

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 | Input voltage range (Vac) | 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. Due to space limitations, above is only a part of our product list, please contact our sales team for more items.
2. “**” are models being developing.

Technical Parameters

Test Condition: Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25°C.

Input Specifications:

| Items | Operating Condition | Min | Typical | Max | Note |
|-----------------------|---------------------|-----|---------|-----|------|
| 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 Specifications

| | | | |
|---------------------------------|---|-------------------|--------|
| Voltage accuracy | Any load, full voltage range | Vo1 | ±2.0% |
| Line Regulation | Nominal load, full voltage range | Vo1 | ±0.5% |
| Load Regulation | 20% ~ 100% rated load | Vo1 | ±1.0% |
| Ripple& Noise | 20MHz BM full load (Nominal voltage Input) | ≤120mVp-p | / |
| | The ripple and noise should be tested under the condition of twisted- pair test. (See the ripple and noise test at back) | | |
| Turn-on Delay Time | Input nominal voltage | Typical value | 2000mS |
| Output Power-off Holding Time | | | 10mS |
| Output short-circuit protection | Self-recovery | Output Switch-off | Hiccup |
| Output over load protection | ≥120% Po (Nominal voltage Input) | Output Switch-off | Hiccup |
| Temperature drift coefficient | / | ±0.03 | %/°C |

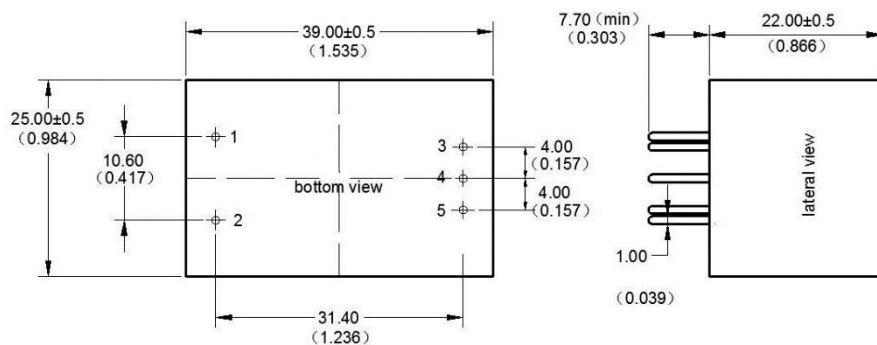
General Specifications

| | | | |
|---|--|---------------------|---|
| Switching frequency | 80KHZ | 100KHz Typical | 125KHZ |
| Working temperature | At low temperature, 1.6A is considered full load. | Free air convection | (Curve changed to -15°C) -25°C ~ +65°C |
| Storage temperature | / | / | -40°C ~ +105°C |
| Relative humidity | / | / | 10%~90% |
| Isolation voltage/ insulation resistance | Input and output 3000Vac ≤ 3.0mA/1min; Input and output≥100MΩ(Test voltage is DC 500V) | | |
| Safety Standard | / | / | / |
| Safety Certificate | / | / | / |

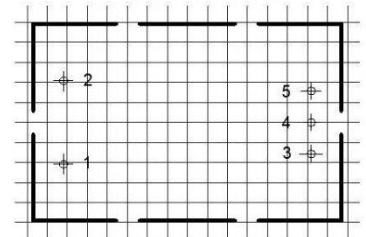
EMC Electromagnetic Compatibility

| | | | |
|------------------------|---|------------------------------|---|
| EMC | EMI | CE | CISPR22/EN55032/EN55024 CLASS B (recommend circuit see attached photo 1) |
| | | RE | CISPR22/EN55032/ EN55024 CLASS B (recommend circuit see attached photo 1) |
| | EMS | RS | IEC/EN61000-4-3 10V/m Perf.Criteria B (recommend circuit see attached photo 1) |
| | | CS | IEC/EN61000-4-6 3Vr.m.s Perf.Criteria B (recommend circuit see attached photo 1) |
| | | ESD | IEC/EN61000-4-2 Contact ±4KV Air ±8KV (recommend circuit see attached photo 1) |
| | | Surge | IEC/EN61000-4-5 ±1KV Perf.Criteria B (recommend circuit see attached photo 1) |
| | | EFT | IEC/EN61000-4-4 ±2KV Perf.Criteria B (recommend circuit see attached photo 1) |
| | Voltage dips, short interruptions and voltage variations immunity | | IEC/EN61000-4-11 0%~70% Perf.Criteria B |
| Vibration | | 10-55HZ,10G,30Min,alongX,Y,Z | |
| MTBF | | 2X10 ⁵ Hrs | |
| Grade of case material | | Metal-case | |

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.

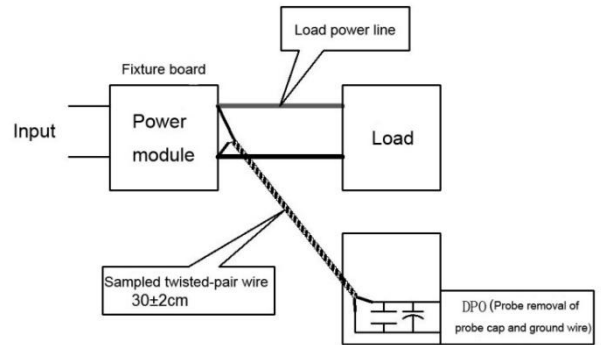
Ripple & noise test: (Twisted-pair method 20MHZ bandwidth)

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.

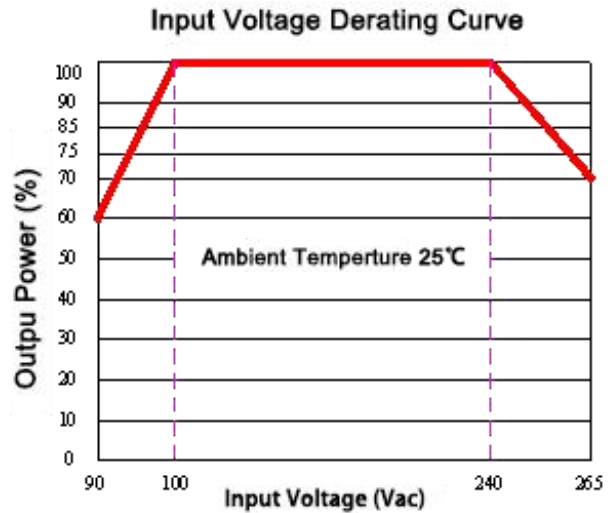
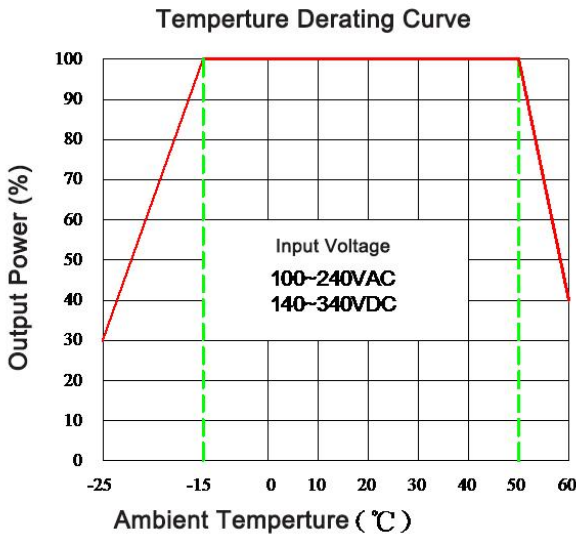
2. Output ripple noise test diagram:

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.



Working Temperature Derating Curve

Input Voltage Derating 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)

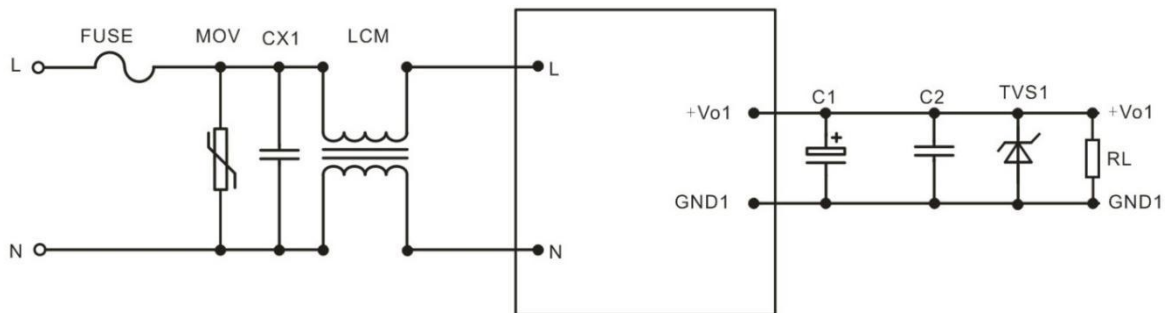


Photo 1

Note:

1. Fuse, recommend 2A~250Vac slow fusing, block form;
2. MOV is voltage dependent resistor, recommended model is 14D561k;
3. CX1 is X capacitor, the recommended model is 0.1uF/275Vac;
4. LCM is common mode inductor, the recommended model is 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 recommended: SMBJ7.0A, 9V output recommended:SMBJ12.0A, 12V output recommended: SMBJ20A, 15V output recommended:SMBJ20.0A, 24V output recommended:SMBJ30.0A, 48V output recommended: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.