# AOF300-2B-xxV2 Series

## DESCRIPTIONS

300W, AC/DC Open Frame Power Supply

RoHS

3 Years Warranty

## FEATURES

- Input voltage range: 80 - 264VAC/110 - 370VDC
- Compact size: 4" × 2" × 1"
- Operating ambient temperature range: -40℃ to +85℃
- Active PFC
- High I/O isolation test voltage up to 4000VAC
- Operating altitude up to 5000m
- Very low leakage current ＜0.1mA
- Stand-by power consumption 0.5W Typ.
- 150% peak load output for 3S
- The base plate with conformal coating
- Output short circuit, over-current, over-voltage, over-temperature protection
- Design to meet medical approvals and be suitable for BF type applications
- 3 years warranty
- Installing in system of Safety Class I/II is available
- Safety according to IEC/EN/UL/BS EN62368-1, GB4943.1, IEC/EN60335-1, IEC/EN61558-1, IEC/EN/ES60601-1

## APPLICATIONS

- Industrial control
- LED
- Street light control
- Security
- Telecommunications
- Smart home
- Medical

# AOF300-2B-xxV2 Series

## Selection Guide

| Certification | Part No.* | Cooling method | Output Power* (W) | Nominal Output Voltage and Current (Vo/Io) | Output adj. Range (V) | Instantaneous Power (W) /Duration (S) | Peak Current (A) | Efficiency at 230VAC (%) Typ.* | Max. Capacitive Load (μF) |
|---|---|---|---|---|---|---|---|---|---|
| -- | AOF300-2B-12V2 | Air cooling | 180 | 12V/15A | 11.4-12.6 | 450/3 | 37.5 | 92.5 | 3000 |
| | | 10.98CFM | 300 | 12V/25A | | | | | |
| | AOF300-2B-24V2 | Air cooling | 180 | 24V/7.5A | 22.8-25.2 | | 18.75 | 93 | 1600 |
| | | 10.98CFM | 300 | 24V/12.5A | | | | | |
| | AOF300-2B-48V2 | Air cooling | 182.4 | 48V/3.8A | 45.6-50.4 | | 9.45 | 94 | 1000 |
| | | 10.98CFM | 302.4 | 48V/6.3A | | | | | |

Note: 1.*Under any conditions, the total power of the product should not exceed the rated power. When the output voltage is increased, the total output power cannot exceed the rated output power, when the output voltage is decreased, the output current cannot exceed the rated output current;
2.*When measuring the full load efficiency, the fan should be connected to an external power supply, fan loss is not included in the input power.
3.The product picture is for reference only. For details, please refer to the actual product.

## Specifications

| Product Specifications | Item | Operating Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Input Specifications | Input Voltage Range | Rated input (Certified voltage) | | 100 | -- | 240 | VAC |
| | | AC input | | 80 | -- | 264 | |
| | | DC input | | 110 | -- | 370 | VDC |
| | Input Voltage Frequency | Rated input (Certified voltage) | | -- | 50/60 | -- | Hz |
| | | AC input | | 47 | -- | 63 | |
| | Input Current | Rated input (Certified voltage) | | -- | -- | 3.5 | A |
| | | 115VAC | | -- | -- | 3.5 | |
| | | 230VAC | | -- | -- | 1.8 | |
| | Inrush Current | 115VAC | Cold start | -- | 40 | -- | |
| | | 230VAC | | -- | 80 | -- | |
| | Power Factor | 115VAC | | -- | 0.98 | -- | -- |
| | | 230VAC | | -- | 0.95 | -- | |
| | Start-up Delay Time | 115VAC/230VAC, rated load | | -- | 1000 | -- | ms |
| | Input Fuse | Built-in fuse | | -- | 6.3 | -- | A |
| | Hot Plug | | | Unavailable | | | |
| Output Specifications | Output Voltage Accuracy* | Full load range | | -- | ±3 | -- | % |
| | Line Regulation | Rated load | | -- | ±0.5 | -- | |
| | Load Regulation | 0% - 100% load | | -- | ±1 | -- | |
| | Minimum Load | | | 0 | -- | -- | |
| | Stand-by Power Consumption | | | -- | 0.5 | -- | W |
| | Ripple & Noise* | 20MHz bandwidth | 12V | -- | -- | 120 | mV |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | (peak-peak value) | 24V | -- | -- | 200 | |
| | | | 48V | -- | -- | 250 | |
| | Temperature Coefficient | | | -- | ±0.03 | -- | %/℃ |
| | Hold-up Time | 230VAC, rated load, 25℃ | Air cooling | -- | 16 | -- | ms |
| | | | 10.98CFM | -- | 8 | -- | |
| | Short Circuit Protection | Recovery time <30s after the short circuit disappear. | | Hiccup, continuous, self-recover | | | |
| | Over-current Protection | 230VAC, rated load | Normal temperature, high temperature | ≥105% Io, hiccup, self-recover | | | |
| | | | Low temperature | ≥105% full load after derating, hiccup, self-recover | | | |
| | Over-voltage Protection | 12V | | ≤16VDC (Hiccup, self-recover) | | | |
| | | 24V | | ≤32VDC (Hiccup, self-recover) | | | |
| | | 48V | | ≤60VDC (Hiccup, self-recover) | | | |
| | Over-temperature Protection* | 230VAC, 100% load | Over-temperature protection start | -- | 80 | -- | ℃ |
| | | | Over-temperature protection release | -- | 65 | -- | |
| | Fan power | 12/24/48V | | Provide 12V/0.5A output for the fan, with voltage accuracy of ±15% under the premise that the main output is greater than 20% of the rated load | | | |
| **General Specifications** | Isolation Test | Input - output | Electric strength test for 1min., leakage current <5mA | 4000 | -- | -- | VAC |
| | | Input - ⏚ | | 2000 | -- | -- | |
| | | Output - ⏚ | | 1500 | -- | -- | |
| | Insulation Resistance | Input - ⏚ | Ambient temperature: 25 ± 5℃<br>Relative humidity: < 95%RH, no condensation<br>Test voltage: 500VDC | 100 | -- | -- | MΩ |
| | | Input - output | | 100 | -- | -- | |
| | | Output - ⏚ | | 100 | -- | -- | |
| | Operating Temperature | | | -40 | -- | +85 | ℃ |
| | Storage Temperature | | | -40 | -- | +85 | |
| | Storage Humidity | No condensation | | 10 | -- | 95 | %RH |
| | Operating Humidity | | | 20 | -- | 90 | |
| | Switching Frequency | PFC | | -- | 65 | -- | KHz |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | DC-DC | | | | -- | 85 | -- | |
| | Power Derating | Operating temperature derating | Air cooling (180W) | -40℃ to -37℃ | | 10 | -- | -- | %/℃ |
| | | | | 115V AC | -37 ℃ to +40℃ | 0 | -- | -- | |
| | | | | | +40 ℃ to +70℃ | 1.11 | -- | -- | |
| | | | | 230V AC | -37 ℃ to +45℃ | 0 | -- | -- | |
| | | | | | +45 ℃ to +70℃ | 1.33 | -- | -- | |
| | | | 10.98CFM(300W) | | -40 ℃ to -35℃ | 10 | -- | -- | |
| | | | | | -35 ℃ to -30℃ | 4 | -- | -- | |
| | | | | | -30 ℃ to +50℃ | 0 | -- | -- | |
| | | | | | +50 ℃ to +85℃ | 2.33 | -- | -- | |
| | | Input voltage derating | 80VAC-115VAC | | | 0.86 | -- | -- | %/VAC |
| | | | 115VAC-264VAC | | | 0 | -- | -- | |
| | | | 110VDC-160VDC | | | 0.6 | -- | -- | %/VDC |
| | | Altitude derating | 2000 - 5000m | | | 5 | -- | -- | %/Km |
| | Leakage Current | 240VAC, 60Hz | Touch current | | | <0.1mA | | | |
| | Safety Class | | | | | CLASS I (with PE and must be connected)/CLASS II (without PE) | | | |
| | MTBF | MIL-HDBK-217F@25℃ | | | | ≥300,000 h | | | |
| | Warranty | Ambient temperature: <50℃ | | | | 3 years | | | |
| **Mechanical Specifications** | Case Material | Open frame | | | | | | | |
| | Dimensions | 101.60mm × 50.80mm × 25.40mm | | | | | | | |
| | Weight | 190g (Typ.) | | | | | | | |
| | Cooling Method* | Air cooling (180W) /10.98CFM (300W) | | | | | | | |

Notes: 1. * Output Voltage Accuracy: including setting error, line regulation, load regulation.
2.* The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor,
3.*Over-temperature protection mode: Intermittent operation, self-rese;

## Environmental Characteristics

| Item | Operating Conditions | Standard |
|---|---|---|
| High and Low Temperature Working | +85℃, -40℃ | GB2423.1, IEC60068-2-1 |
| Sinusoidal Vibration | 10 - 500Hz, 2g, three directions of X, Y, Z axis | GB2423.10, IEC60068-2-6 |
| Low Temperature Storage | -40℃ | GB2423.1, IEC60068-2-1 |
| High Temperature Storage | +85℃ | GB2423.2, IEC60068-2-2 |

| | | |
|---|---|---|
| High Temperature Aging | +50℃ | GB2423.2, IEC60068-2-2 |
| Normal Temperature Aging | +25℃ | GB2423.1, IEC60068-2-1 |
| Temperature Shock | -40℃ to +85℃ | GB2423.22, IEC60068-2-14 |
| Temperature Cycle | -25℃ to +60℃ | GB2423.22, IEC60068-2-14 |
| Hot and Humid | +85℃, 85%RH | GB2423.50, IEC60068-2-67 |
| High Temperature Elevation | +50℃, 54KPa | GB2423.26, IEC60068-2-41 |
| Low Temperature Elevation | -25℃, 54KPa | GB2423.25, IEC60068-2-40 |
| Sinusoidal Vibration Response | 10 - 150Hz, 1g, three directions of X, Y, Z axis | GB/T 11287-2000, IEC60255-21-1 |
| Sinusoidal Vibration Endurance Test | | |
| Sinusoidal Impulse Response | 15g, pulse duration 11ms, three times in each direction of X, Y, Z axis | GB/T 114537-1993, IEC60255-21-2 |
| Sinusoidal Impact Endurance Test | | |
| Packaging Drop | 1m, one corner, three edges and six sides | GB2423.8, IEC68-2-32 |

## Electromagnetic Compatibility (EMC)

| | | | | | |
|---|---|---|---|---|---|
| **Electromagnetic Compatibility (EMC)** | Emissions (EMI) | CE | CISPR32/EN55032 (CLASS I equipment, CLASS B; CLASS II equipment, CLASS A) | | |
| | | RE | CISPR32/EN55032 (CLASS I equipment, CLASS B; CLASS II equipment, CLASS A) | | |
| | | Harmonic current | IEC/EN61000-3-2 CLASS A and CLASS D | | |
| | Immunity (EMS) | ESD | IEC/EN 61000-4-2 Contact ±8KV/Air ±15KV | | perf. Criteria A |
| | | RS | IEC/EN 61000-4-3 10V/m | | perf. Criteria A |
| | | EFT | IEC/EN 61000-4-4 ±4KV | | perf. Criteria A |
| | | Surge | IEC/EN 61000-4-5 ±2KV/±4KV | | perf. Criteria A |
| | | CS | IEC/EN61000-4-6 10 Vr.m.s | | perf. Criteria A |
| | | PFMF | IEC/EN61000-4-8 30A/m | | perf. Criteria A |
| | | Voltage short interruptions | IEC/EN61000-4-11 | 0% of 230Vac, 0Vac, 1 cycle | perf. Criteria B |
| | | | | 40% of 230Vac, 92Vac, 10/12 cycle | perf. Criteria B |
| | | | | 70% of 230Vac, 161Vac, 25/30 cycle | perf. Criteria B |
| | | Voltage variations | IEC/EN61000-4-11 | 0% of 230Vac, 0Vac, 250/300 cycle | perf. Criteria C |

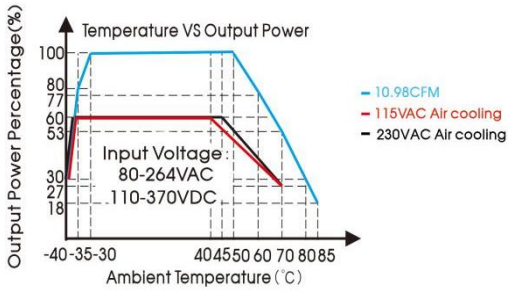
Notes: 1.*The power supply is considerated a component as part of system, all EMC items are tested on a metal plate (L x W x H, 360mm x 360mm x 1mm). Power supply should be combined with final equipment for EMC confirmation;
2.*Category I products with PE, which must be connected, category II products without PE.
3.*perf. Criteria:

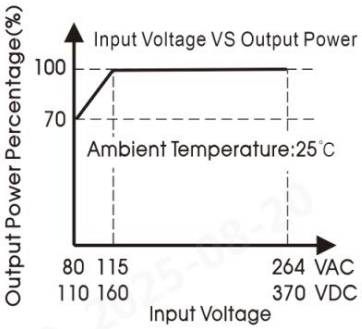
A: The equipment shall continue to operate as intended without operator intervention;

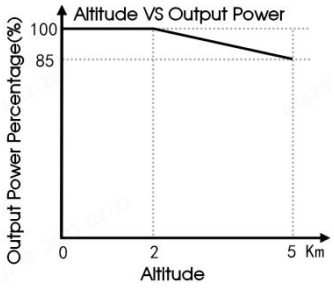
B: After the test, the equipment shall continue to operate as intended without operator intervention;

C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

## Characteristic Curve

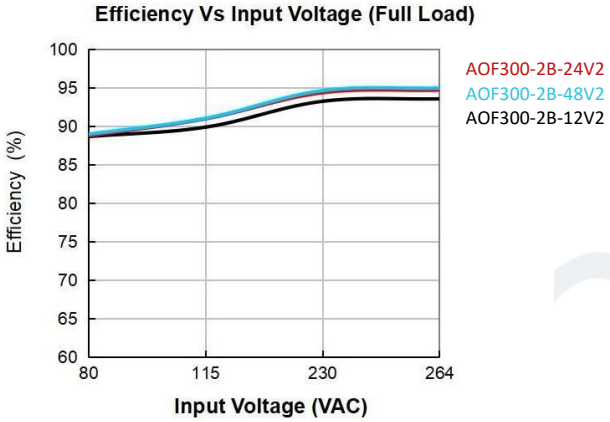


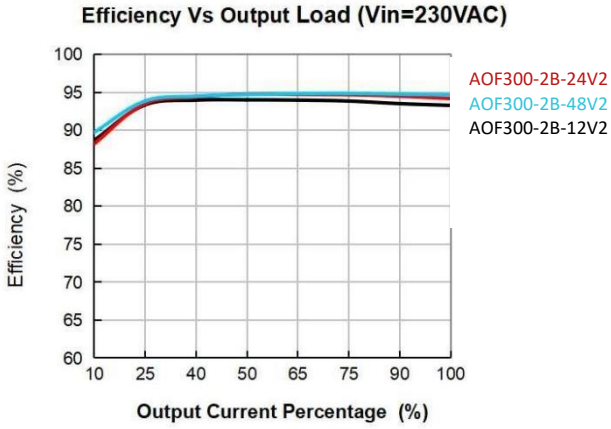




Note: 1.With an AC input voltage between 80 -115VAC and a DC input between 110-160VDC the output power must be derated as per the temperature derating curves.

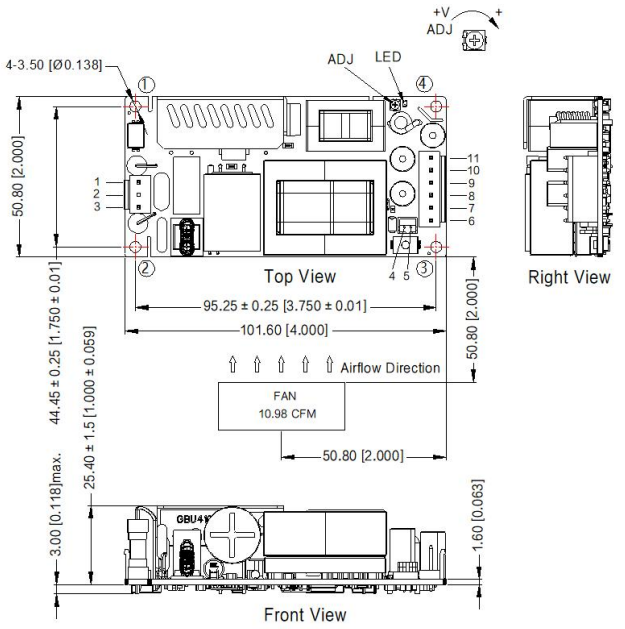
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult FAE.



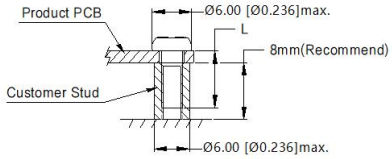
## Dimensions and Recommended

THIRD ANGLE PROJECTION




| Pin-Out | | | |
|---|---|---|---|
| Pin | Mark | Product Connector | Customer Connector |
| 1 | AC(N)/DC− | JST B3P-VH or equivalent | Housing: JST VHR<br>Terminal: JST SVH-21T-P1.1 or equivalent |
| 2 | NC | | |
| 3 | AC(L)/DC+ | | |
| 4 | Fan− | JST B2B-PH-K-S or equivalent | Housing: JST PHR-2<br>Terminal: JST SPH-002T-P0.5S or equivalent |
| 5 | Fan+ | | |
| 6、7、8 | −Vo | JST B6P-VH or equivalent | Housing: JST VHR<br>Terminal: JST SVH-21T-P1.1 or equivalent |
| 9、10、11 | +Vo | | |

| Position | Screw Spec. | L(Recommend) | Torque |
|---|---|---|---|
| ①－④ | M3 | 6mm | 0.6N·m ± 10% |




Note:
1. Unit: mm[inch]
2. ADJ: Output adjustable resistor
3. General tolerances: ± 1.00[ ± 0.039]
4. Do not use fan power to power other devices
5. The layout of the device is for reference only, please refer to the actual product
6. Reserved safety distance between PCB edge and customer components, recommended 10mm
7. Class Ⅰ system ①, ③ positions must be connected to the earth( ⏚ )
8. Class Ⅱ system ①, ③ positions must be connected together

CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.
ATTENTION. Double pôle/fusible sur le neutre. Débrancher l'alimentation avant l'entretien.

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity <75%RH with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on our company corporate standards;
3. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
7. The output voltage can be adjusted by the ADJ, clockwise to increase;
8. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.
9. When the output voltage is adjusted via the ADJ exceeds the upper adjustable limit specified in the manual, the product may trigger over-power protection. It will automatically recover after being adjusted back within the specified range.
10. The surface of product should keep a safe distance from the customer system (recommended ≥3mm), if not, please consult FAE.