

Typical Features

- ◆ Wide input voltage range 85-265Vac/120-380Vdc
- ◆ Efficiency (Typical 84%)
- ◆ Operating Temperature: -40℃~105℃
- ◆ Switching Frequency: 50-60KHz
- ◆ Over current, short circuit, over voltage, under voltage, over
- ◆ Isolated voltage 3750Vac
- ◆ PCB mounting
- ◆ Plastic case, flame class UL94 V-0
- ◆ Compliance with IEC/EN62368/UL62368
- ◆ With CE Certificate & Conform to RoHS regulation

CE
EN62368-1

RoHS

Application Field

FA6-220SXXD2 Series----- a compact size and high efficiency module converter provided by Aipu with CE certificated. This series products have the advantages of universal input voltage range (both DC & AC input available), low ripple, low temperature rise, low power consumption, high reliability, safety isolated and good EMC performance. They can be widely used in industrial, office and household electrical appliances. The additional circuit for EMC is recommended in this data sheet for the application with higher EMC requirement.

Typical Product List

Certificate	Part No.	Input Voltage Range	Output		Max. Capacitive Load	Ripple& Noise 20MHz	Efficiency@ Full Load/Rated Input (Typical)
			Voltage	Current			
			Vo(V)	Io (m A)	u F	mVp-p	%
CE/RoHS	FA6-220S3V3D2	85-265Vac 120-380Vdc	3.3	1818	2000	80	71
	FA6-220S05D2		5.0	1200	1500	80	75
	FA6-220S09D2		9.0	667	1000	120	78
	FA6-220S12D2		12.0	500	680	120	80
	FA6-220S15D2		15.0	400	470	120	82
	FA6-220S16V5D2		16.5	360	470	120	82
	FA6-220S24D2		24.0	250	300	120	84

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 $\pm 2\%$ of the typical value in this table. Efficiency=Full output power/Input power*100%.

Note 3: The ripple and noise are tested by the twisted pair method (please refer to the following Ripple & Noise test instructions).

Input Specifications

Items	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	220	265	VAC
	DC input	120	310	380	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	100VAC~47Hz	-	149	230	mA

	220VAC~50Hz	-	73	100	
Input Surge Current	110VAC~47Hz	-	10	-	A
	230VAC~50Hz	-	20	-	
No-load Power Consumption	Input 115VAC	-	-	0.30	W
	Input 230VAC	-	-		
Leakage Current	-	0.5mA TYP/250VAC/50Hz			
Recommended External Fuse	-	2A~250Vac time-delay fuse			
Hot Plug	-	Unavailable			
Remote Control Terminal	-	Unavailable			

Output Specifications

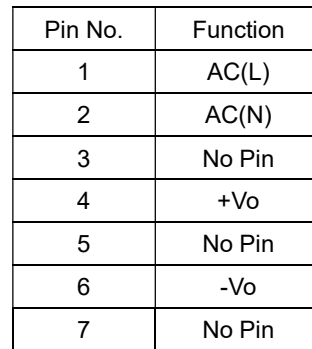
Items		Operating Condition		Min.	Typ.	Max.	Unit
Voltage Accuracy		Any Load, full voltage range	Vo	-	±2.0	±3.0	%
Line Regulation		Rated Load	Vo	-	-	±1.0	%
Load Regulation		Rated input voltage, 20% ~ 100% load	Vo	-	-	±1.5	%
Minimum Load		Single output		0	-	-	%
Turn-on Delay Time		Input 115VAC (Full load)		-	800	-	mS
		Input 220VAC (Full load)		-		-	
Power-off Holde Up Time		Input 115VAC (Full load)		-	30	-	mS
		Input 220VAC (Full load)		-		-	
Dynamic Response	Overshoot Range	25%~50%~25%		-5.0	-	+5.0	%
	Recovery Time	50%~75%~50%		-5.0	-	+5.0	mS
Output Overshoot		Full input voltage range		≤10%Vo			%
Short Circuit Protection				Continuous, self-recovery			Hiccup
Temperature Drift Coefficient		-		-	±0.03	-	%/℃
Over-Current Protection		Input 220VAC		≥120% Io, self-recovery			Hiccup
Ripple & Noise		Full input voltage range		-	50	120	mV
		Note: The Ripple & Noise are tested by the twisted pair method (please refer to the Ripple & Noise test instructions)					

General Specifications

Items		Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency		-	50	55	60	KHz
Operating Temperature		-	-40	-	+105	°C
		Please refer to the temperature derating curve				
Storage Temperature		-	-40	-	+110	°C
Relative Humidity		-	10	-	90	%RH
Isolation Voltage	I/P-O/P	Test 1min, leakage current ≤ 3.0mA	3750	-	-	VAC

EMC Performance

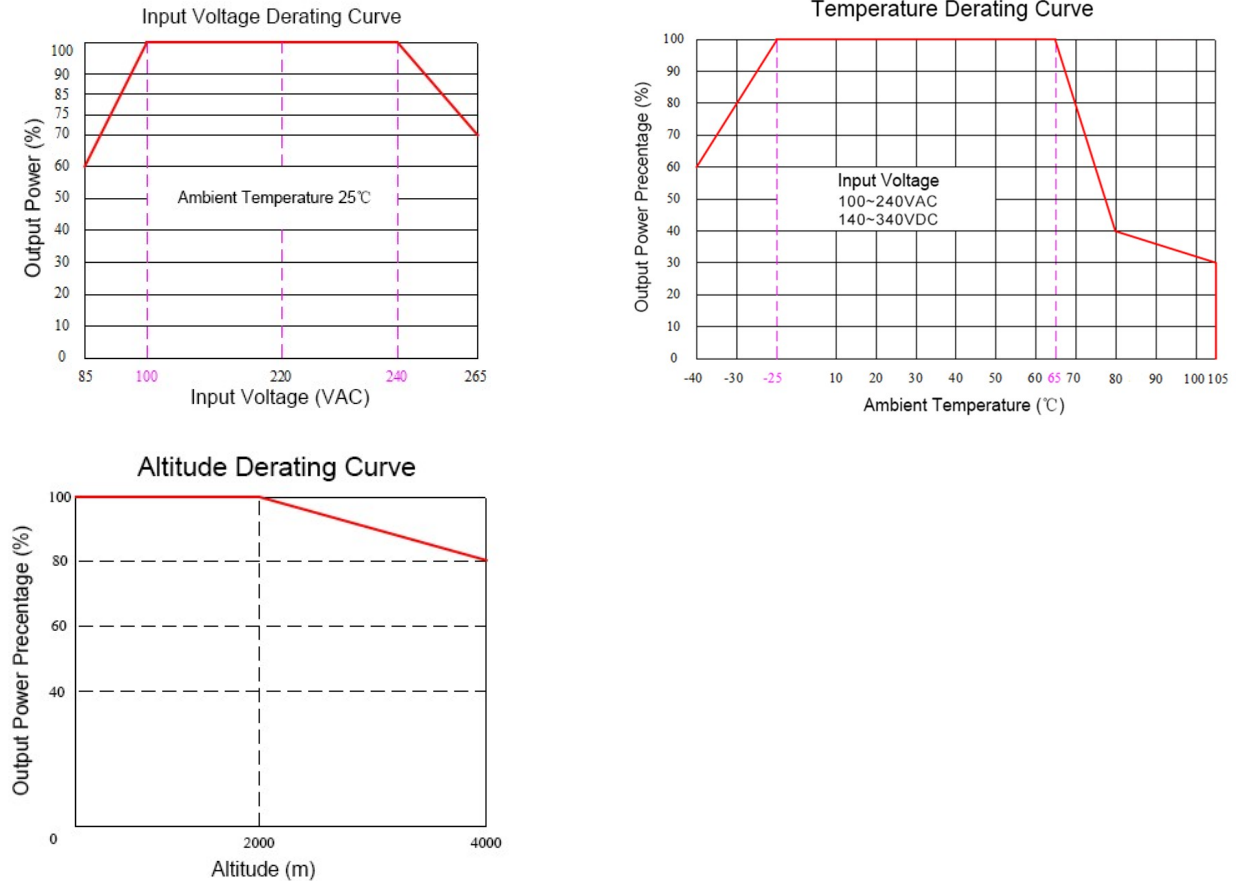
Mechanical Dimensions



Note:
Unit: mm(inch)
Grid: 2.54X2.54(0.10X0.10)
Pin diameter tolerance: ± 0.10 (± 0.004)
General tolerance: ± 0.50 (± 0.019)

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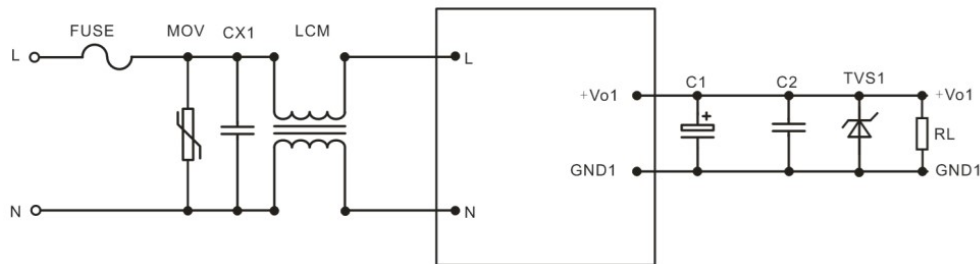
Product Performance Curve



Note:

1. The output power should be derated based on the input voltage derating curve at 85~100VAC/240~265VAC/120~140VDC/ 340~380VDC.
2. This product should operate at a natural air condition, please contact us if it need be used at a closed space.

Recommended EMC typical circuit



Circuit 1

Note:

- 1) 2A~250Vac time-delay fuse is recommended.
- 2) MOV is varistor, 14D561K/4500A is recommended.
- 3) CX1 is X capacitor, X2/0.1uF/275VAC is recommended.
- 4) LCM is a common mode choke, 30mH is required.
- 5) C1 capacitance value should be less than capacitive load, a high frequency low impedance electrolytic capacitor is recommended, it's withstand voltage should be more than 1.5X of output voltage.
- 6) C2 - 0.1uF ceramic SMD capacitor, withstand voltage should be more than 1.5X output voltage.
- 7) TVS1 – SMBJ7.0A is recommended for 5V output, SMBJ12.0A for 9V output, SMBJ20A for 12V & 15V output, SMBJ30.0A for 24V output, SMBJ64A for 48V output.

Application Notice:

1. The products should be used according to the specifications in this manual, otherwise it could be permanently damaged.
2. A fuse should be connected at input.
3. The product performance in this manual cannot be guaranteed if it works at over-load condition.
4. Unless otherwise specified, all values or indicators in this manual are tested at Ta=25℃, humidity<75%RH, rated input voltage and rated load (Pure resistance load).
5. All values or indicators in this manual had been tested based on Aipupower test specifications.
6. The specifications are specially for the parts listed in this manual, 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.

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