



Typical Features

- ◆ Wide input voltage range (4:1), Output power 6W
- ◆ Transfer efficiency up to 84%
- ◆ Continuous short circuit protection, Self-furbish
- ◆ Output over voltage, short circuit, over current protection
- ◆ Switching Frequency: 300KHz
- ◆ Isolation voltage: 1500VDC
- ◆ Operating Temperature range: -40°C~+85°C
- ◆ Good EMI performance



Test Condition: Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25°C.

Application Filed

UD6-XXSXXE3 31.8*20.3 package developed by our company, 6W output power, ultra-wide voltage 4:1 input range, regulated single output DC-DC module power supply, can be widely used in industrial control, instrumentation, communication, electricity, Internet of Things and other fields. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Typical Product List

Part No.	Input Voltage Range (Vdc)		Output Voltage/Current (Vo/Io)		Input Current (mA) Nominal Voltage		Max. Capacitive Load uF	Ripple & Noise		Efficiency (%)@output full load, input nominal	
	Nominal	Range	Voltage (Vdc)	Current (mA) MAX./Min.	Full load Typ.	No load Typ.		mVp-p		Min	Typ
								Typ.	Max.		
*UD6-18S3V3E3	18	9-36	3.3	1200/0	290	20	1000	30	100	74	76
UD6-18S05E3			5	1200/0	417	20	1000	30	100	78	80
*UD6-18S09E3			9	667/0	407	20	470	30	100	80	82
UD6-18S12E3			12	500/0	407	20	220	30	100	80	82
*UD6-18S15E3			15	400/0	407	25	220	30	100	80	82
UD6-18S24E3			24	250/0	407	25	100	30	100	80	82
UD6-36S3V3E3	36	18-75	3.3	1200/0	145	10	1000	30	100	74	76
UD6-36S05E3			5	1200/0	208	10	1000	30	100	78	80
UD6-36S09E3			9	667/0	203	10	470	30	100	80	82
UD6-36S12E3			12	500/0	203	10	220	30	100	80	82
UD6-36S15E3			15	400/0	198	13	100	30	100	82	84
UD6-36S24E3			24	250/0	198	13	100	30	100	82	84

Note:

1. “*” is model under developing;
2. 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;

Input Specifications

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

Output Specifications

Output Voltage Accuracy	Full voltage range	$\leq \pm 2.0\%$ (Max)	
Voltage Regulation	Nominal load, full voltage range	V_o	$\leq \pm 0.5\%$
Load Regulation	10% ~ 100% nominal load	V_o	$\leq \pm 2.0\%$
Ripple & Noise*	Nominal Load, Nominal Voltage, twisted pair test method, 20MHz bandwidth	50mVp-p Typ, 100mVp-p	
Output Over voltage protection	110%~140% V_o		
Output Over load protection	120%~350%		
Output Short Circuit Protection	Continuous, Self-recovery		
Dynamic Response	25% nominal load step change	$\Delta V_o / \Delta t$	$\leq 6\% / 500\mu s$
Output Voltage Adjustment	Not Available		
Turn-on delay time	Typical	800ms	
Output Turn-on Overshoot Voltage			$\leq 10\% V_o$

General Specification

Switching Frequency	Typical	300KHz
Operating Temperature	Refer to temperature derating curves	-40°C ~ +85°C
Storage Temperature		-55°C ~ +125°C
Max Case Temperature	Within Operating Curve	+105°C
Relative Humidity	No condensing	5%~95%
Case Material		Black Aluminum Metal Case
Cooling Method		Free air convection
Isolation Voltage	Input to Output	1500Vdc \leq 0.5mA / 1min
Meantime Between Failure	MIL-HDBK-217F @25°C	2X10 ⁵ Hrs
Product Weight	Average	15g

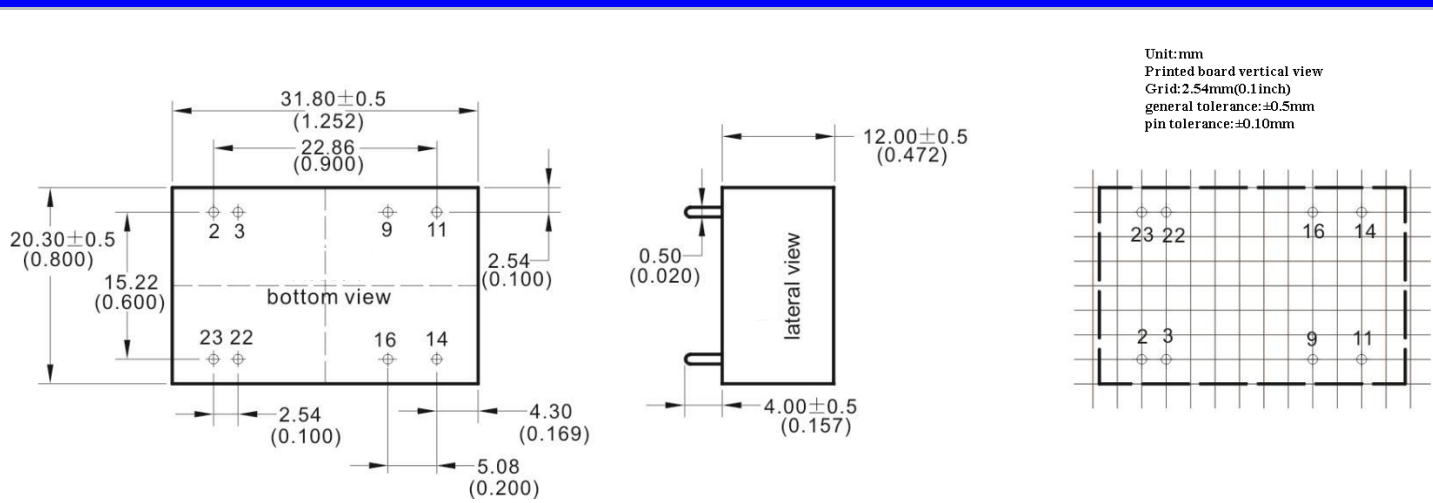
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EMC Characteristics

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, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%~70% Perf.Criteria B

Packing Dimension



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

Pin-out

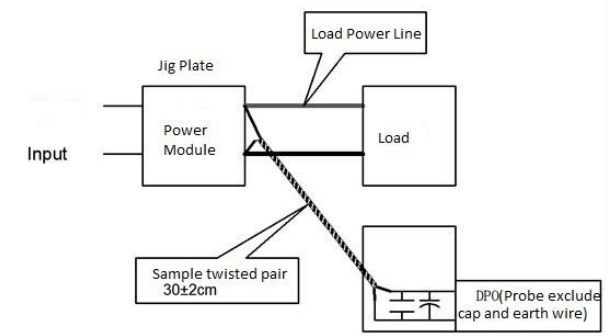
Single(S)	2, 3	22, 23	14	16	9	11
	-Vin	+Vin	+Vo	GND	NP	NC

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

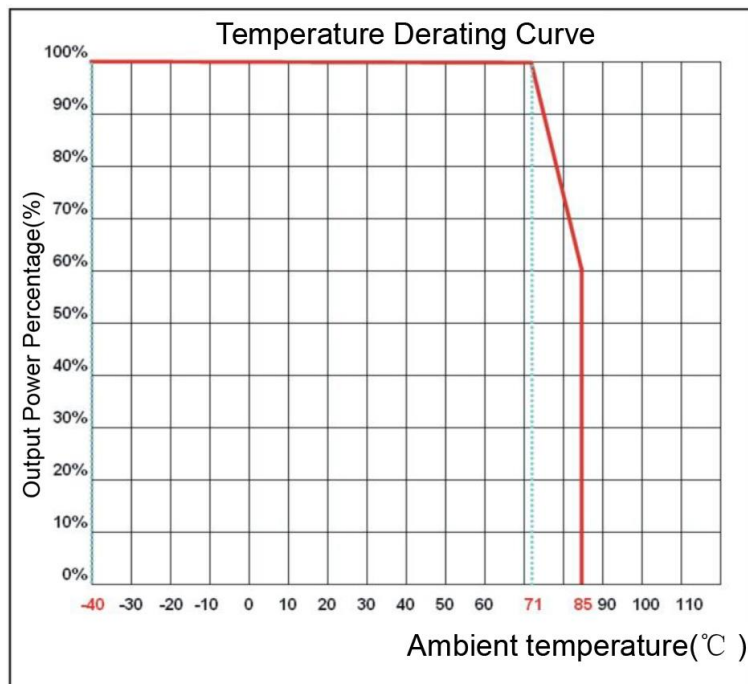
Test Method:

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.



Product Characteristic Curve

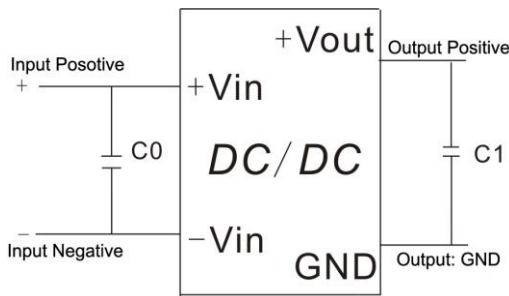


Design and Application Reference

Recommended circuit

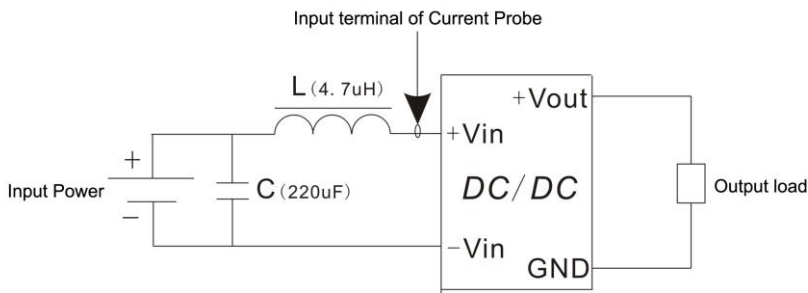
1. DC/DC test circuit;

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

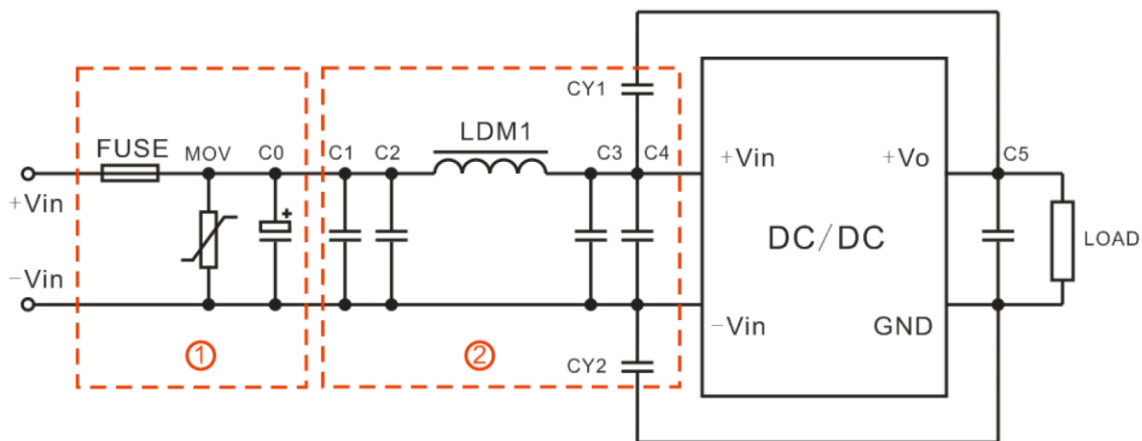


2. Input reflecting ripple current test circuit:

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



3. EMC External Recommended Circuit:



Recommended Spec:

Component	18V Input	36V Input
FUSE	According to customer's request	
MOV	14D560K	14D101K
C0	470uF/50V	470uF/50V
C1,C2,C3,C4,C5	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°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.