AP21-24W12N User Manual

24W Chassis AC-DC Step-down Switching Power Supply

Chengdu Ebyte Electronic Technology Co.,Ltd.

Contents

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Chapter 1 Overview

1.1. Introduction

AP21-24W12N is a small size chassis type switching power supply, AC and DC dual purpose, input voltage 85~264Vac/100~370Vdc, ultra-low ripple, ultra-low power consumption, high efficiency, safe isolation, high reliability, etc. ; Complies with IEC60950, EN60950, UL60950 certification standards, peripherals do not need to add EMI-related components, greatly reducing user design thresholds; users do not need to consider stability, even in extremely complex voltage environments, they can stabilize output.

1.2. Features

- Input voltage: international universal full-voltage AC input 85 ~ 264Vac/100~370Vdc;
- Static power consumption: <0.1W;
- Ultra-low ripple: 120mV ripple at full load;
- Ultra-small size: 85x58x33mm;
- Certification standards: Comply with IEC60950, EN60950, UL60950 certification standards,
- Peripherals do not need to add EMC-related components;
- Protection measures: over voltage protection, over current protection, short circuit protection, over temperature protection;
- High-quality solutions: greatly improve work efficiency;
- High-quality components: 105℃ high-quality brand electrolytic capacitors;
- Working temperature: can work up to 70℃ ambient temperature.

1.3. Application scenarios

- Industrial equipment
- Instrumentation
- Solenoid valve, relay;
- Large billboard
- Charging pile;
- Security equipment
- Smart home
- Traffic signal lights, smart street lights;
- RF communication base station equipment.

Chapter 2 Specifications

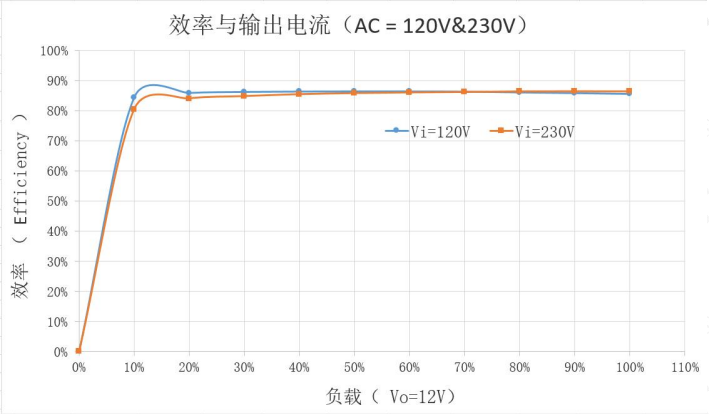
2.1. Limit Parameters

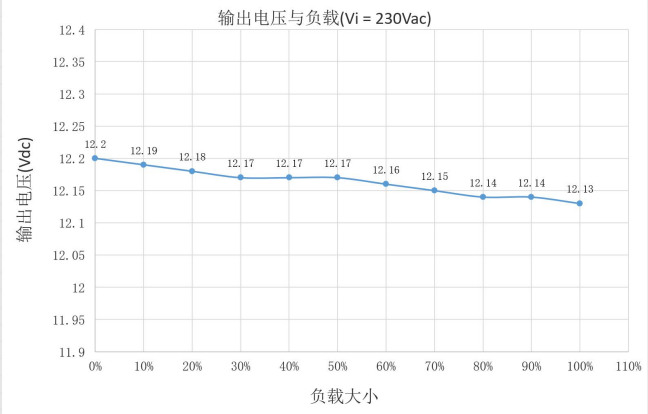
Num	Limit Parameters	Min	Max	Remark
1	Input voltage (Vac)	85	264	Vac
2	Input voltage (Vdc)	100	370	Vdc
3	Output power (W)	0	25	W
4	Working temperature (℃)	-40	+85	ta=40℃,tc=85℃

2.2. Operating Parameters

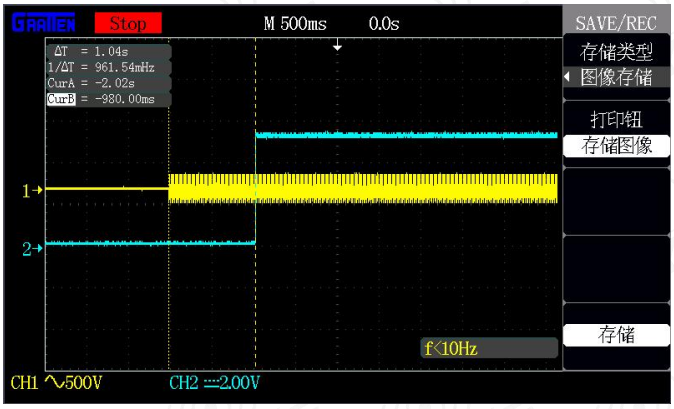
Num	Main Parameter	Min	Type	Max	Remark
Input	Input voltage-AC	100	220	250	Vac
	Input voltage-DC	120	-	350V	Vdc
	working frequency	-	50/60	-	Hz
	Inrush current	-	-	10	10 A at 230 Vac
	Static power	-	-	<0.1	W
	Highest efficiency	80.5	-	86.4	%
Output	Output voltage	11.5	12	12.5	V
	Continuous current	0	-	2	A
	Output Power	0	-	24	W
	Ripple noise	50	-	120	mV
	Voltage adjustment range	-	±0.5	-	V
	Output voltage accuracy	-	-	±1.5	%
	Boot time	400	550	1100	ms
	Linear adjustment rate	-	0.5	-	%
	Load Regulation	-	0.5	-	%
Protection	Overcurrent protection	110	-	150	%
	Short circuit protection	-	-	-	Automatic recovery after the fault state is eliminated
Condition	Operating temperature	-40	25	85	ta=40℃,tc=85℃
	Working humidity	20	-	90	No condensation
	storage temperature	-40	+25	+85	Dry and store at room temperature
	Storage humidity	10	-	90	Dry and store at room temperature
Safety	Insulation withstand voltage	-	-	3000	VAC I/P - O/P
	Insulation resistance	-	-	500	I/P - O/P: 100M ohms /500VDC at 25 ℃
	safety regulations	IEC60950、EN60950、UL60950			
Other	Size	85x58x33mm			
	Weight	-	116	-	g

2.3. Efficiency & Load

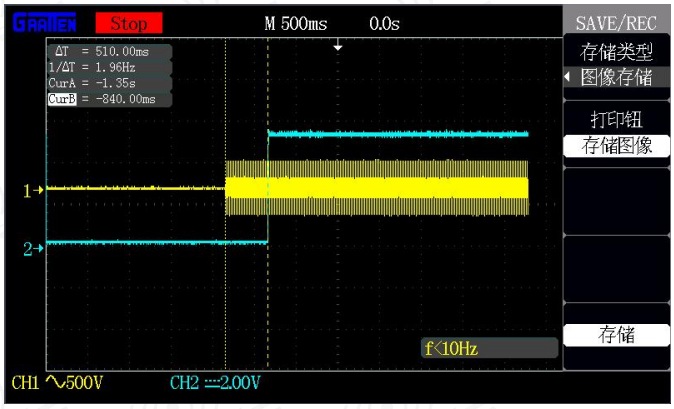




2.4. Boot time

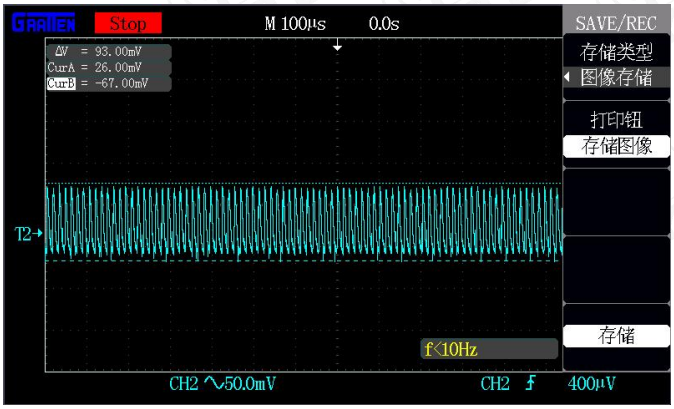


INPUT:AC 120V OUTPUT:12V 2A

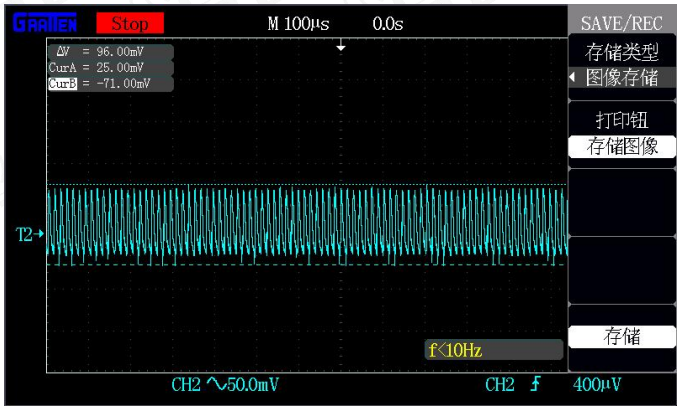


INPUT:AC 230V OUTPUT: 12V 2A

2.5. Full load working ripple

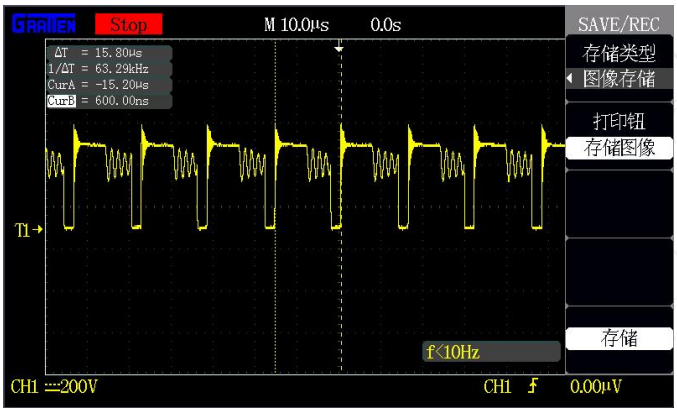


INPUT:AC 120V OUTPUT: 12V 2A

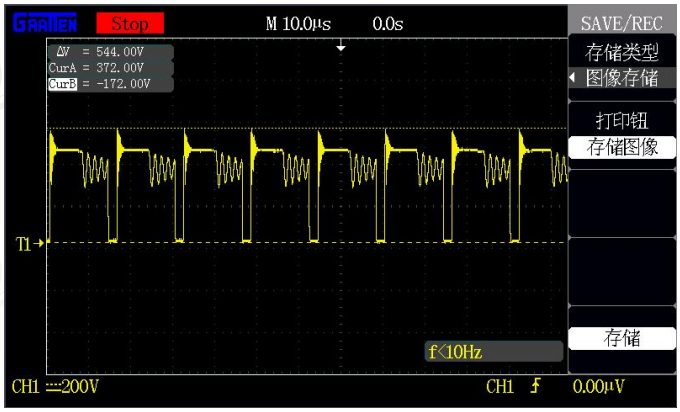


INPUT:AC 230V OUTPUT: 12V 2A

2.6. Operating frequency

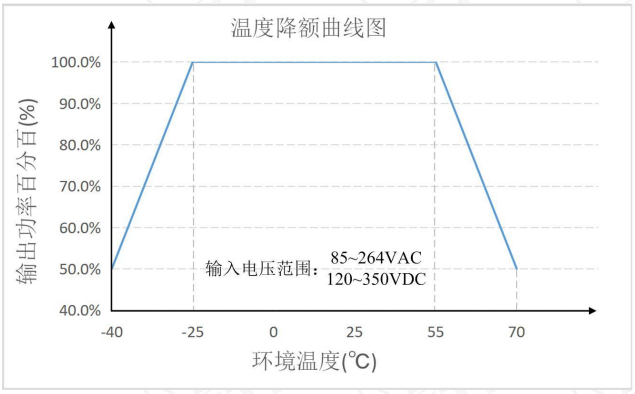


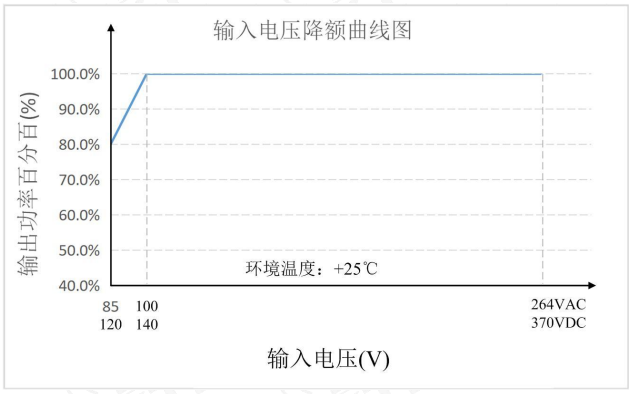
INPUT:AC 120V OUTPUT: 12V 2A



INPUT:AC 230V OUTPUT: 12V 2A

2.7. Characteristic curve-derating design





Note: ①For input voltage of 85-100VAC/120-140VDC, input voltage derating shall be performed on the basis of temperature derating;
②This product is suitable for use in a natural air cooling environment, if used in a closed environment, please consult our FAE.

Chapter 3 Basic operation

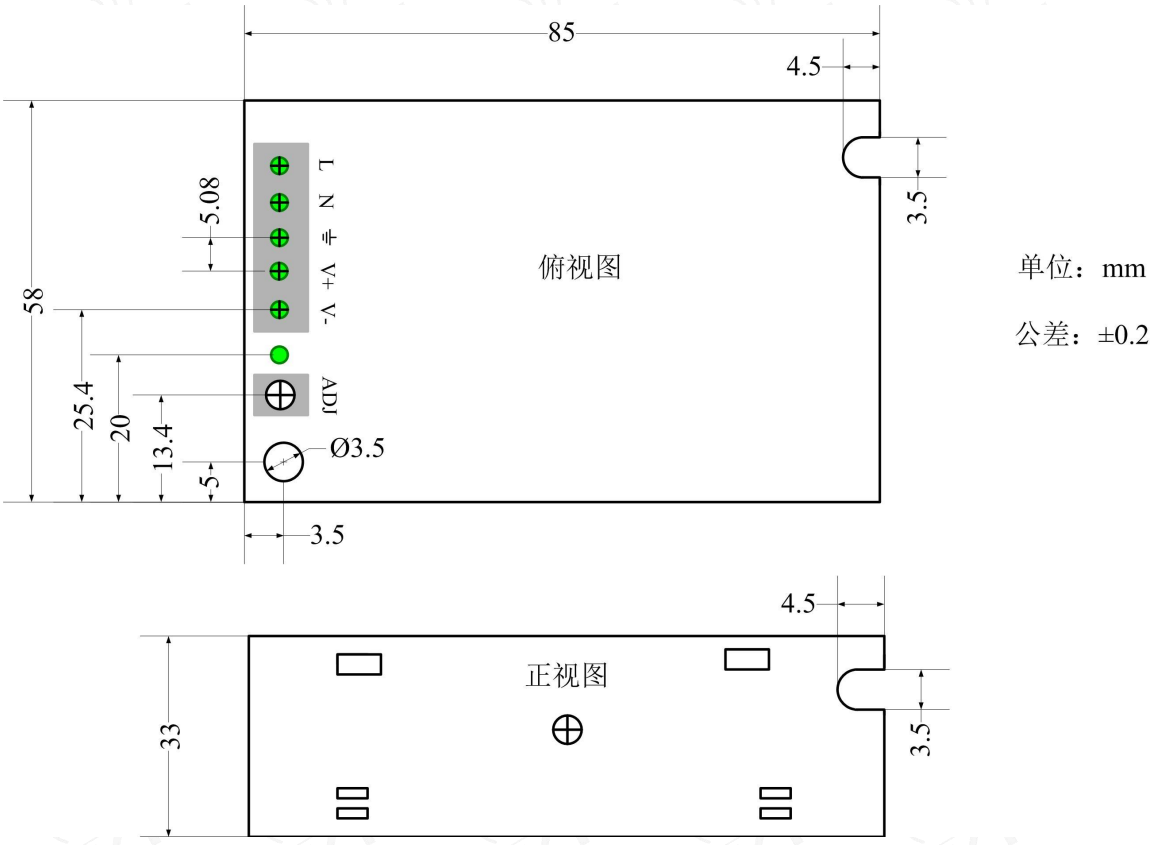
3.1. Precautions

- Operation of this module requires certain professional skills, rigorous non-professional life to operate it!
- Be sure to carefully study the knowledge of safe use before use.
- Strict human body contact with L and N power lines after power-on to prevent accidents caused by electric shock, it is recommended to increase isolation at the input front end.
- The maximum input voltage must not exceed 250Vac, otherwise it may cause permanent damage to the module.
- During routine maintenance, the input power should be disconnected first to prevent accidents caused by electric

shock.

Chapter 4 Mechanical Characteristics and Pin Definition

4.1. Size



4.2. Pin definition

NUM	Pin	Direction	Application
1	L	Input	AC power input
2	N	Input	AC power input
3	⏚	/	Ground
4	V-	Output	DC output, power ground
5	V+	Output	DC output, power supply positive

Chapter 5 Product Selection

Model	Input voltage	Output voltage	Output current	effectiveness	Installation
AP21-24W05N	100~250Vac	5Vdc	4.8A	85.3%	Plastic plug-in
AP21-24W12N		12V	2A	86.4%	Plastic plug-in
AP21-24W24N		24V	1A	89.1%	Plastic plug-in

Revision history

Num	Version	Date	Description	Issued by
1	V1.0	20191203	Initial version	LJ

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Technical support: support@cdebyte.com
Documents and RF Setting download link: www.ebyte.com
Thank you for using Ebyte products! Please contact us with any questions or suggestions: info@cdebyte.com
---
Fax: 028-64146160 ext. 821
Web: www.ebyte.com
Address: B5 Mould Park, 199# Xiqu Ave, High-tech District, Sichuan, China

Chengdu Ebyte Electronic Technology Co.,Ltd.