

Typical Feature

- ◆ Wide input voltage range: 85-265VAC/120-380VDC
- ◆ Transfer efficiency (typ. 80%)
- ◆ Switching frequency: jitter frequency in 100KHz
- ◆ Protection: over current, short circuit, over-voltage, under-voltage, over temperature, self-recovery
- ◆ Input-output highly isolated 3000Vac
- ◆ PCB Mounting
- ◆ Metal-case package



Application field

FA8-220SXXD3 Series ----- a compact size, high efficient, meet CE standard power modules offered by Aipu. It features universal input voltage range, DC and AC dual input, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, EMC 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

Certification	Type	Power (W)	Output		Max capacitive load	Ripple and noise 20MHz	Efficiency@ full load, nominal input voltage (typical value)%
			Voltage	Current			
			Vo1(V)	Io1(mA)			
/	FA8-220S3V3D3	85Vac~265Vac 120Vdc~380Vdc	3.3	2000	1000	120	80
	FA8-220S3V6D3		3.6	1800	1000	120	80
	FA8-220S3V8D3		3.8	1700	1000	120	80

Note 1: The test method for ripple and noise adopts the twisted pair test method. For specific test methods and combinations, please refer to the following (Ripple & Noise Test Instructions).

Note 2: The typical value of output efficiency is based on the product being aged at full load for half an hour.

Note 3: The full load efficiency (% , TYP) in the table fluctuates by $\pm 2\%$. The full load efficiency is the total output power divided by the input power of the module.

Note 4: Due to limited space, the above is only a partial product list. If you need products outside the list, please contact our sales department.

Input Specification

Items	Operating Condition	Min	Typical	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	/	200	/	mA
	220VAC~50Hz	/	100	/	

Input inrush current	110VAC~47Hz	/	10	/	A
	230VAC~50Hz	/	20	/	
Recommended External Input Fuse	/		2A~250Vac slow fusing, block form		

Output Specification

Items	Operating Condition		Min	Typical	Max	Unit
Voltage Accuracy	Any load, full voltage range	Vo1	-	±2.0	±3.0	%
Source Effect	Nominal load, full voltage range	Vo1	-	-	±0.5	
Load Effect	20% ~ 100% rated load	Vo1	-	-	±1.0	
Turn-on Delay Time	Input 220Vac		-	2000	-	mS
Output Power-off Holding Time	Input 220Vac		-	10	-	
Output Short-circuit Protection	Full voltage range		Continuous, self-recovery			Hiccup
Output Over-load Protection	Input 220Vac		≥120% Io, self-recovery			
Temperature Drift Coefficient	-		-	±0.03	-	%/°C

General Specification

Items	Operating Condition		Min	Typical	Max	Unit
Switching frequency	-		80	100	125	KHz
Working temperature	-		-25	-	105	°C
Storage temperature	-		-40	-	110	
Relative humidity	-		10	-	90	%RH
Isolation voltage	I/P-O/P	Test for 1 min, leakage current ≤ 3.0mA	3000	-	-	
Insulation resistance	I/P-O/P	@ DC 500V	100	-	-	
Safety standard	-		EN60950、IEC60950			
Vibration	-		10-55HZ,10G,30Min,along X,Y,Z			
MTBF	-		MIL-HDBK-217F 25°C > 300,000H			
Case class	-		Metal shell			

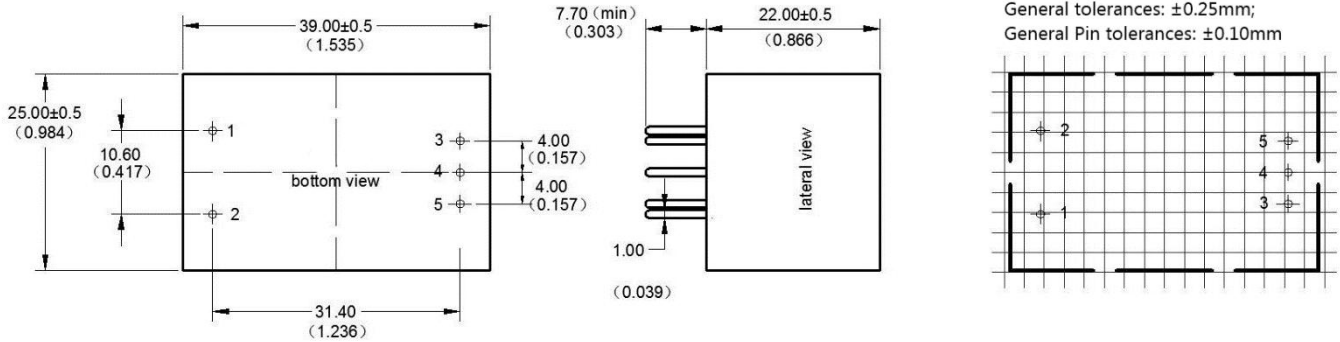
EMC Electromagnetic Compatibility

EMC	EMI	CE	CISPR22/EN55032/EN55024	CLASS B (Recommend Circuit 1)			
		RE	CISPR22/EN55032/ EN55024	CLASS B (Recommend Circuit 1)			
EMS		RS	IEC/EN61000-4-3	10V/m	Perf.Criteria B	(Recommend Circuit 1)	
		CS	IEC/EN61000-4-6	3Vr.m.s	Perf.Criteria B	(Recommend Circuit 1)	
		ESD	IEC/EN61000-4-2	Contact ±4KV	Air ±8KV	(Recommend Circuit 1)	
		Surge	IEC/EN61000-4-5	±1KV	Perf.Criteria B	(Recommend Circuit 1)	
		EFT	IEC/EN61000-4-4	±2KV	Perf.Criteria B	(Recommend Circuit 1)	

	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70%	Perf.Criteria B
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Dimension

Unit: mm(inch);
Printed board vertical view
Grid:2.54mm(0.1inch);
General tolerances: ±0.25mm;
General Pin tolerances: ±0.10mm



Packing code	L x W x H	
D3	39.0X25.0X22.0 mm	1.535X 0.984X0.866inch

Pin definition

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

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

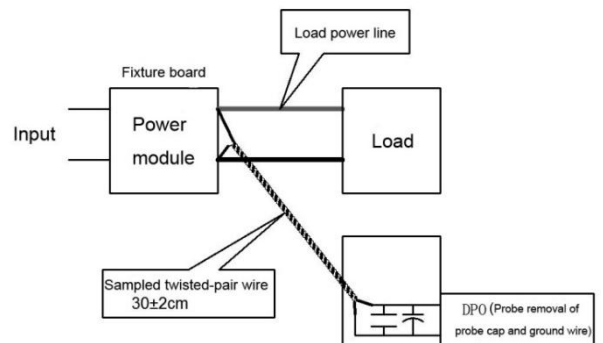
Ripple & noise test: (Twisted-pair method 20MHZ bandwidth)

Test method:

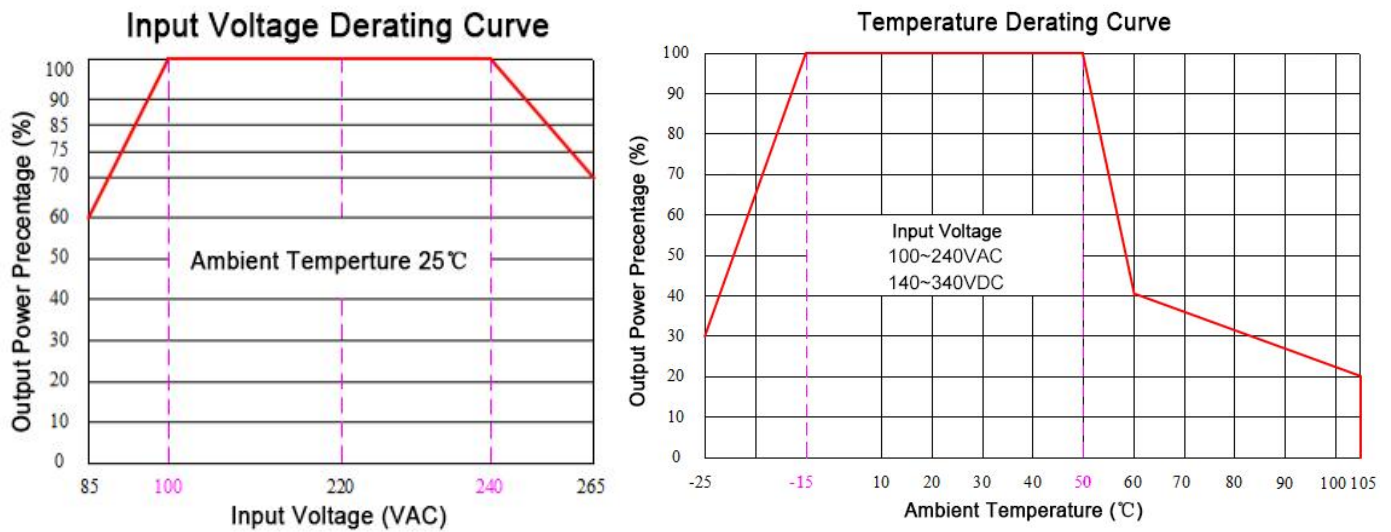
1. The ripple and noise test is to connected the 12#twisted-pair wire, the bandwidth of the oscilloscope is set to 20MHZ, 100M bandwidth probe, the 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitance are parallel to the probe end. The oscilloscope is set to the sample mode.

2. Output ripple noise test diagram:

The input end of the power supply is connected to the input power supply, the power output is connected to the electronic load through the fixture board, and the test is sampled directly from the output port of the power source by 30cm ± 2 cm sampling line. The power line selects the insulated conductor with the corresponding diameter according to the output current.



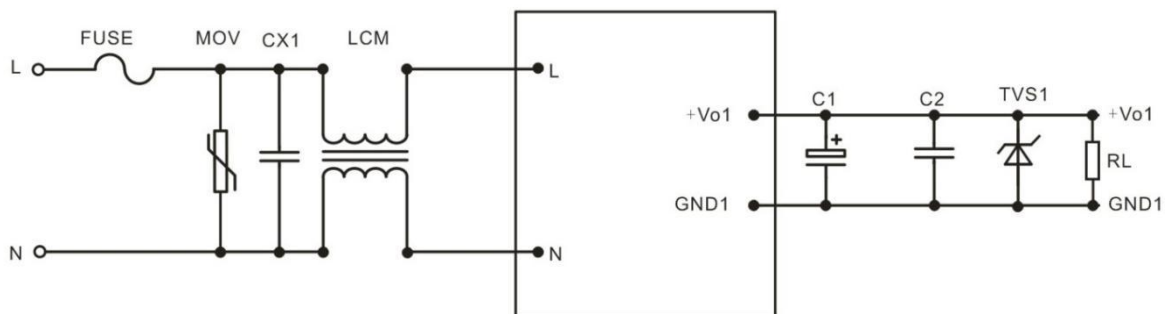
Product Characteristic Curve



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 parameter)



Recommended Circuit 1

Note:

- 1) FUSE is a fuse, and it is recommended to use 2A~250Vac slow-break, square type;
- 2) MOV is a varistor, and the recommended model is 14D561K;
- 3) CX1 is an X capacitor, and the recommended model is 0.1uF/275Vac;
- 4) LCM is a common-mode inductor, and the recommended value is 30mH;
- 5) C1 selects a high-frequency low-impedance electrolytic capacitor with a capacitance value smaller than the capacitance of the capacitive load, and the withstand voltage value is more than 1.5 times the output voltage;
- 6) C2 selects a 0.1uF ceramic chip capacitor, and the withstand voltage value is more than 1.5 times the output voltage;
- 7) 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, Recommended for 48V output: 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 $T_a=25^{\circ}\text{C}$, 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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