
AM31-12W05V User Manual

380V Series 12W low-power AC-DC step-down power module



Chengdu Ebyte Electronic Technology Co.,Ltd.

This product manual is subject to change with the continuous improvement of the product, please refer to the latest version of the technical document.

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Chapter 1 product overview

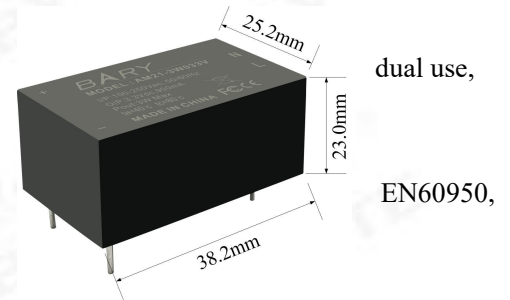
1.1. Brief Introduction

AM31-12W05V is an ultra-small volume switching power module, AC and DC Input voltage 85~264Vac/100~370Vdc, ultra-low ripple, ultra-low power consumption, high efficiency,

Safety isolation, high reliability and other advantages; Comply with IEC60950, UL60950

Certification standards, peripherals do not need to increase EMI related components, significantly reducing user design doors

A sill; Households do not need to consider stability, even in extremely complex voltage environments, can also be stable Fixed output.



1.2. Features

- Ultra-low ripple: The full load ripple is less than 120mV;
- Ultra-small size: 38.2*25.2*23mm
- Input voltage: global general voltage 85 ~ 264Vac/100~370Vdc;
- Certification standards: In line with IEC60950, EN60950, UL60950 certification standards, Peripheral devices do not need to add EMI related components;
- Protection measures: over voltage protection, over current protection, short circuit protection, over temperature protection;
- High quality program: its working efficiency is greatly improved, with an average efficiency of 76%;

1.3. Application

- Automobile charging pile;
- Security alarm;
- Smart home;
- Industry, electric power, instrumentation;
- Single-chip microcomputer motherboard (MCU);
- Intelligent street lamp, energy-saving lamps;
- Intelligent switch, socket;
- RF communication equipment;

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Chapter 2 Specification parameters

2.1. Limit parameters

| NO. | Parameters | Min | Max | Notes |
|-----|----------------------------|-----|-----|------------------|
| 1 | Input voltage (Vac) | 85 | 450 | Vac |
| 2 | Input voltage (Vdc) | 120 | 630 | Vdc |
| 3 | Output power (W) | 0 | 12 | W |
| 4 | Operating temperature (°C) | -40 | +85 | ta=40°C, tc=85°C |

2.2. Operating parameter

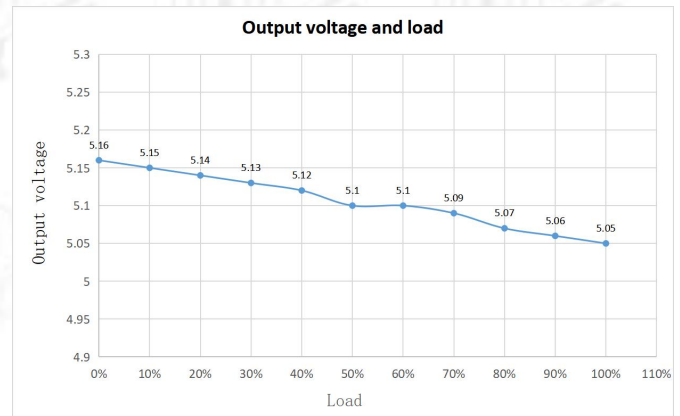
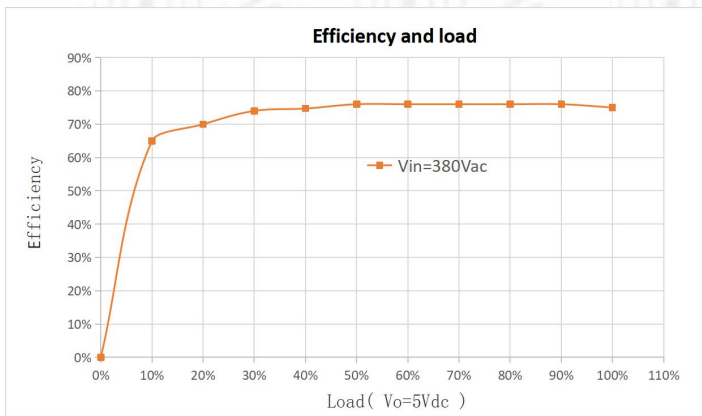
| NO. | Parameters | Min | Typical | Max | Notes |
|-----|--------------------------|-----|---------|------|--|
| 1 | Input voltage | 100 | - | 430 | Vac |
| 2 | Input voltage | 120 | - | 600V | Vdc |
| 3 | Start-up time | - | - | 1500 | mS |
| 3 | Operating frequency | 45 | 50 | 60 | Hz |
| 4 | Output power | 0 | - | 12 | W |
| 5 | Operating temperature | -40 | +25 | 85 | ta=40°C, tc=85°C |
| 6 | Power factor | 0.4 | - | 0.55 | >0.55 at 120Vac / >0.4 at 230Vac With full load |
| 7 | Static power consumption | - | - | 1.0 | <=1 mA / 240Vac |
| 8 | Output voltage | 4.9 | 5.1 | 5.2 | Vdc |
| 9 | Sustained current | 0 | - | 2.4 | A |
| 10 | Ripple noise | - | - | 120 | mV |
| 11 | Conversion efficiency | - | - | 76 | % |
| 12 | Overcurrent protection | 110 | - | 150 | %(Constant current limit, automatic recovery) |
| 13 | Short circuit | - | - | - | Hiccup mode: automatically recovers after the fault is |

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| | | | | | |
|----|----------------------|-----|-----|------|--|
| | protection | | | | eliminated |
| 14 | Working humidity | 20 | - | 90 | RH% non-condensing |
| 15 | Storage temperature | -40 | +25 | +85 | °C Dry storage at room temperature |
| 16 | Working humidity | 10 | - | 90 | RH% Dry storage at room temperature |
| 17 | Withstand voltage | - | - | 3000 | I/P - O/P: 3000VAC |
| 18 | Insulation impedance | - | - | 100 | I/P - O/P: 100M ohms / 500VDC at 25 °C |

2.3. Work efficiency and load



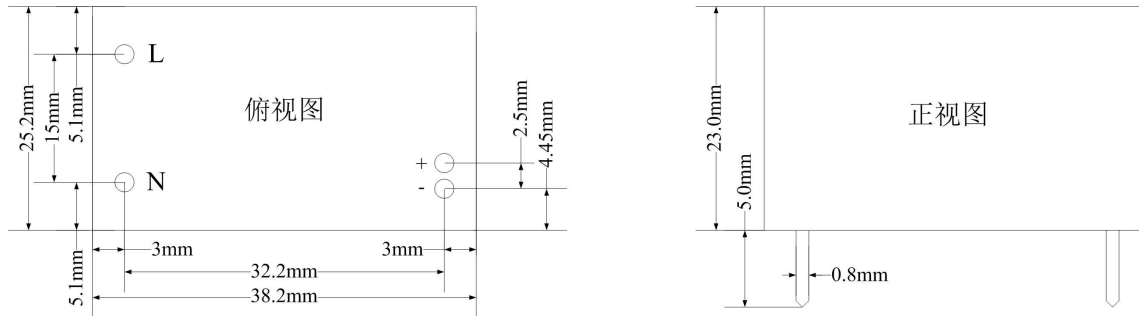
Chapter 3 Basic Operations

3.1. Notes

- The operation of this module requires certain professional skills, strict non-professional life to operate and disassemble it!
- Before use, be sure to carefully learn the knowledge of safe use.
- After powering on the power supply, strictly contact the L and N power cables to prevent electric shock. Isolation of the input front end is recommended.
- The maximum input voltage must not exceed 250Vac, otherwise it may cause permanent damage to the module.
- During routine maintenance, the input power supply should be disconnected first to prevent electric shock transmission accidents.

Chapter 4 Mechanical characteristics and pin definition

4.1. Product Size



4.2. Pin definition

| NO. | Pin name | Direction | Usage |
|-----|----------|-----------|--------------------------------|
| 1 | L | Input | AC power input |
| 2 | N | Input | AC power input |
| 3 | 0V | Output | Dc output, power supply ground |
| 4 | +5V | Output | Dc output, power positive |

Chapter 5 product selection

| P/N | Input voltage | Output voltage | Output current | efficiency | Installation mode |
|-------------|---------------|----------------|----------------|------------|----------------------|
| AM31-12W05V | 85 ~ 450Vac | 5Vdc | 2.4A | 76% | Plastic sealing plug |
| AM31-12W12V | 85 ~ 450Vac | 12Vdc | 1A | 79% | Plastic sealing plug |
| AM31-12W24V | 85 ~ 450Vac | 24Vdc | 0.5A | 83% | Plastic sealing plug |

Revise History

| NO. | Version | Revise Date | Revise description | maintainer |
|-----|---------|-------------|------------------------------|------------|
| 1 | V1.0 | 20221228 | First edition, first release | FX |
| 2 | V1.1 | 20230321 | Modify parameter | LJ |

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