CDD10-XXSXXE3C2 Series
DC/DC Converter

Typical Features

- Wide input voltage range (4:1)
- Efficiency up to 88% (Typ.)
- No load power consumption 0.25W (Typ.)
- Continuous short circuit protection, self-recovery
- Operating temperature from -40℃ to +105℃
- Isolation voltage 1500VDC
- Standard Pin-out alignment

Application Filed

CDD10-XXSXXE3C2 Series *-- Output power 10W DC-DC converters with 4:1 wide voltage input range, 1500VDC isolation voltage, output short circuit protection, operating temperature from –40℃ to +105℃, and the remote control on/off function. This series of products can be widely used in the fields of Instrument, Communication, Pure digital circuit, General low frequency analog circuit, Relay drive circuit, Data exchange circuit, etc.*

Typical Product List

Certificate	Part No.	Input voltage Range (VDC)		Output Voltage /Current (Vo/Io)		Input current (mA) Typ. @nominal volt.		Max. Capacitive Load	Ripple & Noise (mVp-p)		Efficiency(%) @full load /nominal voltage	
		Nom.	Range	Vo (VDC)	Io(mA) Max/Min	Full Load	No Load	(uF)	Typ.	Max	Min	Typ.
-	CDD10-18S3V3E3C2	24	9-36	3.3	2400/0	392	33	1200	50	100	84	86
	CDD10-18S05E3C2			5	2000/0	479	33	1000			85	87
	* CDD10-18S12E3C2			12	833/0	479	10	470			85	87
	* CDD10-18S15E3C2			15	667/0	479	10	330			85	87
	* CDD10-18S24E3C2			24	416/0	483	10	100			86	88
-	*CDD10-36S3V3E3C2	48	18-75	3.3	2400/0	194	33	1200			84	86
	* CDD10-36S05E3C2			5	2000/0	245	33	1000			85	87
	* CDD10-36S12E3C2			12	833/0	245	10	470			85	87
	* CDD10-36S15E3C2			15	667/0	245	10	330			85	87
	* CDD10-36S24E3C2			24	416/0	241	10	100			86	88

Note 1: The * marked parts have been developed in process.

Note 2: The maximum capacitive load is the capacitance allowed to be used when the power supply starts at full load. The converter may not start if the capacitor exceeds this value.

Note 3: In the part numbers C indicates the part with Control ON/OFF function, N indicates without Control.

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Input Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
No load power consumption	Nominal input voltage, no load	/	0.25	/	W
Start-up Voltage	Nominal 24V input	/	/	9	VDC
	Nominal 48V input	/	/	18	
Under-voltage Protection	Nominal 24V input	5	7	/	VDC
	Nominal 48V input	12	13	/	
Hot plug	/	Unavailable			
Input Filter	/	Pi filter			
Remote control (CTRL)	Turn-on the converter – CTRL No connection or connect to high level (3.3V-12VDC)				
	Turn-off the converter – CTRL connected to -Vin or low level（0-1.2VDC）				
	Current value to turn off the converter - 2mA (TYP)				

Output Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0%-100% load	/	±1	±2	%
Voltage Regulation	Full input voltage range, full load	/	±0.2	±0.5	%
Load Regulation	10%-100% load	/	±0.5	±1	%
Ripple & Noise	0%-100% load, 20MHz	/	50	100	mVp-p
Dynamic Response Deviation	25% of rated load step	/	±3	±5	%
Dynamic Response Time	25% of rated load step, full input volt. range	/	300	500	uS
Temperature Drift Coefficient	Full load	/	/	±0.03	%/℃
Turn-on Delay	Nominal input voltage, Constant-resistance load	/	10	/	mS
Over Voltage Protection	Full input voltage	110	/	160	%Vo
Over Current Protection		110	150	220	%Io
Start-up overshoot		/	/	10	%Vo
Short Circuit Protection		Continuous, Self-recovery			

General Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	Operating Mode (PWM)	/	330	/	KHz
Operating Temperature	Refer to the temperature derating graph	-40	/	+105	°C
Storage Temperature	/	-55	/	+125	
Pin soldering temperature	1.5mm from the case, 10 seconds	/	/	300	
Relative Humidity	No condensing	5	/	95	%RH

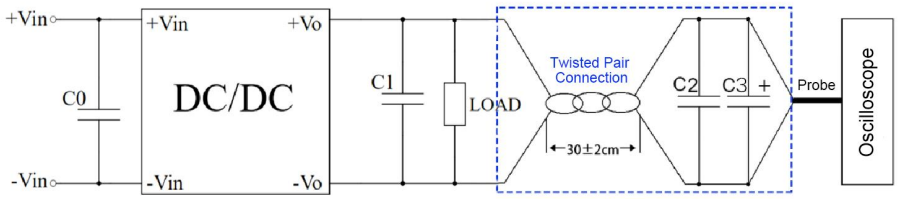
Isolation Voltage	I/P-O/P, Test 1Min, leakage current <1mA	1500	/	/	VDC
Insulation Resistance	I/P-O/P @ 500VDC	1000	/	/	MΩ
Insulation Capacitance	I/P-O/P, 100kHz/0.1V	/	2000	/	pF
MTBF	MIL-HDBK-217F@25℃	1000	/	/	K Hours
Cooling Method	Nature air				
Case Material	Aluminum				

Weight/Dimensions	Part No.	Weight	Dimensions L x W x H	
	CDD10-XXSXXE3C2	12g (Typ.)	31.6 × 20.30 × 12.00 mm	1.244 × 0.799 × 0.472 inch

EMC Performance

Total Items		Sub Items	Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS B (with the Recommended EMC Circuit)
		RE	CISPR32/EN55032	CLASS B (with the Recommended EMC Circuit)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B
		ESD	IEC/EN61000-4-2	Contact ±4KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±2KV Perf.Criteria B (with the Recommended EMC Circuit)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B (with the Recommended EMC Circuit)

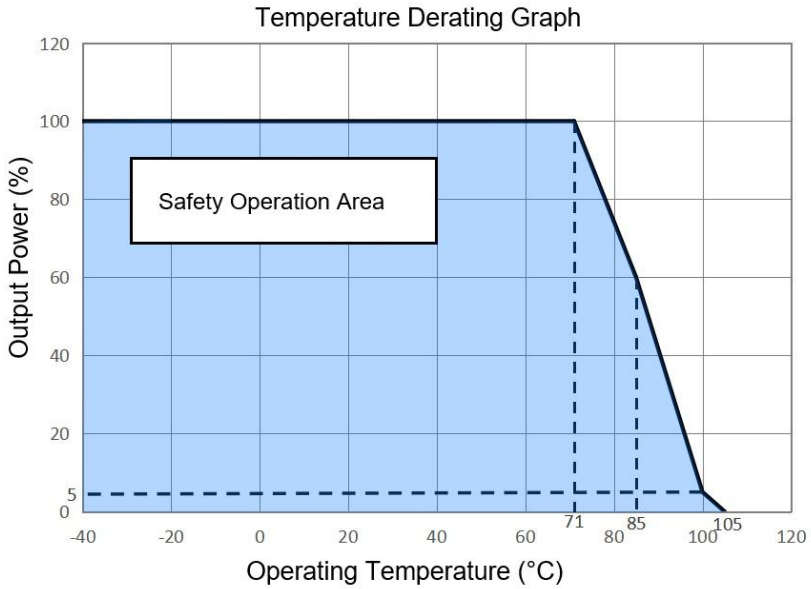
Ripple & Noise Test Instructions (Twisted Pair Method, 20MHz Bandwidth)



1) The Ripple & noise test needs 12# twisted pair cables, an oscilloscope which should be set at the Sample M ode, bandwidth 20MHz. 100M bandwidth probe with cap and ground removed. C2(0.1uF) polypropylene capacitor and C3(10uF) high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes and one side of the twisted pair. C0 & C1 refer to the application circuit recommended.

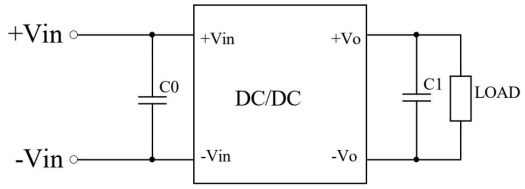
2) The power supply output connects to the load by the cables. The other side of the twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the polarity of the output and the oscilloscope probe should not be reversed. The test can be start after input power on.

Product Characteristics Graph



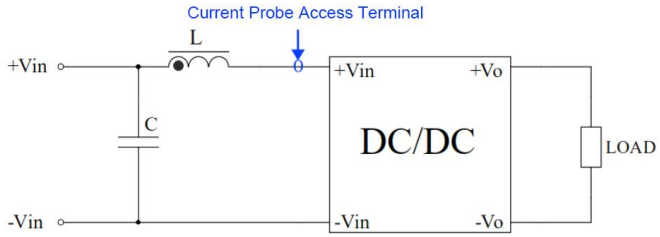
Recommended Circuits for Application

1, All this series of converters will be tested according to the circuit diagram below before shipping.



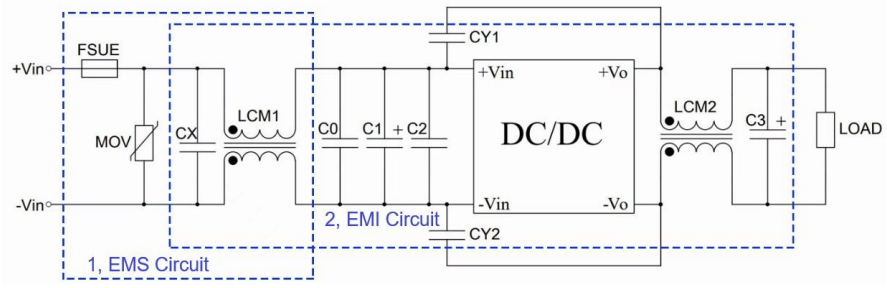
Components	Parameters
C0	47-100uF/100V
C1	10uF/50V

2, Input reflecting ripple current test circuit diagram



Components	Parameters
C	100uF/100V
L	4.7uH

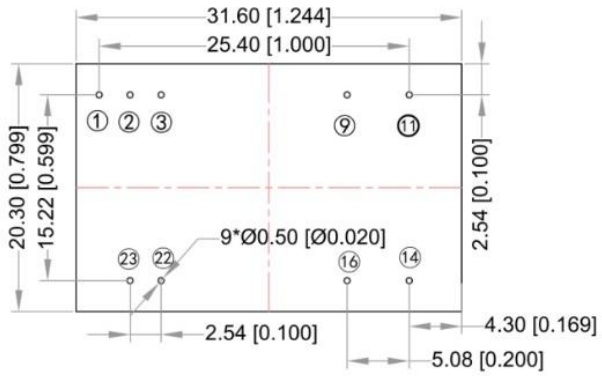
3, Recommended EMC Circuit diagram

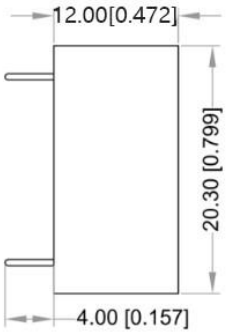


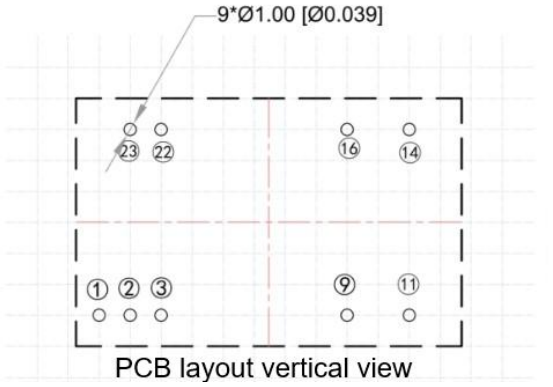
Components	Vin 24VDC	Vin 48VDC
FUSE	TBD by the customer	
MOV	14D470K	14D470K
CX	470uF/50V	470uF/100V
C0,C1,C2,C3	10uF/50V	10uF/100V
LCM1	5mH	
LCM2	30uH	
CY1, CY2	1nF/2000V	

Note: Part 1 in the circuit is for EMS test, part 2 for EMI filtering, both can be adjusted according to the actual situation.

Mechanical Dimensions







Note:
Unit: mm [inch]
Pin diameter tolerance: ±0.10 [±0.004]
General tolerance: ±0.50 [±0.020]
Grid 2.54x2.54[0.10x0.10]

Pin-out Function Description

Pin No.	1	2, 3	22, 23	14	16	9	11
CDD10-XXSXXE3C2	CTRL	-Vin	+Vin	+Vout	GND	No Pin	No Connection
CDD10-XXSXXE3N2	No Pin	-Vin	+Vin	+Vout	GND	No Pin	No Connection

Application Notice

1.The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.

2. It is not recommended to connect the converters in parallel to achieve a bigger power output.

3. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.

4. The product performance in this datasheet cannot be guaranteed if it works at over-load condition.

5. Unless otherwise specified, all values or indicators in this datasheet are tested at Ta=25℃, humidity<75%RH, nominal input voltage and rated load (pure resistance load).

6. All values or indicators in this datasheet had been tested based on test specifications.

7.The specifications are specially for the parts listed in this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.