DM41-20W2412B1 User Manual

20w Isolated-buck DC-DC Power Supply



Chengdu Ebyte Electronic Technology Co.,Ltd.

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1.Product introduction

1.1. Brief introduction

The DM41-20W2412B1 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 as well as industrial sensors, etc
- Internal power supply systems for security alarms
- Microcontroller motherboards (MCUs), toys
- Power supply for LED-driven light strips
- Intelligent street lights

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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

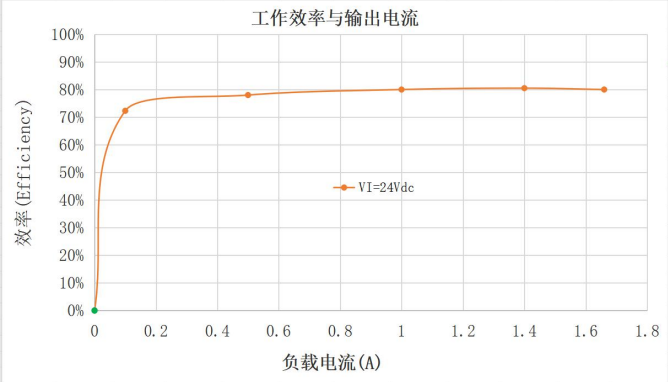
Serial number	Main parameter	Minimum	Typical value	Maximum	Remarks
Input	Input Voltage (DC)	18	24	36V	Vdc
	Working frequency	280	300	330	KHz
	Static power	-	-	< 0.4	W
	Maximum efficiency	-	-	80	%
Output	Output voltage	11.95	12	12.15	V
	Continuous current	0	-	1666	mA
	Output power	0	-	20	W
	Ripple noise	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	%

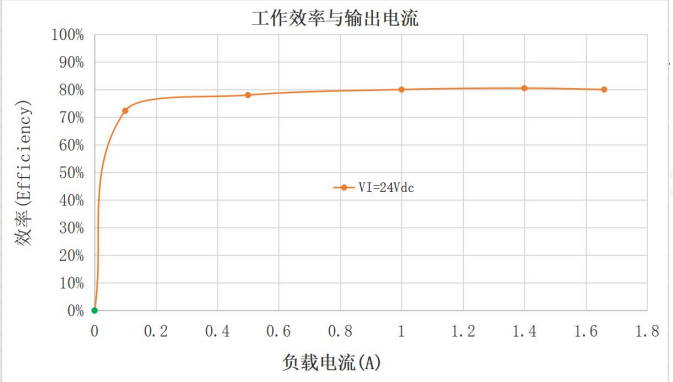
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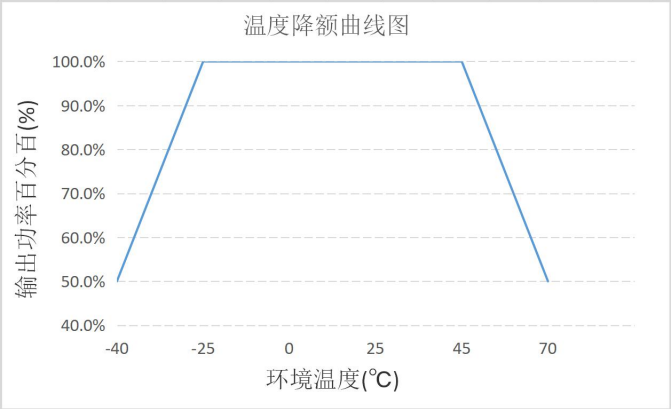
	Short circuit protection	-	-	-	Hiccup mode, automatic recovery when fault condition is removed
Environment	Operating temperature	-40	25	85	ta=40℃,tc=85℃
	Operating Humidity	20	-	90	Non-condensing
	Storage Temperature	-40	+25	+85	Dry storage at normal temperature
	Storage Humidity	10	-	90	Dry storage 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

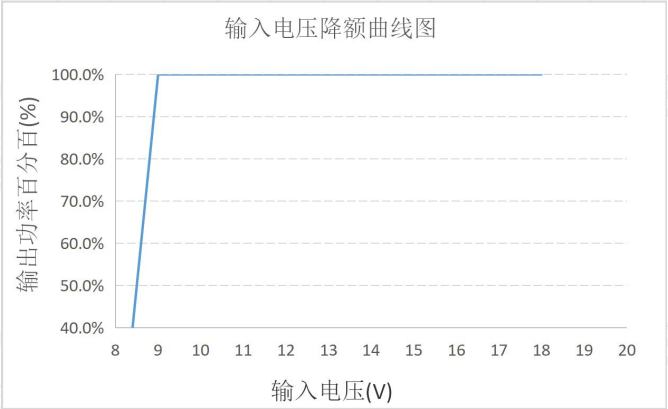
2.3. Working frequency and load





2.4. Input derating design





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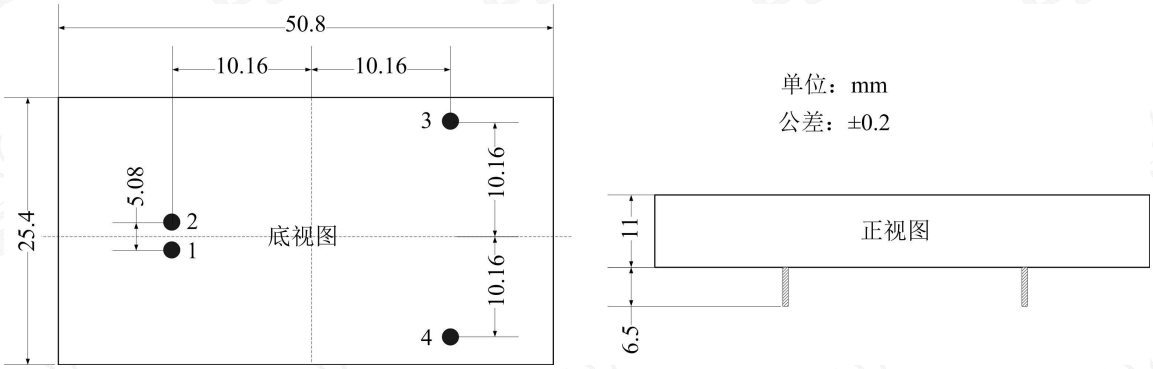
3.Basic operation

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

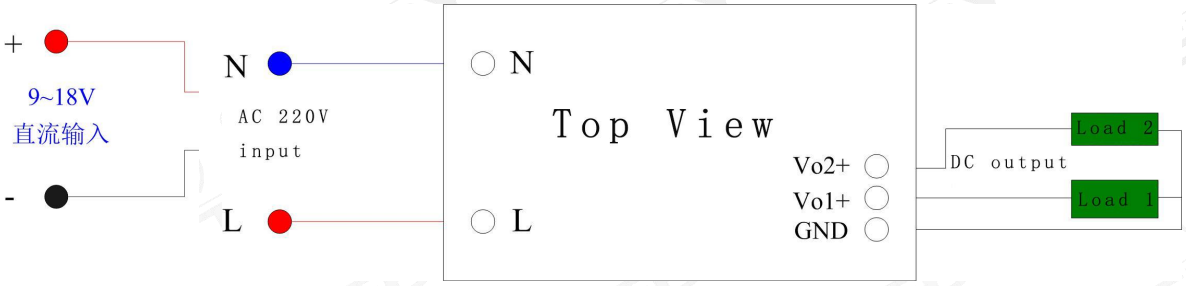


4.2. Pin Definition

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

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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

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