AC/DC Converter
FA6-220SXXD2 Series

Typical Features

- ◆ Wide input voltage range 85-265Vac/120-380Vdc
- ◆ Efficiency (Typical 84%)
- ◆ Switching Frequency: 50-60KHz
- ◆ Over current, short circuit, over voltage, under voltage, over temperature protections, Self-recovery
- ◆ Isolated voltage 3750Vac
- ◆ PCB mounting
- ◆ Plastic Case flame class UL94 V-0
- ◆ Compliant with IEC/EN62368/UL62368
- ◆ With CE Certificate & Conform to RoHS regulation

Application Field

FA6-220SXXD2 Series *----- a compact size and high efficiency module convertor design by Aipu with CE certificated. It present multi-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. It widely used in industrial, office and household electrical appliances. Additional circuit for EMC is recommended in this data sheet for the application with higher EMC requirement.*

Typical Product List

Certificate	Model	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	85V-265Vac 120V-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 ±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.

Input Specifications

Items	Operating Condition	Min.	Typ.	Max.	Notes
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	-	73.0	100	
Input Inrush Current	110VAC~47Hz	-	10	-	A
	230VAC~50Hz	-	20	-	
Recommended Externa Fuse	-	2A~250Vac time-delay fuse			
Remote Control Terminal	-	-	Unavailable	-	-

Output Specifications

Voltage Accuracy	Any Load, full voltage range	Vo	±3.0%
Line Regulation	Nominal Load, full voltage range	Vo	±1.0%
Load Regulation	20% ~ 100% nominal load	Vo	±1.5%
Ripple & Noise	20MHz Bandwidth/full load		
	Vo≤5.0V, ≤80mVp-p	Other ≤120mVp-p	/
	The ripple and noise are tested by the twisted pair method.		
Turn-on Delay	Nominal input voltage	Typical	800mS
Power-off Holde Up Time			30mS
Short Circuit Protection	Self-recovery	Output Switch-off	Hiccup
Over-Load Protection	Input 85~265VAC	≥120% Io	Hiccup
Temperature Drift Coefficient	-	±0.03	%/℃

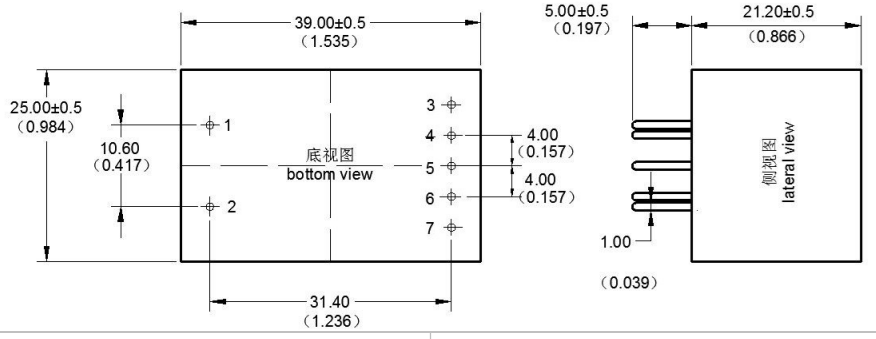
General Specifications

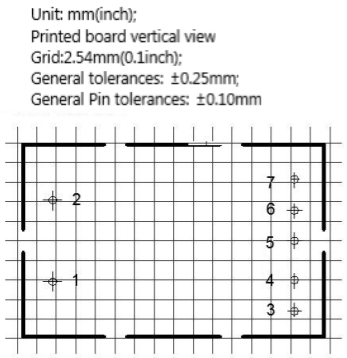
Switching Frequency	50KHz	55KHz typical	60KHz
Operating Temperature	-	Nature air	-40℃ ~ +105℃
Storage Temperature	-	-	-40℃ ~ +110℃
Relative Humidity	-	-	10%~90%
Isolation Voltage	Input to Output, 3750Vac /1min, leakage current ⩽ 3.0mA		
Insulation resistance	Input and Output, ≥100MΩ @DC 500V		
Safety Standard	-	IEC/EN62368/UL62368	
Safety Certificate	-	CE	
Vibration	10-55HZ,10G, 30Min, along X,Y,Z		
MTBF	≥2X10^5 Hrs (MIL-HDBK-217F@ 25℃)		
Flame Class of Case	UL94 V-0		

EMC Performance

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

Mechanical Dimensions



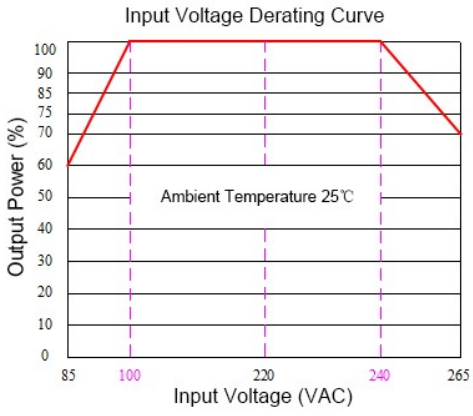


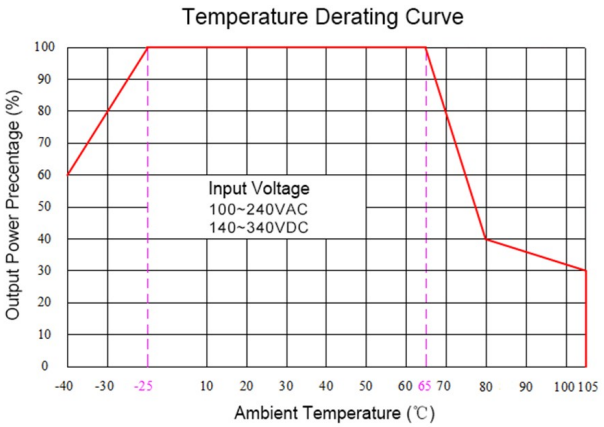
Packing Code	L x W x H	
D2	39.0 X 25.0 X 21.2 mm	1.535 X 0.984 X 0.835 inch

Pin Definition

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

Product Performance Curve

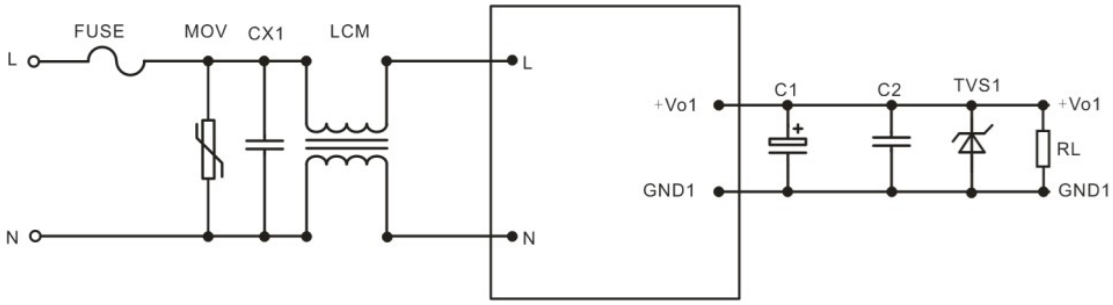




Note:

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 circuit for typical application



Circuit 1

Note 1:

1) 2A~250Vac time-delay fuse is recommended.
2) MOV - 14D561K/4500A
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, its 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 output, SMBJ20.0A for 15V output, SMBJ30.0A for 24V output, SMBJ64A for 48V output.

Note 2:

1. The products should be used according to the specifications in this manual, otherwise it could be permanently damaged.
2. A fuse should be used at input.
3. The product performances 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, nominal 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 requirement.
7. Aipupower can provide customization service.

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