

Typical Features

- ◆ Wide input voltage range (2:1), Output power 10W
- ◆ Transfer efficiency up to 87%
- ◆ With remote control turn off function
- ◆ Continuous short circuit protection, Self-recovery
- ◆ Power-on and power-off without overshoot
- ◆ Isolation voltage: 1500VDC
- ◆ Operating Temperature range: -40°C~+85°C
- ◆ Plastic case, meet UL94 V-0 standard



Application Filed

Widely used in instrumentation, tel-communication, 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
DD10-12D05E3C2	12	9-18	±5	±1000	980	12	1000	100	81	83
*DD10-12D12E3C2	12	9-18	±12	±416	960	12	470	100	85	87
*DD10-12D15E3C2	12	9-18	±15	±333	960	12	330	100	85	87
*DD10-24D05E3C2	24	18-36	±5	±1000	502	12	1000	100	81	83
*DD10-24D12E3C2	24	18-36	±12	±416	478	12	470	100	85	87
*DD10-24D15E3C2	24	18-36	±15	±333	478	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 and started. If this capacity is exceeded, the power supply may not be able to start;

Note 2: "*" are models under developing.

Input Specifications

Item	Working conditions	Min	Typ.	Max	Unit
Starting voltage	9-18 Input	-	-	9	VDC
	18-36 Input	-	-	18	
Input under voltage protection	9-18 Input	-	6	-	VDC
	18-36 Input	-	13	-	
Standby power consumption	0.15W(TYP)				

Input filter	Π filter	
CTRL	Module is turned on CTRL is left floating or connected to high level(3.3VDC-12VDC)	
	Module shut down CTRL connected to low level(0-1.2VDC)	
	Input current at shutdown	2mA (TYP)

Output Specifications

Output Voltage Accuracy	Full voltage range full load	Positive output	$\leq \pm 2.0\%$
		Negative output	$\leq \pm 3.0\%$
Line Regulation	Nominal load, full voltage range	Positive output	$\leq \pm 0.5\%$
		Negative output	$\leq \pm 1.0\%$
Load Regulation	10% ~ 100% nominal load	Positive output	$\leq \pm 1.0\%$
		Negative output	$\leq \pm 1.5\%$
Cross Regulation	Dual output, main circuit with 50% load, auxiliary circuit with 25%~100% load		$\leq \pm 5\%$
Ripple & Noise	Nominal Load, Nominal Voltage		$\leq 100\text{mVp-p}$ (20MHz band width)
Temperature Drift Coefficient	100% Full load		$\pm 0.03\%/^{\circ}\text{C}$
Dynamic Response	25% nominal load step	$\Delta\text{Vo}/\Delta\text{t}$	$\pm 5.0\%/0.5\text{ms}$ (Typ.)
O/P Short Circuit Protection	Continuous, Self-recovery		
Output Over load protection	120%~220%Io		
Output Over voltage protection	110%~160% Vo		
Startup delay time	Typ:10ms		
Output Voltage Adjustment	$\leq 10\%\text{Vo}$		

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

General Specification

Switching Frequency	Typical	330KHz
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 heat resistant plastic(UL94 V-0)
Pin Soldering Temperature	The solder joint is 1.5mm away from the shell, 10seconds	300°C MAX
Isolation Voltage	Input to Output	$1500\text{Vdc} \leq 0.5\text{mA} / 1\text{min}$
Meantime Between Failure	MIL-HDBK-217F@25°C	$2 \times 10^5\text{Hrs}$
Product Weight	Average	22g(Typ.)

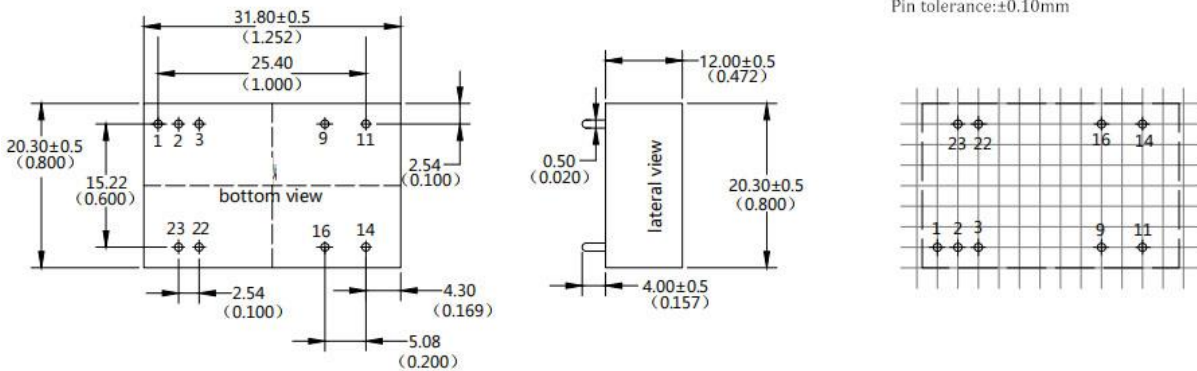
EMC Characteristics

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 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

Packing Dimension

Unit:mm
Printed board vertical view
Grid:2.54(0.1inch)
General tolerance:±0.5mm
Pin tolerance:±0.10mm



Packing Code	L x W x H	
E3	31.80 × 20.30 × 12.00mm	1.252 × 0.800 × 0.472inch

Pin-out

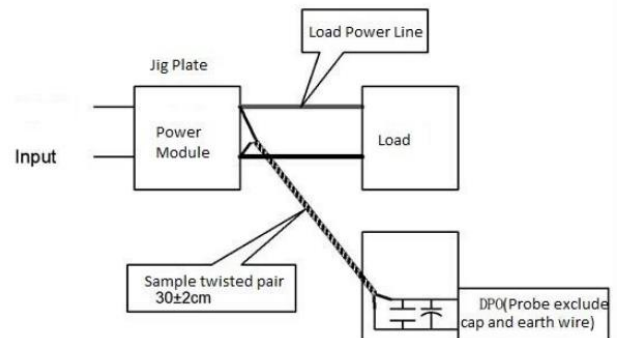
Pin-out	1	2	3	9	11	14	16	22	23
Single(S)	Ctrl	-Vin	-Vin	GND	-Vo	+Vo	GND	+Vin	+Vin

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

Test Method:

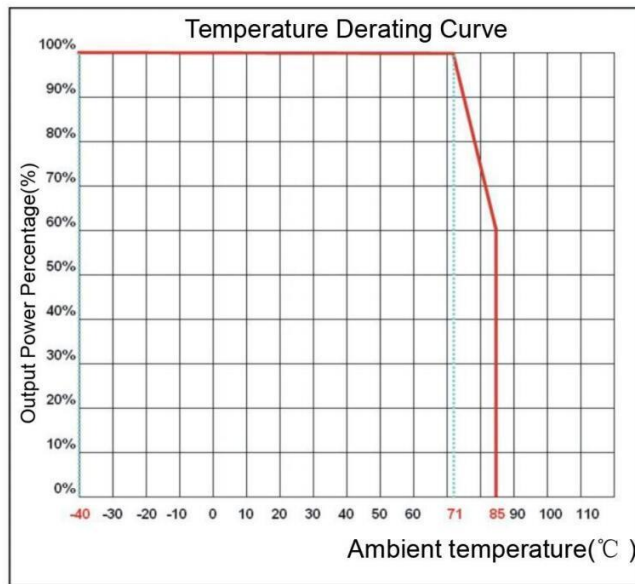
a. 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

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.





Temperature characteristic curve

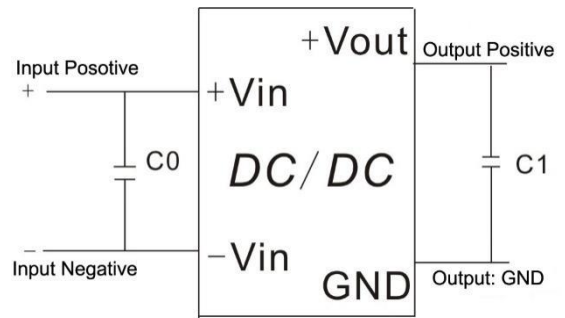


Design and Application Reference

Recommended circuit

1. DC/DC test circuit:

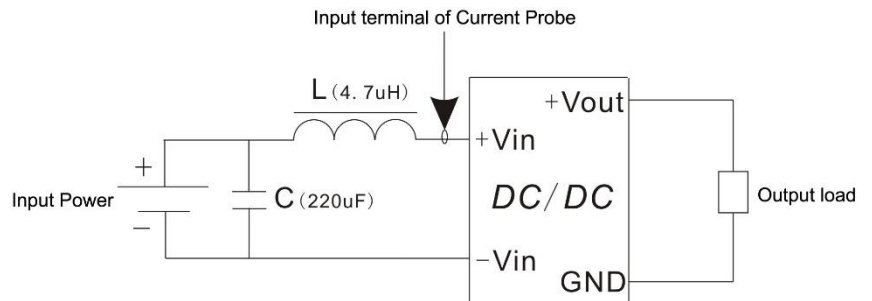
Normal recommended capacitors: C0:47-100uF; C1: 470uF.



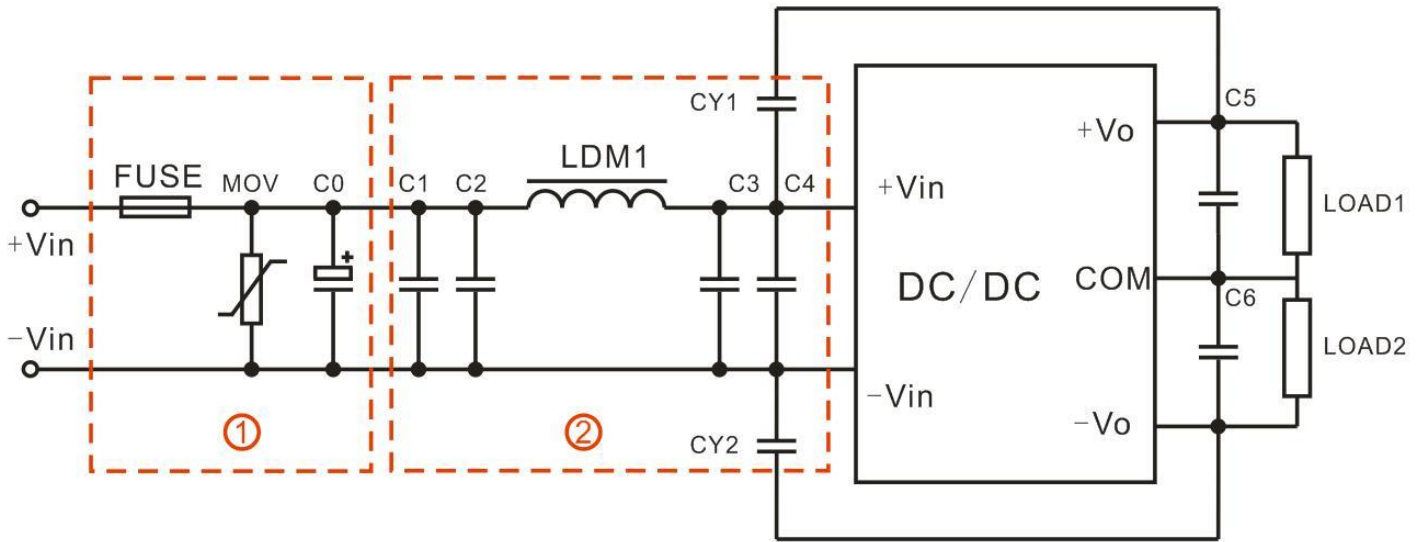
2. Input reflecting ripple current test circuit:

Capacitor C choose low ESR ones,

withstand voltage value should be bigger than max input voltage;



3.EMC external recommended circuit:



Components	Specs
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 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.