DM21-5W05S User Manual

5W Step-down DC-DC Power Module



1.Product introduction

1.1. Brief introduction

DM21-5W05S is a non-isolated DC-DC (DC-DC) low-power step-down Power module, output 3.3V continuous external output power of 5W, wide voltage 6.0~18V output The highest efficiency is as high as 92.5%, and the low pressure drop greatly reduces the user's design threshold. All components come from formal procurement channels, industrial grade design -40~85℃, even The output can be stabilized in a complex voltage environment.



1.2. Product features

- Ultra-small size: 16.5*22*6.8mm, SMD surface mount, more efficient production;
- Ultra low cost: high quality solution, ultra low cost;
- Synchronous rectification: its work efficiency is greatly improved, the highest efficiency is 92.5%
- Over-temperature protection: The maximum operating temperature is preset inside the module, which can be automatically restored;
- Overcurrent protection: preset the maximum current, effectively protect the module and peripheral circuits, and reduce the failure rate;
- Shutdown function: Controlled by an external signal, the module can be put in a sleep state, only 3uA
- Startup mode: Built-in soft start function, which effectively protects modules and peripheral circuits, and improves service life
- Lead-free process: 100% environmentally friendly lead-free process

1.3. Application scenarios

- Power Supply System of Charging Pile；
- Intelligent home and Industrial sensors, etc.；
- Internal power supply system of security alarm；
- Industrial control；
- MCU motherboard, toys；
- Supply LED driving Lamp belt with Power；
- Intelligent street lamp；
- Intelligent switch, socket；

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2.Specification parameters

2.1. Limit parameters

No.	Main parameter	Minimum	Maximum	Remarks
1	Input voltage (Vdc)	5.8	19	V (no more than 18Vdc，or it will damage)
2	Output power （W）	0	5	W
3	Working temperature （℃）	-40	+85	℃

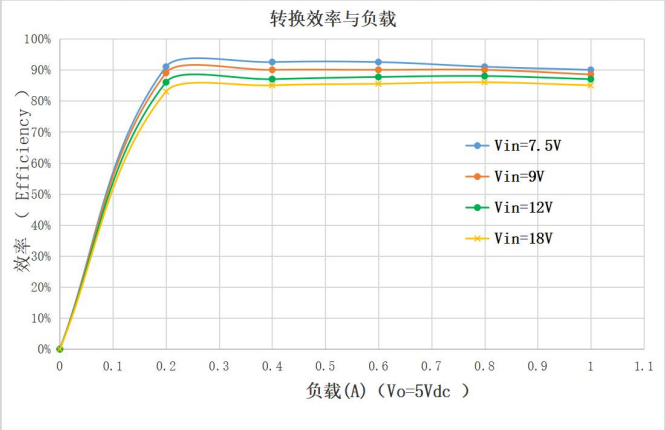
2.2. Operating parameters

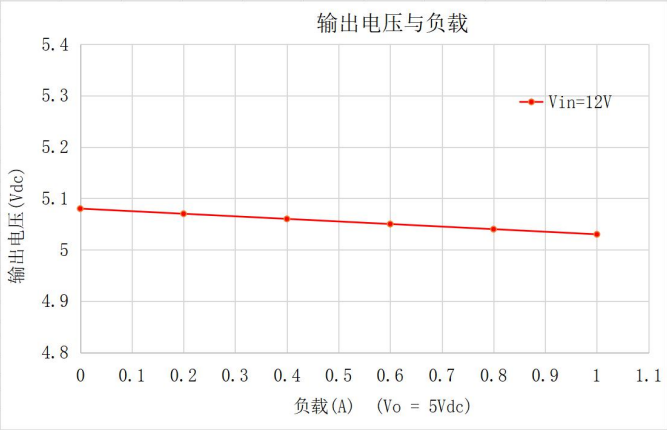
No.	Main parameter	Minimum	Typical value	Maximum	Remarks
Input	Input voltage-DC	6	-	18V	Vdc
	Operating frequency	475	500	525	KHz
	Quiescent Current	0.6	0.7	1	mA
	Shutdown current	-	3	-	uA
Output	Conversion efficiency	83	-	92.5	%
	The output voltage	4.95	5	5.15	V
	Continuous current	0	-	1	A
	Output Power	0	-	5	W
	Ripple noise	30	-	60	mV
	Output voltage accuracy	-	-	±1	%
	Boot time	-	1	-	ms
Protection	Overcurrent protection	-	2.2	-	A
Environment	Operating	-40	25	85	ta=40℃,tc=85℃

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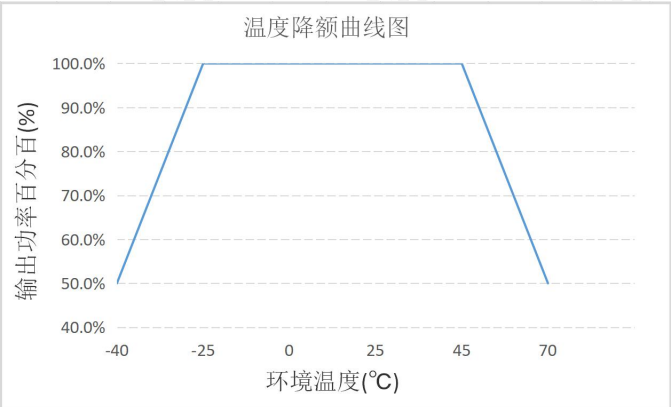
	temperature				
	storage temperature	-40	+25	+85	
	Operating humidity	20	-	90	
	Storage humidity	10	-	90	
Safety rule	Specification	FCC CE ROHS			
Other	Size	16.5x22x6.8mm			
	Weight	-	1.8	-	g

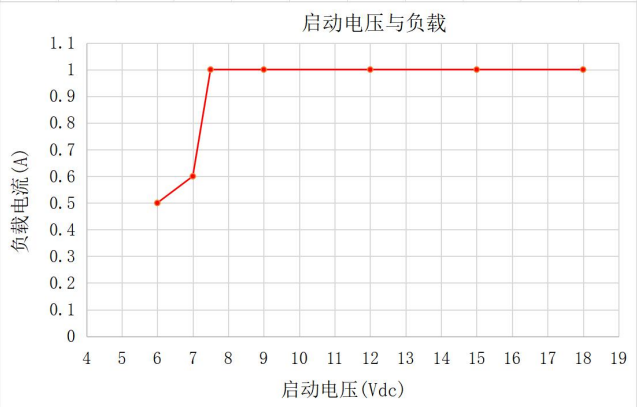
2.3.Work efficiency and load





2.3 Input derating design





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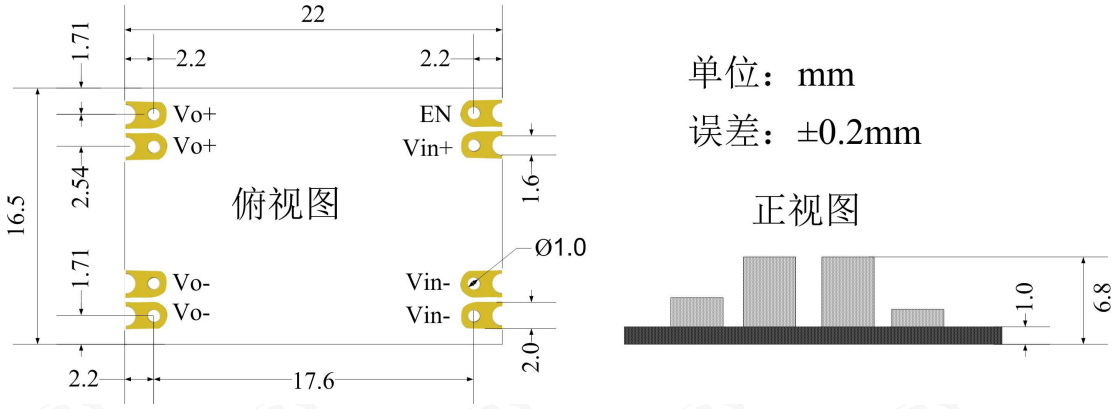
3.Basic operation

3.1.Notes

- Operating this module requires certain professional skills, prohibit non-professionals operate on it!
- Before using it, you must study knowledge of safe use.
- prohibit human body contact with L and N power lines after electrification to prevent accidents caused by electric shock.Recommend input front-end to Increase isolation.
- The maximum input voltage shall not exceed 18Vdc, otherwise may occur permanent damage.
- In daily maintenance, the input power should be disconnected to prevent from electric shock accidents.

4.Mechanical Characteristics and Pin Definition

4.1. Product size

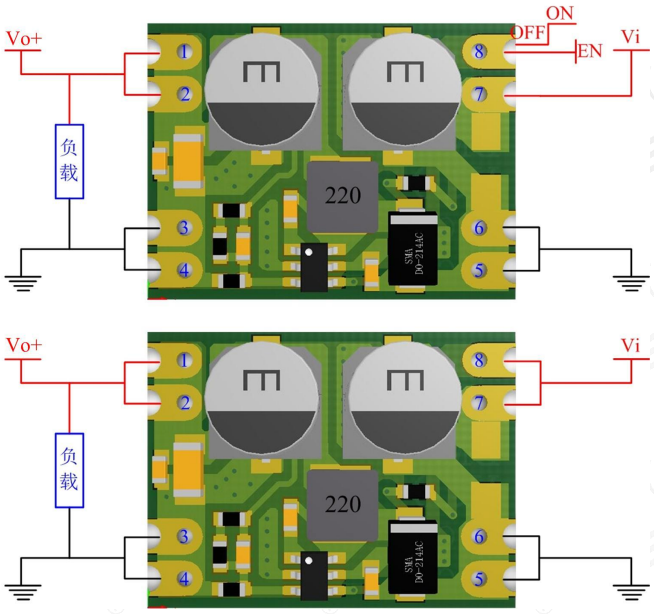


4.2. Pin Definition

No.	Pin	Direction	Details
1	EN	Input	Output enable port, active at high level, can be directly linked to Vin+ without the EN function
2	Vin+	Input	Power input positive
3	Vin-	Input	Power input negative
4	Vo-	Output	Power output negative
5	Vo+	Output	Power output positive

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4.3. Typical application



5. Product selection

Product model	Input voltage	Output voltage	Output current	Efficiency	Installation mode	Product model
DM21-5W033S	4.5 ~ 18Vdc	3.3Vdc	1000mA	91.5%	16.5*22*6.8mm	SMD
DM21-5W05S	6.0 ~ 18Vdc	5.0Vdc	1000mA	92.5%	16.5*22*6.8mm	SMD
DM21-5W012S	13.5 ~ 18Vdc	12Vdc	420mA	97.0%	16.5*22*6.8mm	SMD

Revision history

No.	Vision	Modification date	Revision notes	Maintain person
1	V1.0	2020/05/27	First edition, first public release	LJ

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