



Typical Features

- ◆ Wide input voltage range (4:1), Output power 6W
- ◆ Transfer efficiency up to 84%
- ◆ Continuous short circuit protection, Self-recovery
- ◆ Output over voltage, short circuit, over current protection
- ◆ Switching Frequency: 250KHz
- ◆ Isolation voltage: 3000VDC
- ◆ Operating Temperature range: -40°C~+85°C
- ◆ Good EMI performance
- ◆ Conform to IEC62368/UL62368/EN62368 test standard
- ◆ Certified by CE, RoHS



Application Filed

UD6-XXSXXE23 31.8*20.3 package developed by our company, 6W output power, ultra-wide voltage 4:1 input range, 3000V electrical isolation, 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.		
*UD6-36S3V3E23	48	18-75	3.3	1200/0	145	10	1000	30	100	74	76
UD6-36S05E23			5	1200/0	208	10	1000	30	100	78	80
*UD6-36S09E23			9	667/0	203	10	470	30	100	80	82
*UD6-36S12E23			12	500/0	203	10	220	30	100	80	82
*UD6-36S15E23			15	400/0	198	13	100	30	100	82	84
UD6-36S24E23			24	250/0	147	10	100	30	100	82	84

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;.

Input Specifications

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



Output Specifications

Output Voltage Accuracy	Full voltage range	±2.0% (Max)	
Line Regulation	Nominal load, full voltage range	Vo	≤±0.5%
Load Regulation	10% ~ 100% nominal load	Vo	≤±2.0%
Ripple & Noise	Nominal Load, Nominal Voltage, twisted pair test method, 20MHz bandwidth		50mVp-p Typ, 100mVp-p
Output Over voltage protection	110%~160%Vo		
Output Over load protection	105%~300%Io		
O/P Short Circuit Protection	Continuous, Self-recovery		
Dynamic Response	25% nominal load step change	ΔVo/Δt	≤6%/500μ s
Output Voltage Adjustment	No adjustment		
Turn-on delay time	Typical	1000ms	
O/P Turn-on Overshoot Voltage			≤10%Vo

General Specification

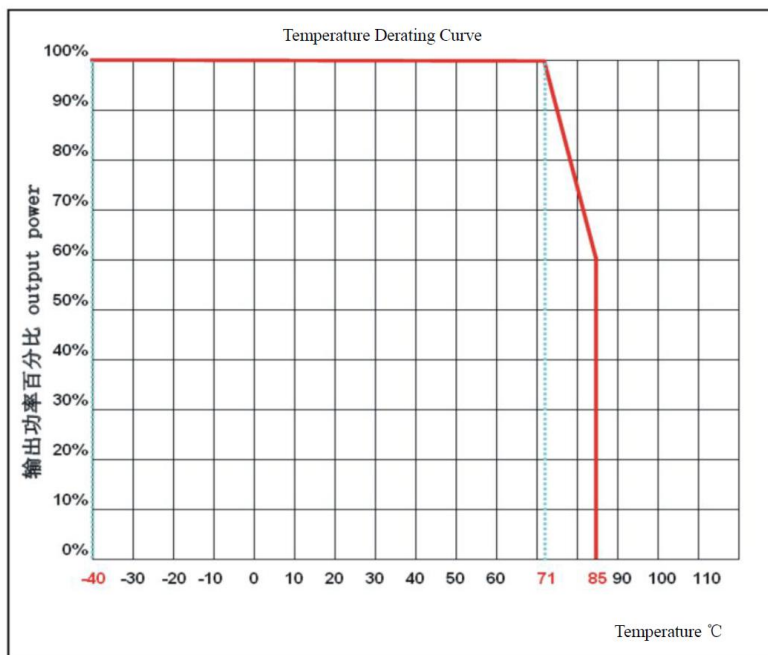
Switching Frequency	Typical	250KHz	
Operating Temperature	Refer to temperature derating curves	-40℃ ~ +85℃	
Storage Temperature			-55℃ ~ +125℃
Max Case Temperature	Within Operating Curve	+105℃	
Relative Humidity	No condensing	5%~95%	
Case Material	Plastic Case		
Cooling Method	Free air convection		
Isolation 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

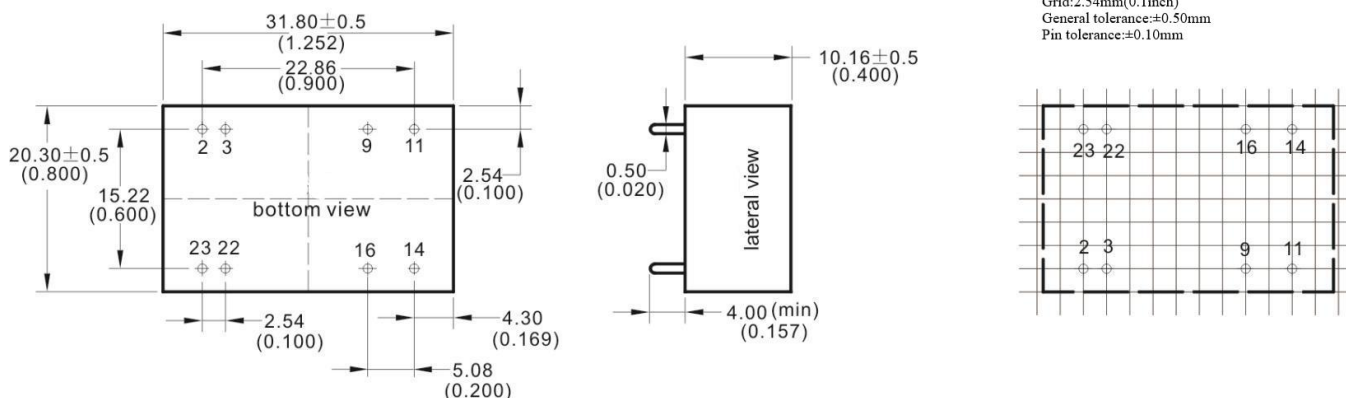


Temperature characteristic curve



Packing Dimension

Unit:mm
Printed board vertical view
Grid:2.54mm(0.1inch)
General tolerance:±0.50mm
Pin tolerance:±0.10mm



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
Single(S)	-Vin	+Vin	+Vo	GND	NP	NC

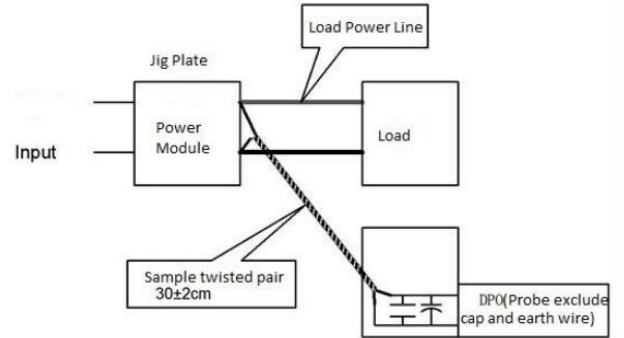


Ripple & Noise Test: (Twisted Pair Method 20MHz bandwidth)

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.

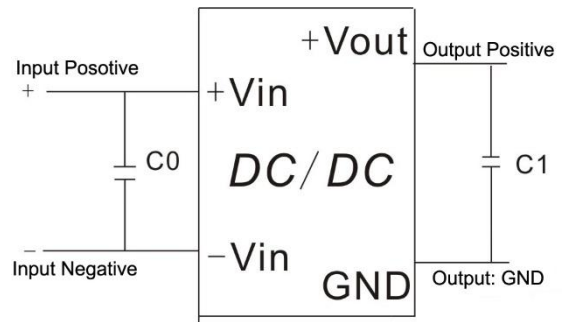


Design and Application Reference

Recommended circuit

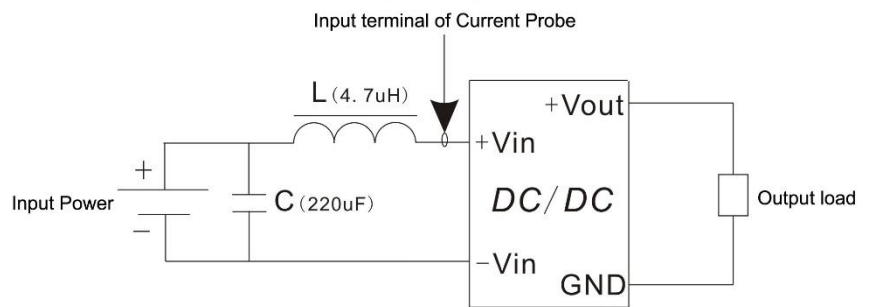
1. DC/DC test circuit:

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

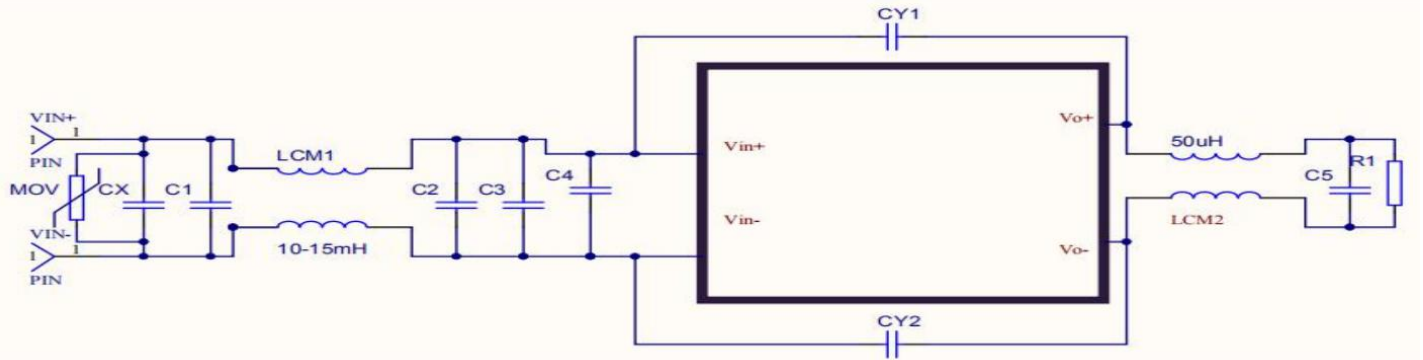


2. Input reflecting ripple current test circuit:

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



3.EMC external recommended circuit:



Components	48V Input
CX	0.47uF, 275V, X Capacitor
MOV	14D101K
C1,C2,	100uF/100V (electrolytic capacitor)
C3,C4	1uF/100V (1206 SMD capacitor)
LCM1	10uH
CY1,CY2	2.2nF/250V (Y capacitor)
C5	10uF, 50V (electrolytic capacitor)
LCM1	50uH (common mode inductance)
LCM2	50uH (common mode inductance)

- 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.