

CDD6-XXDXXE3C2 Series

DC/DC Converter



Typical Features

- ◆ Wide input voltage range (2:1), Output power 6W
- ◆ Transfer efficiency up to 87%
- ◆ With remote control shutdown function
- ◆ Continuous short circuit protection, Self-furbish
- ◆ No overshoot when switching on and off
- ◆ Isolation voltage: 1500VAC
- ◆ Operating Temperature range: -40℃~+85℃
- ◆ Plastic housing, meet UL94-V0 requirements



Application Filed

CDD6-XXDXXE3C2 -----Widely used in instrumentation, communications, pure digital circuits, general low-frequency analog circuits, relay drive circuits, data exchange circuits and other fields

Typical Product List

Part No.	Input Voltage Range (Vdc)		Output Voltage/Current (Vo/Io)		Input Current (mA) Nominal Voltage		Max. Capacitive Load	Ripple & Noise	Efficiency (%)@output full load, input nominal	
	Nominal	Range	Voltage (Vdc)	Current (mA) MAX./Min.	Full load Typ.	No load Typ.	uF	mVp-p	Min	Typ
CDD6-24D05E3C2	24	18-36	±5	±600	301	12	1000	100	81	83
CDD6-24D12E3C2	24	18-36	±12	±250	291	12	470	100	84	86
CDD6-24D15E3C2	24	18-36	±15	±200	287	12	330	100	85	87

Note: 1: The maximum capacitive load refers to the capacitance capacity that the output is allowed to connect when the power supply is fully loaded. If the capacity is exceeded, the power supply may not be able to start.

Input Specifications

Item	Working Condition	Min.	Typ.	Max.	Unit
Starting Voltage	Input 18-36v	--	--	18	VDC
Input Under-voltage Protection	Input 18-36v	--	13	--	VDC
Standby Power Consumption	0.25W (TYP)				
Input Filter	Π filter				
CTRL	The module is turned on, CTRL is left floating or connected to a high level (3.3VDC-12VDC)				
	Module shutdown CTRL connected to low level (0-1.2VDC)				
	Input current at shutdown			2mA (TYP)	

Output Specifications

Output Voltage Accuracy	Full voltage range	+Vo	$\leq \pm 2.0\%$
		-Vo	$\leq \pm 3.0\%$
Voltage Regulation	Nominal load, full voltage range	+Vo	$\leq \pm 0.5\%$
		-Vo	$\leq \pm 1\%$
Load Regulation	10% ~ 100% nominal load	+Vo	$\leq \pm 1\%$
		-Vo	$\leq \pm 1.5\%$
Cross Regulation	Dual output, main channel 50% loaded, auxiliary channel 25%~100% loaded		$\leq \pm 5\%$
Ripple & Noise*	Nominal load, nominal voltage		$\leq 100\text{mVp-p}$ (20MHz bandwidth)
Temperature Drift Coefficient	100% Full Load		$\pm 0.03\%/^{\circ}\text{C}$
Dynamic Response	25% nominal load step, nominal input voltage	5V Output	$\pm 5.0\%/0.5\text{ms(Typ.)}$
		12V, 15V Output	$\pm 3.0\%/0.5\text{ms(Typ.)}$
Output Short Circuit Protection	Continuous, Self-recovery		
Output Over-load Protection	120%~220% Io		
Output Over-voltage Protection	110%~160% Vo		
Turn-on Delay Time	Typ:10ms		
Output Turn-on Overshoot Voltage	$\leq 10\%V_o$		

Note: Ripple & noise test adopts twisted pair method, see Design and Application Circuit Reference for details.

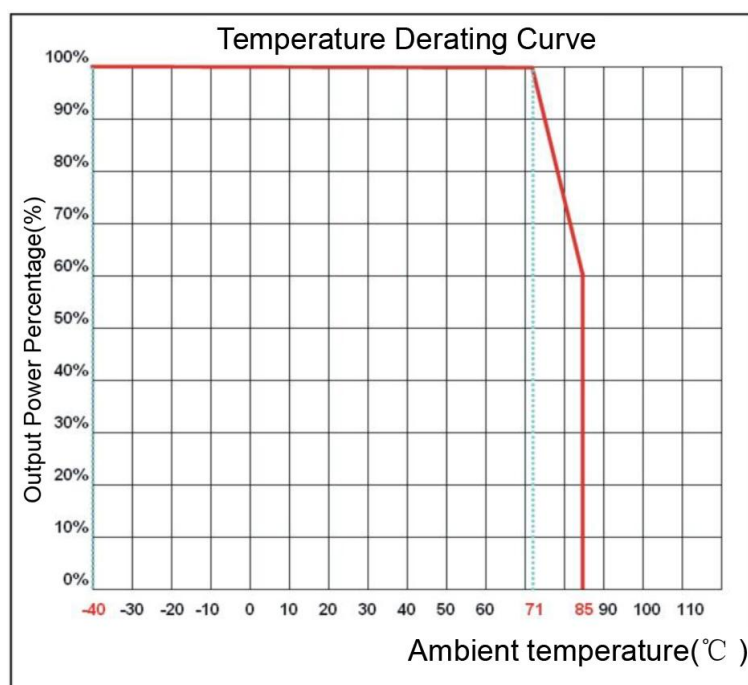
General Specification

Switching Frequency	Typical	300KHz
Operating Temperature	Refer to temperature derating curves	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Storage Temperature		$-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Max Case Temperature	Within Operating Curve	$+105^{\circ}\text{C}$
Relative Humidity	No condensing	5%~95%
Case Material	--	Black flame-retardant and heat-resistant plastic (UL94-V0)
Pin Soldering Temperature	The solder joint is 1.5mm away from the shell, 10 seconds	300°C MAX
Isolation Voltage	Input to Output	Input-output $1500\text{Vac} \leq 1\text{mA} / 1\text{min}$
Meantime Between Failure	MIL-HDBK-217F@25°C	$2 \times 10^5\text{Hrs}$
Product Weight	--	22g (Typ.)

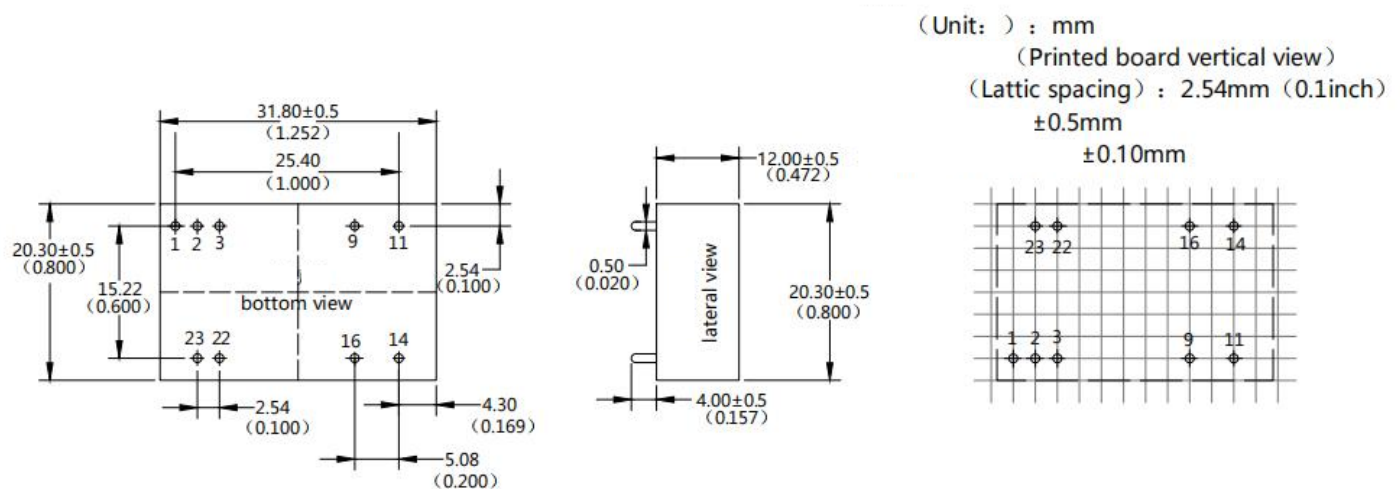
EMC Characteristics

Total Items		Sub Items	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B (see recommended circuit photo②)
		RE	CISPR22/EN55032	CLASS B (see recommended circuit photo②)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (see recommended circuit photo②)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (see recommended circuit photo②)
		ESD	IEC/EN61000-4-2	Contact ±4KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±2KV Perf.Criteria B (see recommended circuit photo①)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B (see recommended circuit photo①)
		Voltage dips, dips and short interruptions immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

Product Characteristic Curve



Packing Dimension



Packing Code	L x W x H	
E3	31.80 × 20.30 × 12mm	1.252 × 0.800 × 0.472inch

Pin-out

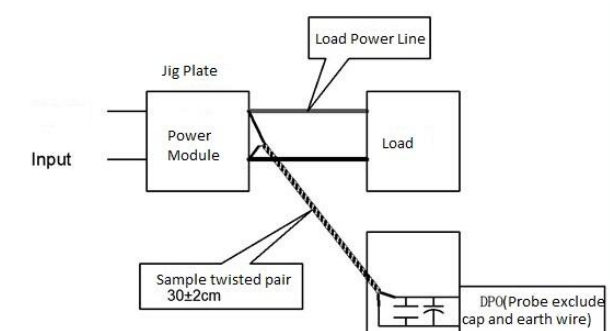
Pins Function	1	2	3	9	11	14	16	22	23
CDD6-XXSXXE3C2	Ctrl	-Vin	-Vin	NP	NC	+Vo	GND	+Vin	+Vin

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

Test Method:

a. 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHZ, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

b. Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.

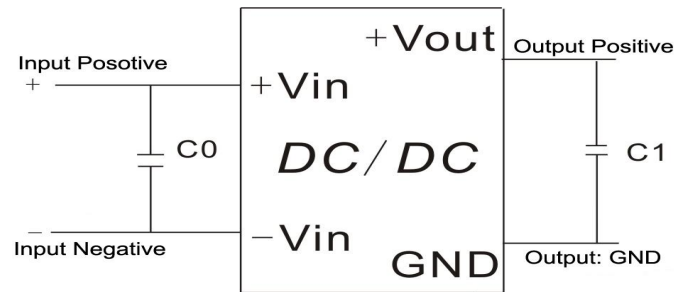


Design and Application Reference

Recommended circuit

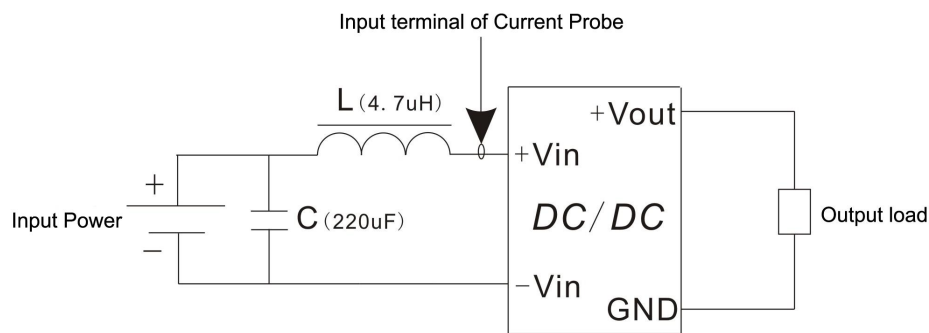
1. DC/DC test circuit

Normal recommended capacitors: C0: 47-100uF; C1: 100uF.

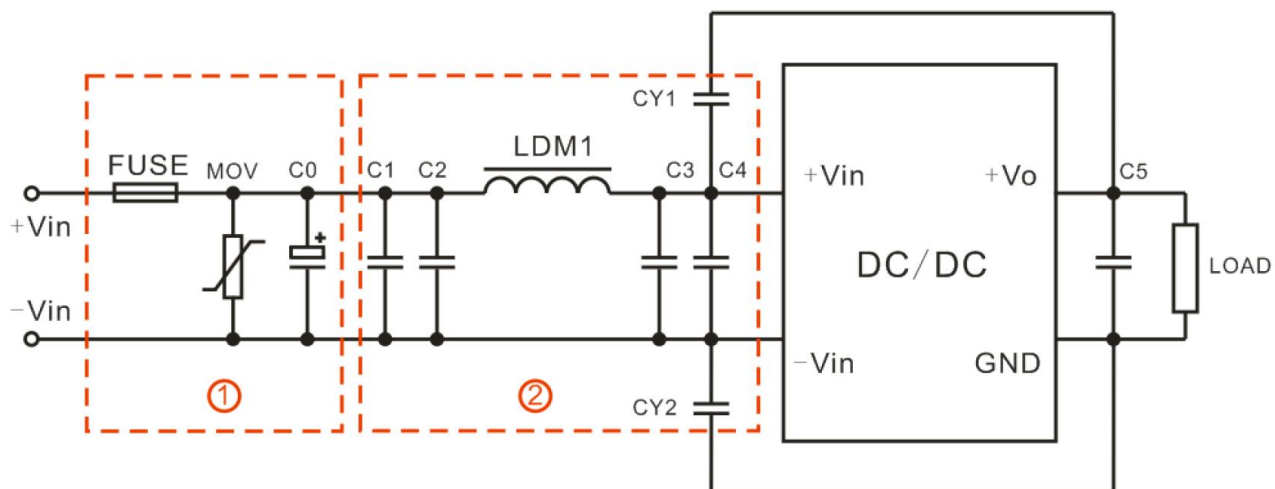


2. Input reflecting ripple current test circuit:

Capacitor C choose low ESR ones, withstand voltage value should be bigger than max input voltage;



3. EMC External Recommended Circuit:



Recommended Spec:

Component	Connection
FUSE	According to customer's request
MOV	14D470K
C0	470uF/50V
C1,C2,C3,C4,C5,C6	10uF/50V
LDM1	10uH
CY1,CY2	1nF/2000V

Note:

1. The product should be used under the specification range, otherwise it will cause permanent damage to it.
2. If the product worked beyond the load range or below the minimum load, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
3. Unless otherwise specified, data in this datasheet should be tested under conditions of $T_a=25^{\circ}\text{C}$, humidity<75% when inputting nominal voltage and outputting rated load(pure resistance load);
4. All index testing methods in this datasheet are based on our Company's corporate standards
5. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technician for specific information;
6. We can provide customized product service;
7. The product specification may be changed at any time without prior notice.