50%~75%~50%		-5.0	-	+5.0	mS
Output Overshooting		Full input voltage range		≤10%Vo			%
Short Circuit Protection				Continuous, Self-recovery			Hiccup
Drift Coefficient		-		-	±0.03%	-	%/°C
Over Current Protection		Input 220VAC		≥120% Io Self-recovery			Hiccup
Over Voltage Protection		Output 5VDC		≤7.5			VDC
		Output 12V/12.5V DC		≤18			
		Output 15VDC		≤20			
		Output 24VDC		≤30			

General Specifications

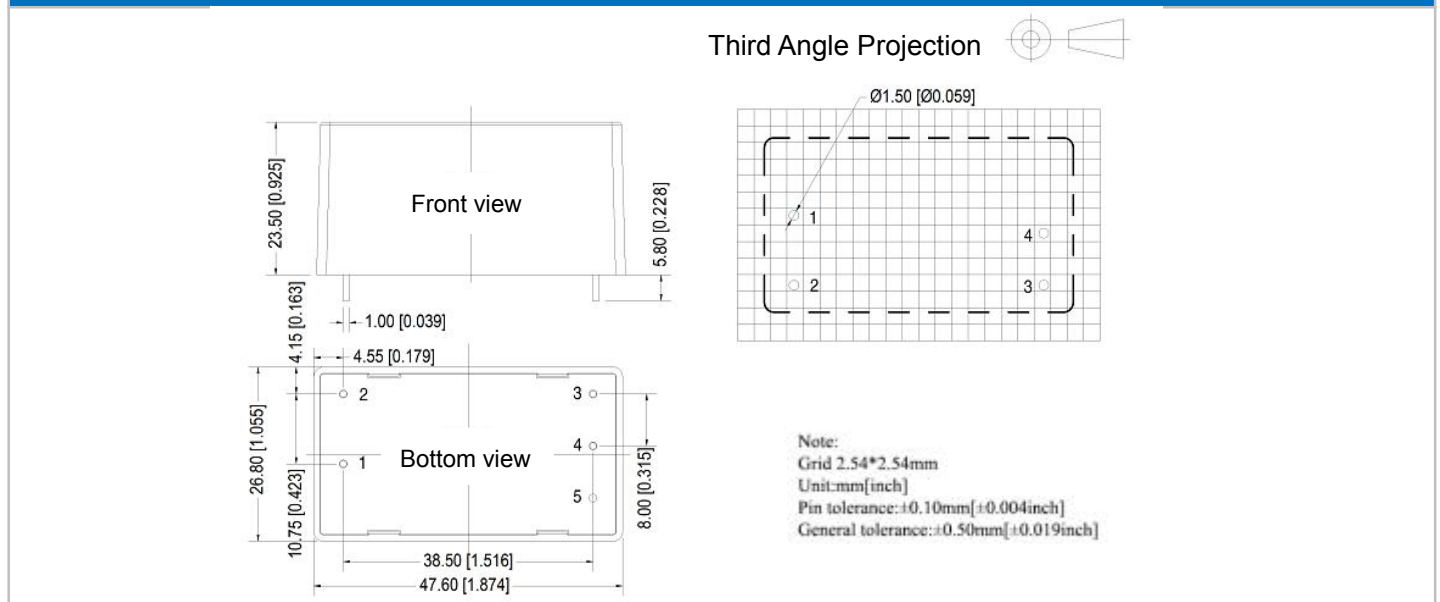
Item	Operating Condition		Min.	Typ.	Max.	Unit
Switching Frequency	-		61	65	73	KHz
Operating Temperature	-		-40	-	+85	°C
	Should be used based on Temperature Derating Curve, please refer to the Product					

		Characteristic Curve in back of datasheet.				
Storage Temperature		-	-40	-	+90	
Soldering Temperature		Wave-soldering	260±4°C, timing 5-10S			
		Manual-soldering	360±8°C, 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
Vibration		-	10-55Hz, 10G, 30Min, along X,Y,Z			
MTBF		-	MIL-HDBK-217F@25°C > 300,000H			

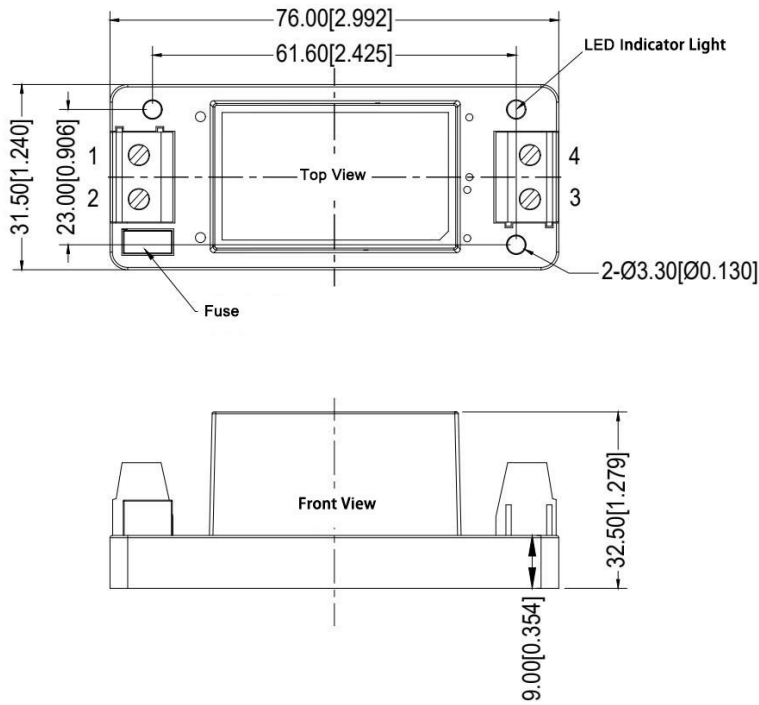
EMC Characteristics

EMI	CE	CISPR22/EN55022	CLASS B (Recommended Circuit 1)		
	RE	CISPR22/EN55022	CLASS B (Recommended Circuit 1)		
EMC	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	
			±4KV (Recommended Circuit 1)	Perf.Criteria A	
	Surge	IEC/EN61000-4-5	line to line ±1KV	Perf.Criteria B	
			line to line ±2KV / line to ground ±4KV (Recommended Circuit 1)	Perf.Criteria A	
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf.Criteria A	
	PFMF	IEC/EN61000-4-8	10A/m	Perf.Criteria A	
Voltage dips and interruptions	IEC/EN61000-4-11	0%-70%	Perf.Criteria B		

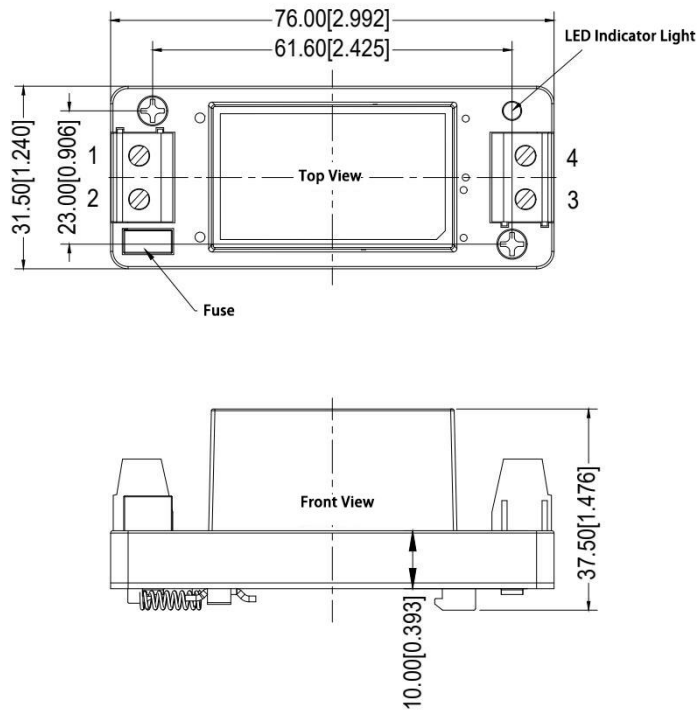
Packing Dimension



Dimension(-T)



Dimension(-TS)



Packing Code	L x W x H	
-	47.60 x 26.8 x 23.50 mm	1.874 x 1.055 x 0.925 inch
-T	76.00 x 31.50 x 32.50 mm	2.992 x 1.240 x 1.279 inch
-TS	76.00 x 31.50 x 37.50 mm	2.992 x 1.240 x 1.476 inch

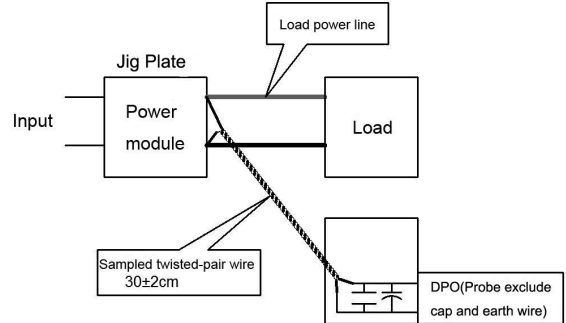
Pin Definition

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

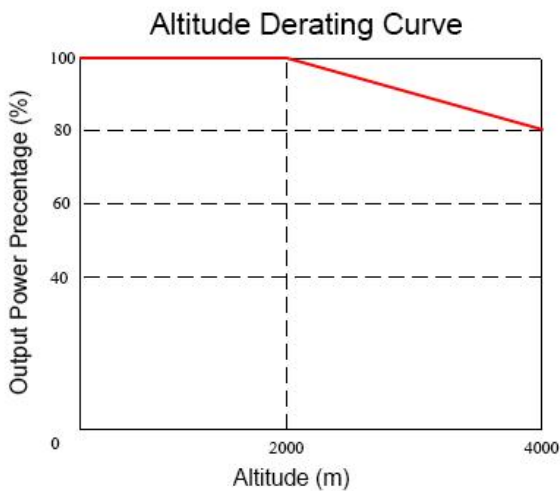
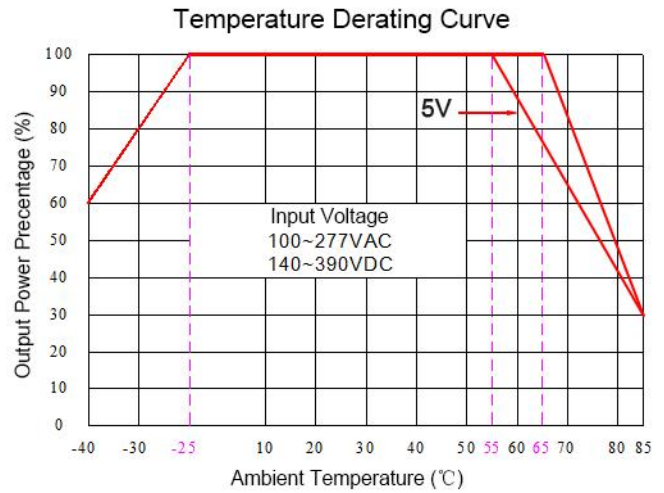
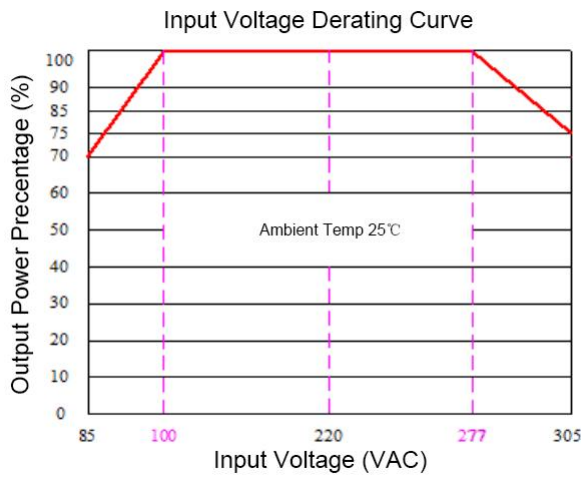
Ripple & Noise Test: (Twisted Pair Method 20MHZ bandwidth)

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

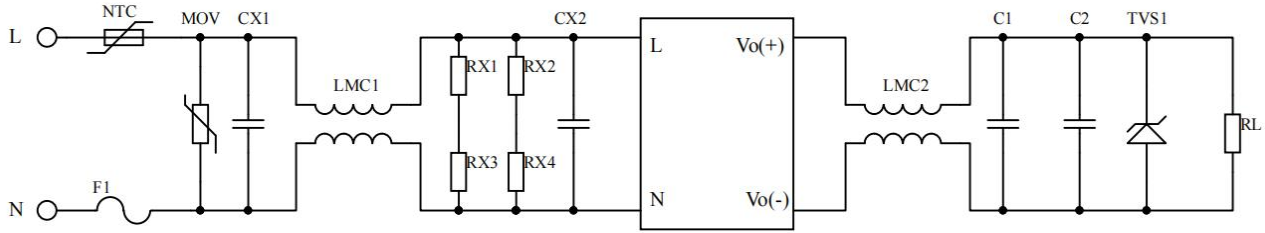


Note1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 85~100VAC/ 277~305VAC/ 120~140VDC/ 390~430VDC.

Note2: Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

Application Design Referenced

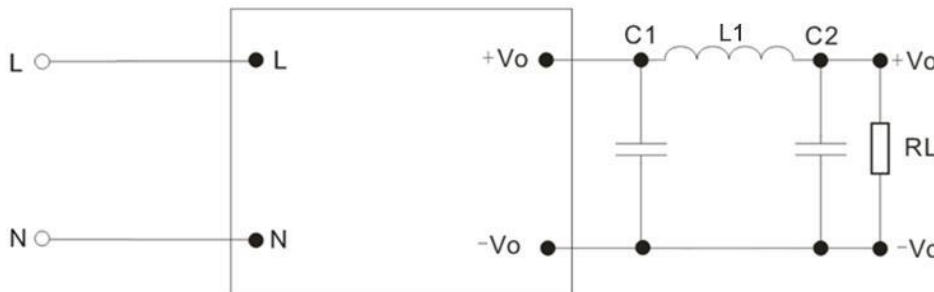
EMC Solution and Recommend Circuit



Recommended Circuit 1

- Note:
- 1) FUSE is a fuse, and it is recommended to use a 2A~250VAC slow-break, square type;
 - 2) MOV is a varistor, and the recommended model is 14D561K;
 - 3) NTC is a thermistor, and the recommended model is 10D-11, which is used to protect the module from damage during lightning surges;
 - 4) LMC1, LCM2 are common-mode inductors, and the recommended inductance of LCM1 is 30mH, and the recommended inductance of LCM2 is 40uH;
 - 5) CX1 is an X capacitor, and the recommended model is 0.22uF/275Vac; CX2 is an X capacitor, and the recommended model is 0.1uF/275VAC;
 - 6) RX1, RX2, RX3, RX4 are chip resistors, and the recommended model is 1206, 1MΩ;
 - 7) C1 selects a high-frequency low-impedance electrolytic capacitor with a capacitance value smaller than the capacitive load, and the withstand voltage value is more than 1.5 times the output voltage;
 - 8) C2 is a 0.1uF ceramic chip capacitor with a withstand voltage of more than 1.5 times the output voltage;
 - 9) TVS1 is a TVS tube; 5V output is recommended to use: SMBJ7.0A, 9V output is recommended to use: SMBJ12.0A, 12V output is recommended to use: SMBJ20A, 15V output is recommended to use: SMBJ20.0A, 24V output is recommended to use: SMBJ30.0A, 48V output is recommended to use: SMBJ64A.

FA15-220S05G2N4 External Circuit to Lower Ripple



Recommended Circuit 2

- Note:
1. C1 and C2 are electrolytic capacitors, of which C1 is 330uF/10V and C2 is 220uF/10V;
 2. L1 is a rod-type inductor with an inductance of 2.2uH and a wire diameter of more than 0.7mm.

Note:

1. The product should be used within the specification range, otherwise it will cause permanent damage to the product;
2. If the product works below the minimum required load, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
3. If the product works beyond the product load range, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
4. Unless otherwise specified, the above data are measured at $T_a=25^{\circ}\text{C}$, humidity<75%, input nominal voltage and output rated load (pure resistance load);
5. All the above index test methods are based on our company's standards;
6. The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard model products will exceed the above requirements. For specific circumstances, please contact our technical personnel directly;
7. Our company can provide product customization;
8. Product specifications are subject to change without prior notice. Please pay attention to the latest manual published on our official website.

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