AC/DC Converter
FA6-220SXXD2 Series

Typical Features

- ◆ Wide input voltage range 85-305Vac/120-430Vdc
- ◆No-load power consumption:≤0.3W
- ◆ Transfer Efficiency (Typical 84%)
- ◆ Switching Frequency: 50-60KHz
- ◆ Protections: over current, short circuit, over voltage, under voltage, over temperature, Self-furbish
- ◆ Input and Output highly isolated 3750Vac
- ◆ PCB mounting
- ◆ Plastic Case, conform to UL94 V-0
- ◆ Conform to IEC62368/UL62368/EN62368 test standard
- ◆ With CE, RoHS certificate

Application Field

FA6-220SXXD2 Series*-----a compact size, high efficient, conform to CE regulation power converter offered by Aipu. It features universal input voltage range, taking both DC and AC input, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, EMdC and Safety specifications meet international EN55032,IEC61000 standards. It widely used in industrial, office and civil applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.*

Typical Product List

Certificate	Model	Input Voltage Range	Output		Max. Capacitive Load	Ripple& Noise 20MHz	Efficiency@ Full Load, Nominal Input Voltage (Typical)
			Voltage	Current			
			Vo1(V)	Io1(m A)	u F	mVp-p	%
CE/RoHS	FA6-220S3V3D2	85V-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 output efficiency is based on full load and burn-in after half an hour.

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

Note 3: Ripple & Noise is tested by twisted pair method, for details please see (Ripple& Noise Test) at back.

Input Specification

Items	Operating Condition	Min.	Typ.	Max.	Notes

Input Voltage Range	AC input	85	220	265	VAC
	DC input	120	310	430	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	115VAC~47Hz	-	149	230	mA
	230VAC~50Hz	-	73.0	100	
Input Inrush Current	110VAC~47Hz	-	10	-	A
	230VAC~50Hz	-	20	-	
Recommended External Input Fuse	-	2A~250Vac slow fusing, block form			
Remote Control Terminal	-	-	Not available	-	-

Output Specification

Voltage Accuracy	Any Load, full voltage range	Vo1	±3.0%
Line Regulation	Nominal Load, full voltage range	Vo1	±1.0%
Load Regulation	20% ~ 100% nominal load	Vo1	±1.5%
Ripple & Noise	20MHz BM full load		
	Vo≤5.0V, ≤80mVp-p	Other ≤120mVp-p	/
	Ripple & Noise tested under twisted-pair method (See Ripple& Noise Test in the back)		
Turn-on Delay Time	Nominal input voltage	Typical	800mS
Output Power-off Holding Time			30mS
Output Short Circuit Protection	Self-recovery	Output Switch-off	Hiccup
Output Over Load Protection	Input 85~265VAC	≥120% Po	Hiccup
Temperature Drift Coefficient	-	±0.03	%/℃

General Specification

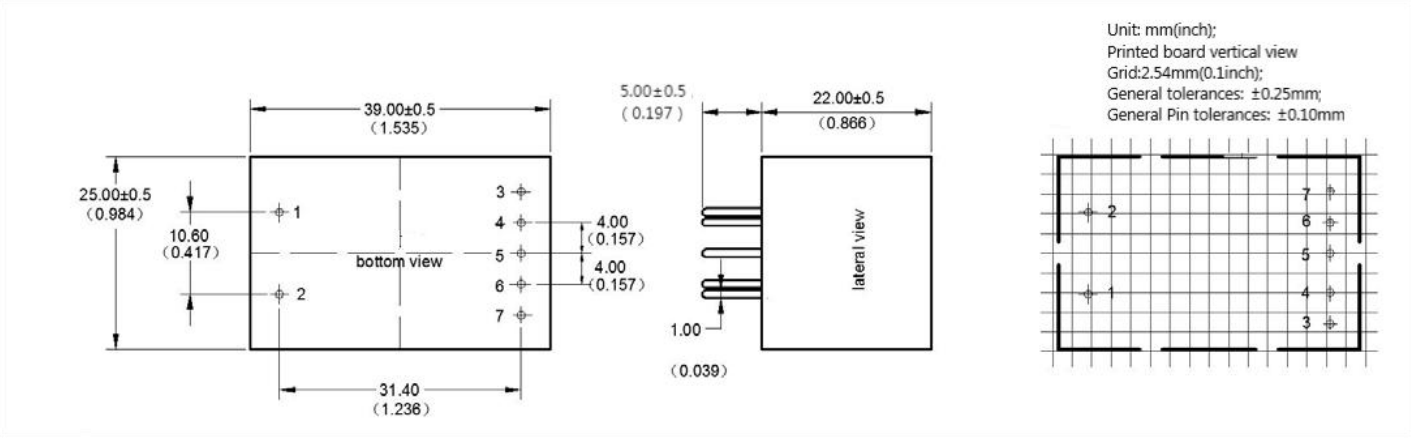
Switching Frequency	50KHz	55KHz typical	60KHz
Operating Temperature	-	Free air convention	-25℃~ +75℃
Storage Temperature	-	-	-40℃ ~ +105℃
Relative Humidity	-	-	10%~90%
Isolation Voltage/Insulation resistance	Input to Output 3750Vac ≤ 3.0mA/1min; Input and Output≥100MΩ(test voltage as DC 500V)		
Safety Standard	-	EN55032, EN61000	
Safety Certificate	-	CE	
Vibration	10-55HZ,10G,30Min, along X,Y,Z		
MTBF	2X10 5 Hrs		
Class of Case Material	UL94 V-0		

EMC Electromagnetic Compatibility

EMC	EMI	CE	CISPR22/EN55032/EN55024	CLASS B (See Photo 1 for recommended circuit)

		RE	CISPR22/EN55032/EN55024 CLASS B (See Photo 1 for recommended circuit)
	EMS	RS	IEC/EN61000-4-3 10V/m Perf.Criteria B (See Photo 1 for recommended circuit)
		CS	IEC/EN61000-4-6 3Vr.m.s Perf.Criteria B(See Photo 1 for recommended circuit)
		ESD	IEC/EN61000-4-2 Contact ±4KV Air ±8KV (See Photo 1 for recommended circuit)
		Surge	IEC/EN61000-4-5 ±1KV Perf.Criteria B(See Photo 1 for recommended circuit)
		EFT	IEC/EN61000-4-4 ±2KV Perf.Criteria B(See Photo 1 for recommended circuit)
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%~70% Perf.Criteria B

Dimension



Packing Code	L x W x H	
D2	39.0X25.0 X22.0 mm	1.535 X0.984X0.866inch

Pin Definition

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

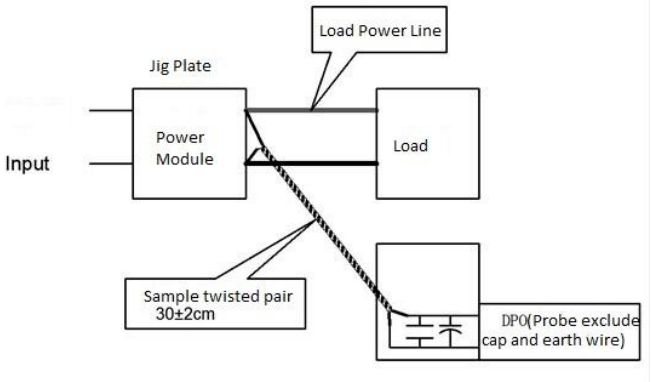
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

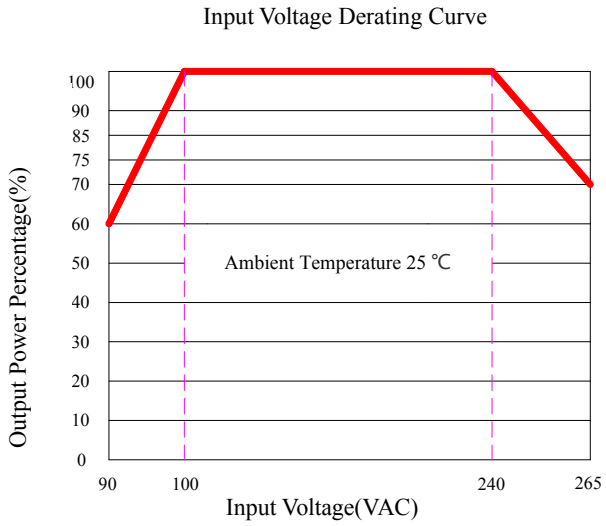
Test Method:

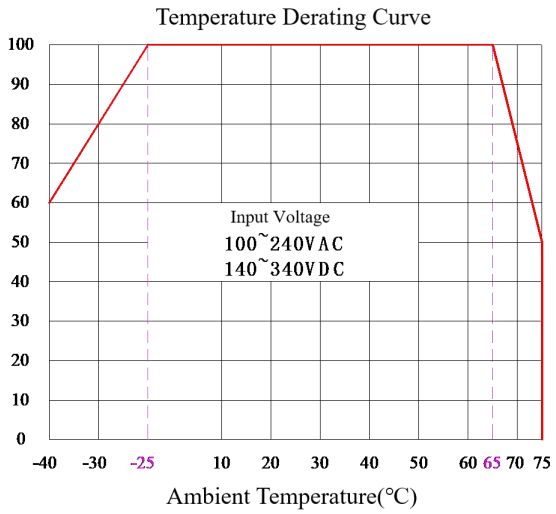
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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



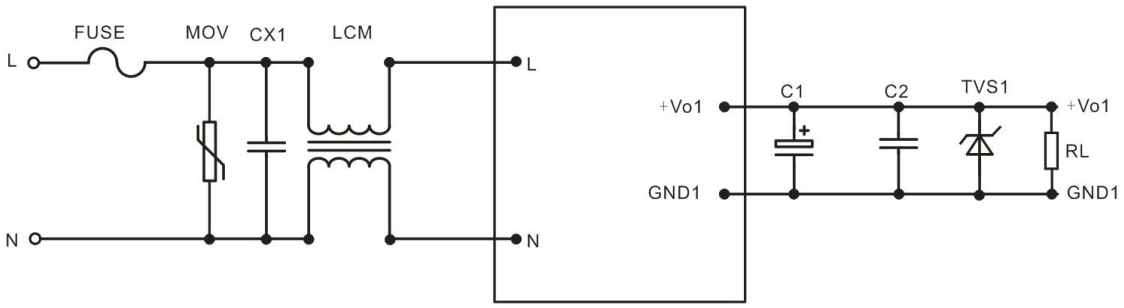


Note:

1: Input voltage should be derated based on input voltage derating curve when it is 85~100VAC/240~265VAC/120~140VDC/ 340~380VDC.

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

Typical EMC Application Circuit（recommended parameters）



Circuit1

Note:

1) FUSE, suggest 2A~250Vac slow fusing, block form;
2) MOV is voltage dependent resistor, suggest model 14D561K;
3) CX1 is X capacitor, suggest model 0.1uF/275Vac;
4) LCM is common mode inductor, suggest value 30mH;
5) C1 choose high frequency low impedance electrolytic capacitor, the capacitance value less than capacitive load. Withstand voltage is 1.5 times more than output voltage;
6) C2 choose 0.1uF ceramic chip capacitor, withstand voltage is 1.5 times more than output voltage;
7) TVS1 is TVS tube; 5V output suggest to use: SMBJ7.0A, 9V output suggest to use: SMBJ12.0A, 12V output suggest to use:SMBJ20A, 15V output suggest to use: SMBJ20.0A, 24V output suggest to use:SMBJ30.0A, 48V output suggest to use:SMBJ64A.

Note:

1. The product should be used under the specification range, otherwise it will cause permanent damage to it.
2. Product's input terminal should connect to fuse;
3. If the product worked beyond the load range, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
4. Unless otherwise specified, data in this datasheet should be tested under conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated load(pure resistance load);
5. All index testing methods in this datasheet are based on our Company's corporate standards
6. 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, and please directly contact our technician for specific information;
7. We can provide customized product service;
8. The product specification may be changed at any time without prior notice.

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