DM41-20W2405B1 User Manual

20w Isolated-buck DC-DC Power Supply

Chengdu Ebyte Electronic Technology Co.,Ltd.

Contents

Disclaimer

EBYTE reserves all rights to this document and the information contained herein. Products, names, logos and designs described herein may in whole or in part be subject to intellectual property rights. Reproduction, use, modification or disclosure to third parties of this document or any part thereof without the express permission of EBYTE is strictly prohibited.

The information contained herein is provided “as is” and EBYTE assumes no liability for the use of the information. No warranty, either express or implied, is given, including but not limited, with respect to the accuracy, correctness, reliability and fitness for a particular purpose of the information. This document may be revised by EBYTE at any time. For most recent documents, Please visit www.ebyte.com

1.Product introduction

1.1. Brief introduction

The DM41-20W2405B1 is a low power isolated-buck DC-DC power supply module with a continuous external power output of 20W and a wide voltage input of 18~36V, with a maximum efficiency of 80% and low heat generation, significantly reducing the user's design threshold. All components are from the formal channels of purchase, and the industrial grade design -40~85°C enables stable output even in complex voltage environments.

1.2. Product features

- Isolated-buck: filters out power peaks and effectively protects back-end load equipment from damage;
- Output power: 20W/12V/1666mA, continuous output;
- Ultra-small size: 50.8*25.4*11mm, metal casing;
- Overcurrent protection: the module has an internal preset maximum operating current, which can be automatically recovered after fault elimination;
- Protection measures: over voltage protection, over current protection, short circuit protection, over temperature protection;
- Short-circuit protection: automatic recovery after fault elimination;
- Isolation withstand voltage: 1000V;

1.3. Application scenarios

- Power supply for industrial control equipment
- RS485/RS232/CAN communication devices
- Solenoid valves/relays
- Intelligent robots
- Wireless communication devices
- Industrial control motherboards
- Vehicle-mounted power supplies
- Charging pile power supply systems
- Smart home and industrial sensors, etc
- Internal power supply systems for security alarms
- Microcontroller motherboards (MCUs), toys
- Power supply for LED-driven light strips
- Intelligent street lights

2.Specification parameters

2.1. Limit parameters

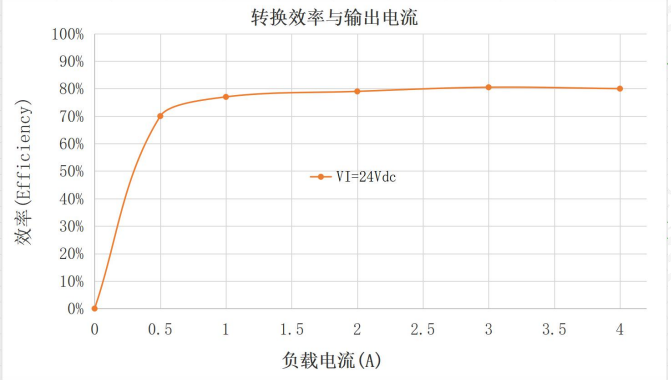
Serial number	Main parameter	Minimum	Maximum	Mark
1	Input voltage（Vac）	17.8	36.5	Vdc(Do not operate above 18Vdc, otherwise it may be permanently damaged)
2	Output power（W）	0	20	W
3	Work temperature（℃）	-40	+85	ta=40℃,tc=85℃

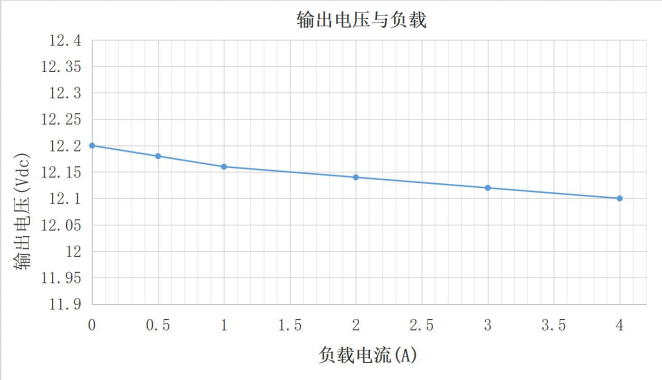
2.2. Working parameters

Serial number	Main parameter	Minimum	Typical value	Maximum	Remarks
Input	Input Voltage (DC)	18	24	36V	Vdc
	Working frequency	280	300	330	KHz
	Static power	-	-	< 0.4	W
	Maximum efficiency		-	80	%
Output	Output voltage	4.95	5	5.15	V
	Continuous current	0	-	4	mA
	Output power	0	-	20	W
	Ripple noise	10	-	50	mV
	Voltage Regulation Range	-	±0.5	-	V
	Output voltage accuracy	-	-	±1	%
	Start-up time	400	550	1000	ms
	Linearity Adjustment Ratio	-	0.5	-	%
	Load Adjustment Ratio	-	1.0	-	%
Protection	Overcurrent protection	110	-	150	%

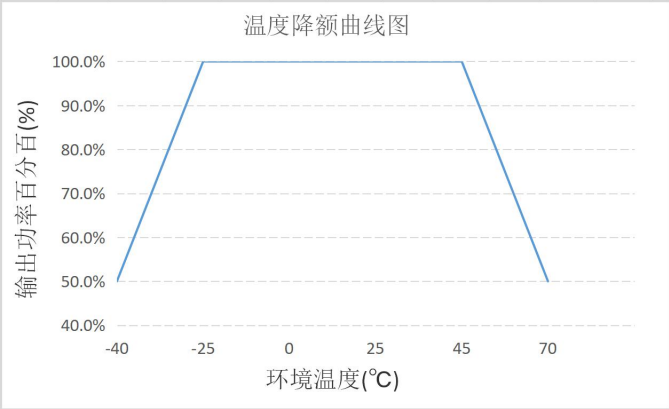
	Short circuit protection	-	-	-	Hiccup mode, automatic recovery when fault condition is removed
Environment	Operating temperature	-40	25	85	ta=40℃,tc=85℃
	Operating Humidity	20	-	90	Non-condensing
	Storage Temperature	-40	+25	+85	Dry storage at normal temperature
	Storage Humidity	10	-	90	Dry storage at normal temperature
Safety regulations	Insulation withstand voltage	-	-	1000	VAC I/P - O/P
	Insulation resistance	-	-	500	I/P - O/P: 100M ohms / 500VDC at 25 ℃
	Safety regulation	Conforms to FCC CE ROHS certification standards			
Other	Product Dimension	50.8x25.4x11mm			
	Product weight	21.5	22	22.5	g

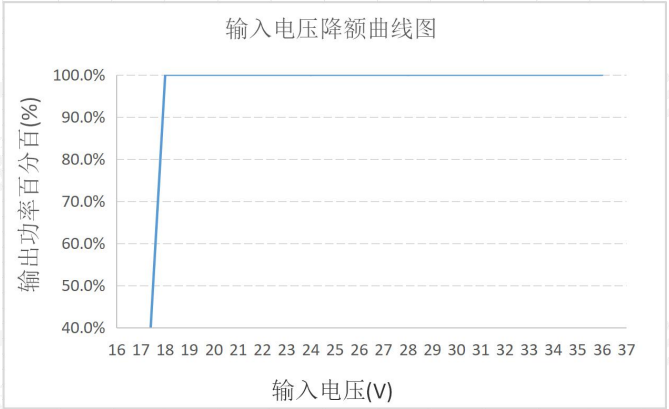
2.3. Working frequency and load





2.4. Input derating design





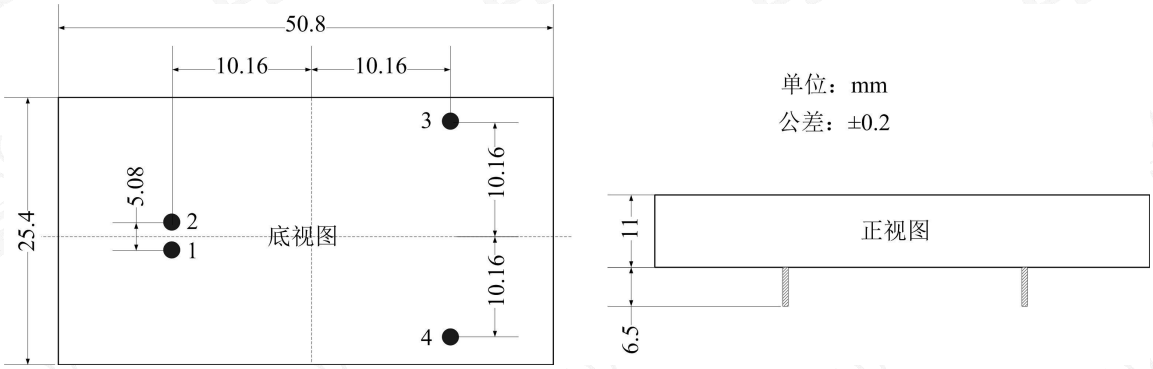
3.Basic operation

3.1. Matters need attentions

- Operating this module requires certain professional skills, prohibit non-professionals operate on it!
- Before using it, you must study Knowledge of safe use carefully.
- Prohibit human body contact with the components.
- The maximum input voltage must not exceed 36Vdc, otherwise may occur permanent damage.
- The temperature is high when operating at full load, do not touch!
- The outputs must not be directly short-circuited, as this may cause permanent damage to the module.
- The overcurrent protection function is only valid at VIN = 18~24V, the overcurrent point will become larger above 24V, so be cautious!

4.Mechanical Characteristics and Pin Definition

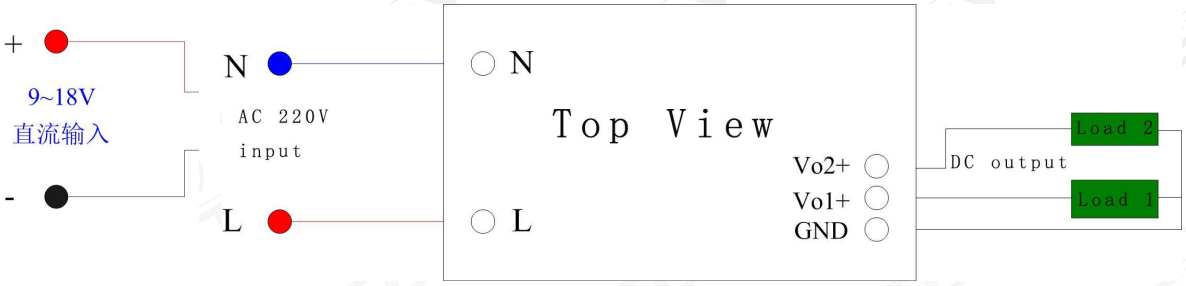
4.1. Product size



4.2. Pin Definition

Serial number	Pin name	Direction	Use
1	Vi-	Input	Power input negative
2	Vi+	Input	Power input positive
3	Vo+	Output	Power output positive
4	Vo-	Output	Power output negative

4.3. Typical application



5. Product selection

Product model	Input voltage	Output 1	Output 2	Efficiency	Installation mode
DM41-20W1205B1	9.0 ~ 18Vdc	5Vdc	4000mA	80%	Plastic-package plug-ins
DM41-20W1212B1	9.0 ~ 18Vdc	12Vdc	1666mA	80%	Plastic-package plug-ins
DM41-10W2405B1	18 ~ 36Vdc	5Vdc	4000mA	80%	Plastic-package plug-ins
DM41-10W2412B1	18 ~ 36Vdc	12Vdc	1666mA	80%	Plastic-package plug-ins

Revision history

Serial number	vision	modification date	Revision notes	Maintain person
1	V1.0	20190917	First edition, first public release.	LJ

About us

Technicalsupport:support@cdebyte.com
DocumentsandRFSettingdownloadlink:www.ebyte.com
Thank you for using Ebyte products! Please contact us with any questions or suggestions:info@cdebyte.com
---
Phone:+86 028-61399028
Web:www.ebyte.com
Address:B5MouldPark,199#XiquAve,High-techDistrict,Sichuan,China

Chengdu Ebyte Electronic Technology Co.,Ltd.