AM31-12W05V User Manual

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



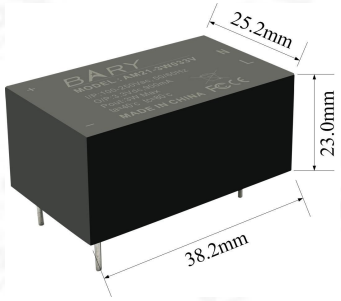
Chengdu Ebyte Electronic Technology Co.,Ltd.

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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 dual use, 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, EN60950, 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（℃）	-40	+85	ta=40℃, tc=85℃

2.2. Operating parameter

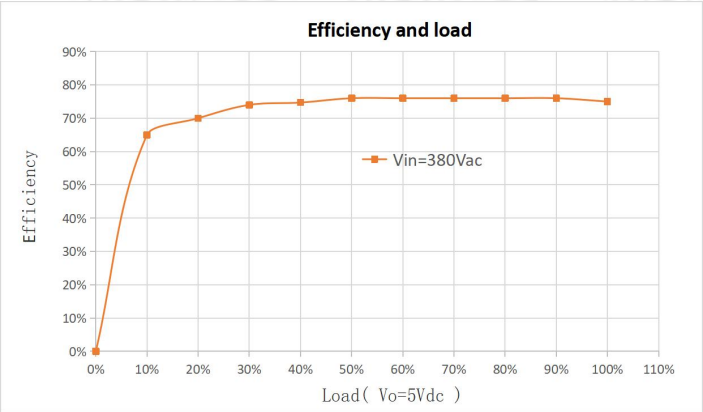
NO.	Parameters	Min	Typical	Max	Notes
1	Input voltage	100	-	430	Vac
2	Input voltage	120	-	600V	Vdc
3	Start-up time	-	-	1500	mS
3	Operating frequency	45	50	60	Hz
4	Output power	0	-	12	W
5	Operating temperature	-40	+25	85	ta=40℃, tc=85℃
6	Power factor	0.4	-	0.55	>0.55 at 120Vac / >0.4 at 230Vac With full 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

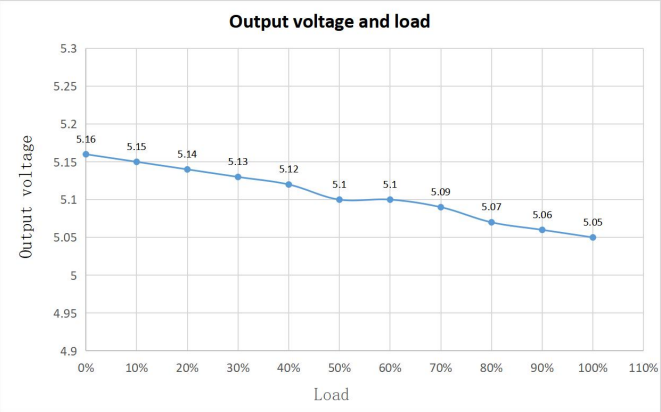
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	protection				eliminated
14	Working humidity	20	-	90	RH% non-condensing
15	Storage temperature	-40	+25	+85	℃ Dry storage at room temperature
16	Working humidity	10	-	90	RH% Dry storage at room temperature
17	Withstand voltage	-	-	3000	I/P - O/P: 3000VAC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

2.3. Work efficiency and load





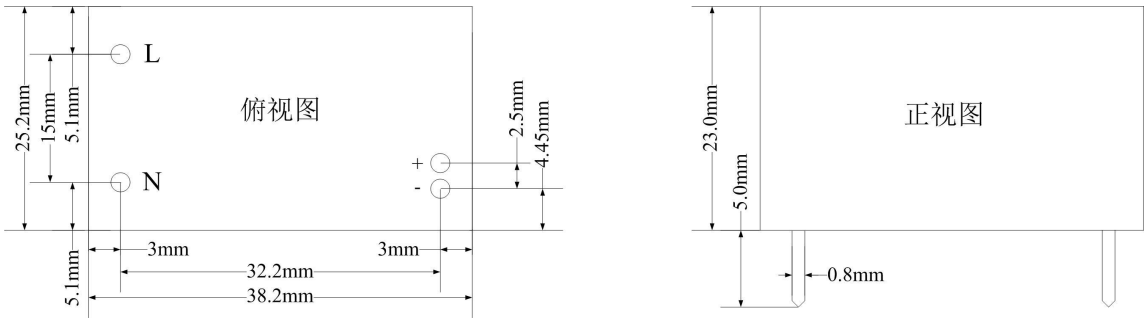
Chapter 3 Basic Operations

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	Directionn	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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