CUD6-XXDXXE23 Series
DC/DC Converter

Typical Features

- ◆ Wide input voltage range (4:1), Output power 6W
- ◆ Transfer efficiency up to 84%
- ◆ Continuous short circuit protection, Self-recovery
- ◆ Input under voltage, output over voltage, short circuit, over current protection
- ◆ Switching Frequency: 300KHz
- ◆ Isolation voltage: 3000VDC
- ◆ Operating Temperature range: -40℃~+85℃
- ◆ Good EMI performance

Application Filed

CUD6-XXDXXE23 *31.8*20.3 package developed by our company, 6W output power, ultra-wide voltage 4:1 input range, 3000V electrical isolation, regulated dual output DC-DC module power supply, can be widely used in industrial control, instrumentation, communication, electricity, Internet of Things 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 Typ.	mVp-p Max.	Min	Typ
*CUD6-18D3V3E23	18	9-36	±3.3	±600/0	290	20	220	30	100	74	76
CUD6-18D05E23			±5	±600/0	417	20	220	30	100	78	80
*CUD6-18D09E23			±9	±333/0	407	20	100	30	100	80	82
*CUD6-18D12E23			±12	±250/0	407	20	100	30	100	80	82
CUD6-18D15E23			±15	±200/0	407	25	33	30	100	80	82
*CUD6-18D24E23			±24	±125/0	407	25	22	30	100	80	82
*CUD6-36D3V3E23	48	18-75	±3.3	±600/0	145	10	220	30	100	74	76
CUD6-36D05E23			±5	±600/0	208	10	220	30	100	78	80
* CUD6-36D09E23			±9	±333/0	203	10	100	30	100	80	82
* CUD6-36D12E23			±12	±250/0	203	10	100	30	100	80	82
*CUD6-36D15E23			±15	±200/0	203	13	33	30	100	80	82
CUD6-36D24E23			±24	±125/0	203	13	22	30	100	80	82

1. Max capacitive load is, when the power supply is fully loaded, the max capacity could be connected to output, if exceed, the power supply cannot start-up;
2. "*" are for models under developing.

Input Specifications

Stand-by Power Consumption	0.5W(TYP)
Input Filter	π filter

Output Specifications

Output Voltage Accuracy	Full voltage range full load	Vo1: ±2.0% (Max)	
		Vo2: ±3.0% (Max)	
Line Regulation	Nominal load, full voltage range	Vo	≤±0.5%
Load Regulation	10% ~ 100% nominal load	Vo	≤±1.0%
Ripple & Noise	Nominal Load, Nominal Voltage, twisted pair test method, 20MHz bandwidth		50mVp-p Typ, 100mVp-p
Output Over voltage protection	110%~140%Vo		
Output Over load protection	120%~220%Io		
O/P Short Circuit Protection	Continuous, Self-recovery		
Dynamic Response	25% nominal load step change	△Vo/△t	≤6%/500μ s
Output Voltage Adjustment	No adjustment		
Turn-on delay time	Typical	500ms	
O/P Turn-on Overshoot Voltage		≤10%Vo	

General Specification

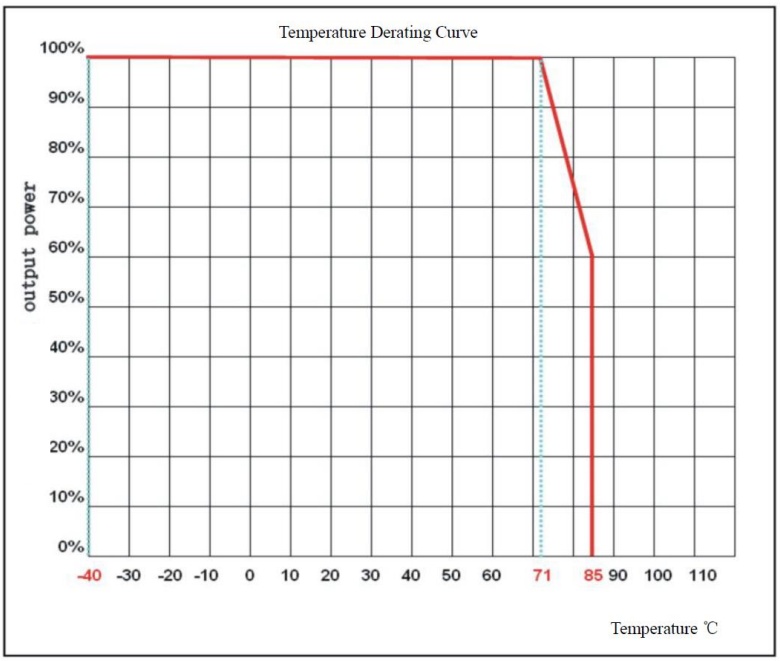
Switching Frequency	Typical	300KHz
Operating Temperature	Refer to temperature derating curves	-40℃ ~ +85℃
Storage Temperature		-55℃ ~ +125℃
Max Case Temperature	Within Operating Curve	+105℃
Relative Humidity	No condensing	5%~95%
Case Material		Plastic Case
Cooling Method		Free air convection
Isolation Voltage	Input to Output	3000Vdc ≤ 0.5mA / 1min
Meantime Between Failure	MIL-HDBK-217F@25℃	$2X10^5$Hrs
Product Weight	Average	12g

EMC Characteristics

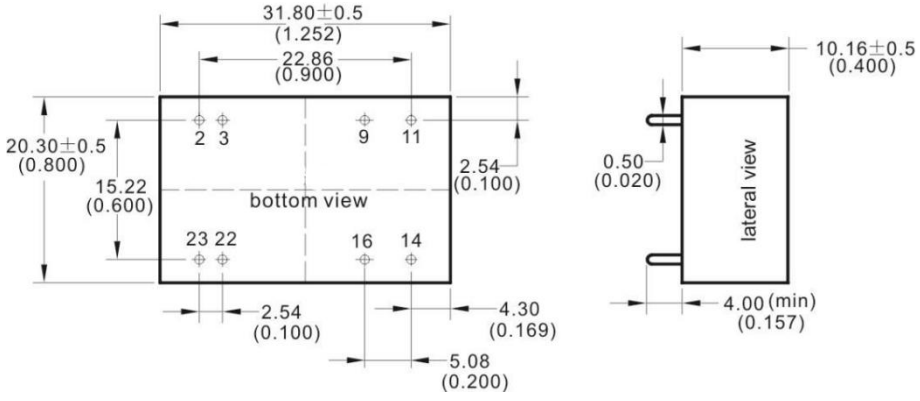
Total Items		Sub Items	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B (see recommended circuit photo②)
		RE	CISPR22/EN55032	CLASS B (see recommended circuit photo②)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (see recommended circuit photo②)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (see recommended circuit photo②)

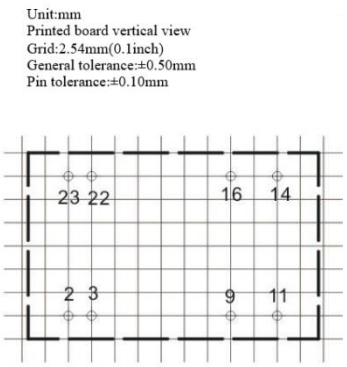
		ESD	IEC/EN61000-4-2	Contact ±4KV	Perf.Criteria B
		Surge	IEC/EN61000-4-5	±2KV	Perf.Criteria B (see recommended circuit photo ①)
		EFT	IEC/EN61000-4-4	±2KV	Perf.Criteria B (see recommended circuit photo①)
		Voltage dips and interruptions	IEC/EN61000-4-11	0%~70%	Perf.Criteria B

Temperature characteristic curve



Packing Dimension





Packing Code	L x W x H	
E23	31.80 × 20.30 × 10.16mm	1.252 × 0.800 × 0.400inch

Pin-out

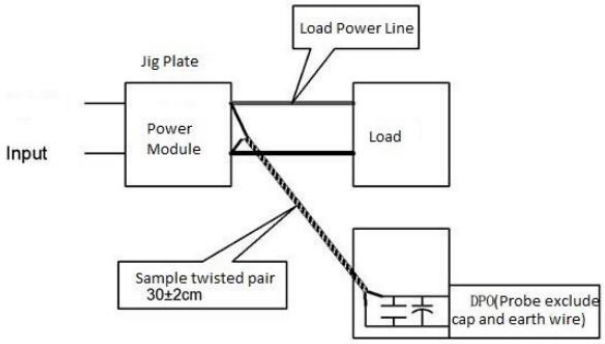
Pin-Out	2,3	22, 23	14	16	9	11
Dual(D)	-Vin	+Vin	+Vo	GND	GND	-Vo

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.

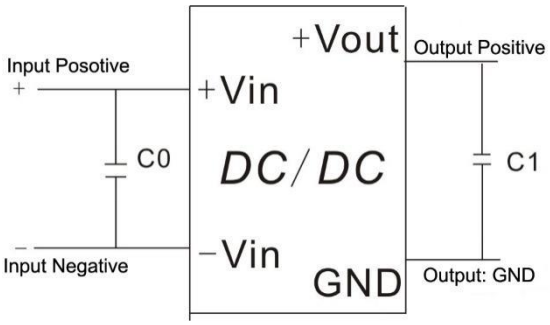


Design and Application Reference

Recommended circuit

1.DC/DC test circuit:

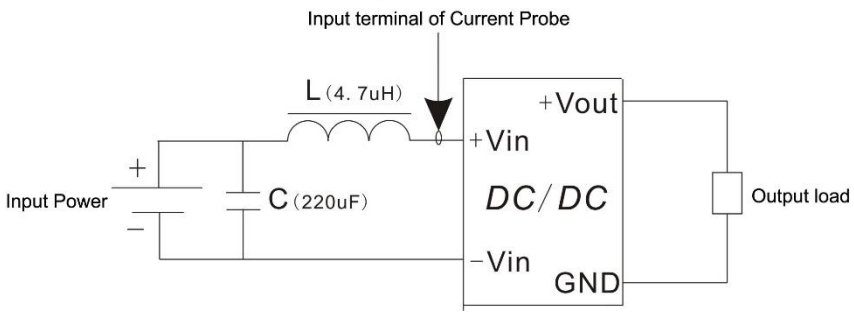
Normal recommended capacitors: C0:47-100uF; C1: 470uF.



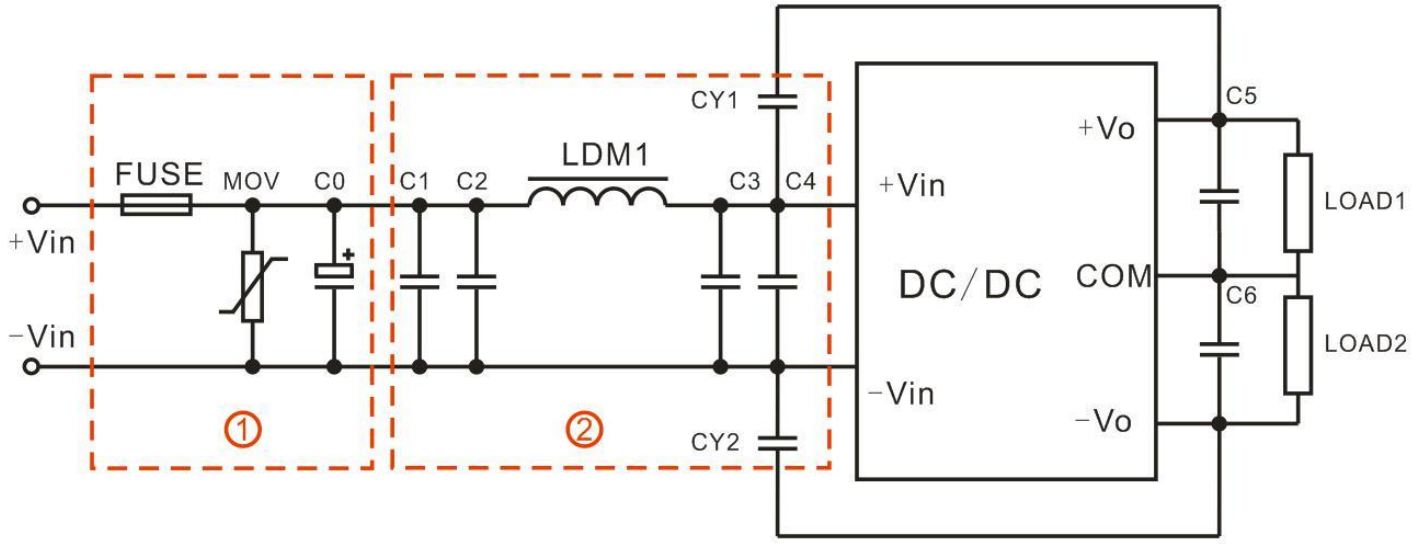
2. Input reflecting ripple current test circuit:

Capacitor C choose low ESR ones,

withstand voltage value should be bigger than max input voltage;



3. EMC external recommended circuit:



Components	18V Input	36V Input
FUSE	According to customer's request	
MOV	14D560K	14D101K
C0	470uF/50V	470uF/50V
C1,C2,C3,C4,C5,C6	10uF/50V	10uF/50V
LDM1	10uH	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 Ta=25℃, 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.