AIPUPOWER®

DC/DC Converter DD10-XXDXXE3C2 Series



Typical Features

- Wide input voltage range (2:1), output power 10W
- Transfer efficiency up to 87%
- Low standby power consumption as low as 0.3W
- Output quick start
- Continuous short circuit protection, Self-recovery
- ◆ Input under-voltage, output over-voltage, short circuit, over-current protection
- ◆ Isolation voltage 1500VDC
- ◆ Operating Temperature range: -40°C~+85°C
- Good EMC performance
- International standard pin



Application Filed

DD10-XXDXXE3C2 Series ----- have an output power of 10W, an isolation withstand voltage of 1500VDC, and have input under-voltage, output over-voltage, short circuit, and over-current protection functions. They can be widely used in industrial control, instrumentation, communications, electricity, Internet of Things and other fields. When the product is used in a harsh electromagnetic compatibility environment, please refer to the application circuit provided by our company.

Typical Product List

Part no.	Input voltage Range (VDC)		Output voltage /Current (Vo/Io)		Input current (mA) @nominal voltage		Max. Capacitive Load	Ripple & Noise (mVp-p)		Efficiency (%)@output full load, input nominal	
	Nominal	Range	Voltage (VDC)	Current (mA) MAX/Min	Full Load Typ.	No Load Typ.	uF	Тур	Max	Min	Тур
DD10-12D05E3C2	12	9-18	±5	±1000/0	1004	25	1000	50	100	81	83
DD10-12D15E3C2	12	9-18	±15	±333/0	958	25	470	50	100	84	86
DD10-24D12E3C2	24	18-36	±12	±416/0	478	12	470	50	100	85	87
DD10-48D12E3C2	48	36-75	±12	±416/0	478	12	470	50	100	85	87
DD10-48D15E3C2	48	36-75	±15	±333/0	239	6	470	50	100	85	87

Note 1: C means with control function, N means without control function.

Note 2: The maximum capacitive load refers to the capacitance that the output allows to be connected when the power supply is fully loaded and

started. If the capacitance exceeds this value, the power supply may not start;

Note 3: The above efficiency is measured by the nominal input voltage and the output rated load;

Note 4: Due to limited space, the above is only a partial list of products. If you need products outside the list, please contact our sales department.

Input Specifications

input opcontoutions					
Item	Conditions	Min.	Тур.	Max.	Unit
Standby power consumption	Input voltage range	/	0.3	/	W
	12V nominal input	/	7	/	VDC
Protoction	24V nominal input	/	13	1	VDC
FIGLECUOIT	48V nominal input	/	24	/	VDC

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Start-up overshoot voltage	10% ~ 100% rated load,	dual output power	/	/	10	%Vo				
Input Filter	□ filter									
	Turn on CTRL is le				eft floating or connected to TTL high level (3.3VDC-12VDC)					
GIRL [*]	Turn off CTRL col				nnected to -Vin or low level (0-1.2VDC)					
	Input current at	5mA (TYP)								
Note: *The voltage of the CTRL control pin is relative to the input pin -Vin.										
Output Specification										
Item	(Conditions				Тур.	Max.	Unit		
	Input voltage range, nominal load			Vo1	1	±1	±3			
Output Voltage Accuracy				Vo2	1	±1	±3			
	Nominal voltage range, full load			Vo1	1	±0.3	±0.5			
Voltage Regulation				Vo2	1	±0.5	±1	%		
		5% ~ 100% load		Vo1	1	±0.5	±1			
Load Regulation	5% ~ 100% load			Vo2	1	±0.5	±1.5			
Ripple & Noise	0%-100% load, 20M	0%-100% load, 20MHz bandwidth				50	100	mVp-p		
Dynamic Recovery Time					1	200	500	uS		
Dynamic Response	25% of nominal load	d step, nominal	5V	output	1	±5	±8	0/		
Deviation	input voitage	input voltage				±3	±5	%		
Start-up delay time	Input nominal voltag		1	100	1	ms				
Output voltage adjustable				Unavailable						
Output Over-voltage				120	160	200	%Vo			
Output Over-load Protection	Output Over-load Protection					160	280	%lo		
Output Short Circuit		Continuous, Self-recovery								
General Specification										
Item	(Conditions			Min.	Тур.	Max.	Unit		
Switching Frequency	Workir	Working mode (PWM)				330	1	KHz		
Operating Temperature	Refer to temp	perature derating c	urve		-40	1	+85			
Storage Temperature		1			-55	1	+125			
Maximum shell temperature	Within t	Within the working curve					+105	°C		
Pin resistance soldering	The distance betwee	The distance between the soldering point and the					300			
temperature	shell is 1									
Relative Humidity	No	No condensing				/	95	%RH		
Isolation Voltage	I/P-O/P, test for 1min, leakage current is less than 1mA				1500	1	1	VDC		
Insulation Resistance	I/P-O/P, voltage 500VDC				1000	1	1	MΩ		
Minimum Time Between	MIL-HDBK-217F 25°C				1000	1	1	K hours		
Vibration	ation / 10-150Hz, 5G, 0.75mm				ım. along X	ά, Υ, Ζ				
Cooling Method	Cooling Method Natural air cooling									
Case Material		Aluminum metal casing								
Weight/ Dimension	Package type Weight (Typ.)				L x W x H					

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		DD10-	0-XXDXXE3C2 22g		31.80 × 20.30 ×		×	1.252 × 0.800 × 0.472inch			
EMC Characteristics											
Total Items Sub It		ems	Test Standard		Class						
		CE		CISPR32/EN55032		CLASS B (Recommended Circuit 2)					
EMC		RE		CISPR32/EN55032		CLASS B (Recommended Circuit 2)					
		RS	RS		IEC/EN61000-4-3		10V/m Perf.Criteria B (Recommended Circuit 2)				
		CS		IEC/EN610	00-4-6	3Vr.m	.s Perf.Criteria B	(Rec	ommended Circuit 2)		
	EMS	ESI)	IEC/EN610	00-4-2	Conta	ct ±4KV Perf.Cri	iteria B			
		Surg	je	IEC/EN610	00-4-5	±2KV	Perf.Criteria B	(Rec	commended Circuit 2)		
		EFT	Г	IEC/EN610	00-4-4	±2KV	Perf.Criteria B	(Rec	commended Circuit 2)		

Ripple& Noise Test: (Twisted Pair Method 20MHZ bandwidth)



Test conditions:

1. Ripple noise is connected using 12# twisted pair cable, oscilloscope sampling uses sampling mode, oscilloscope bandwidth is set to 20MHz, 100M bandwidth probe is used, probe cap and ground clip are removed; and C1 (0.1uF) polypropylene capacitor and C2 (10uF) high frequency low resistance electrolytic capacitor are connected in parallel at the probe end of the twisted pair cable;

2. Ripple noise test: The module input end (INPUT) is connected to the input power supply, and the power supply output is connected to the electronic load (LOAD) through the power line. The test is sampled from the power supply output port with a 30 ± 2 cm twisted pair cable alone, and connected to the oscilloscope probe according to polarity.

3. Dual-channel output products are tested with balanced load;

4. The maximum capacitive load is obtained by testing under pure resistance full load conditions;

Product characteristic curve



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Recommended circuit

1、DC/DC test circuit:

This series of module power supplies are tested according to this peripheral circuit before leaving the factory. Increasing the capacity of C2 and C3 can reduce the output ripple, but the output capacity must be less than the maximum capacitive load.



Recommended Circuit 2

2、EMC External Recommended Circuit:



Recommended Circuit 3

Note:

Part 1 in the figure is used for EMS testing, and part 2 in the figure is used for EMI filtering, which can be adjusted according to the situation.

Recommended Spec:

Device code	Vin: 12VDC	Vin: 24VDC	Vin: 48VDC					
FUSE	Choose according to customer needs							
MOV1	14D470K	14D470K	14D101K					
C1, C4	330uF/50V 330uF/50V		330uF/100V					
LCM1	5mH							
C2,C3	10uF/50V	10uF/50V	10uF/100V					
C5	100uF/50V							
CY1,CY2	2.2nF/2000V							

E3 Package size

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Note:

1. The product should be used within the specification range, otherwise it will cause permanent damage to the product;

2. If the product works below the minimum required load, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;

3. If the product works beyond the product load range, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;

4. Unless otherwise specified, the above data are measured at Ta=25°C, humidity<75%, input nominal voltage and output rated load (pure resistance load);

5. All the above index test methods are based on our company's standards;

6. The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard model products will exceed the above requirements. For specific circumstances, please contact our technical personnel directly;

7. Our company can provide product customization;

8. Product specifications are subject to change without prior notice. Please pay attention to the latest manual published on our official website.

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