



Typical Features

- ◆ Wide input voltage range (4:1), Output power 3W
- ◆ Transfer efficiency up to 82%
- ◆ Switching Frequency: 250KHz
- ◆ Continuous short circuit protection, Self-furbish
- ◆ Isolation voltage: 1500VDC
- ◆ Input under-voltage, output over voltage, short circuit, over current protection
- ◆ Low Standby power consumption, 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

UD3-XXSXXE3 is a newly designed DIP packed, 3W output power, wide input range 4:1, low stand-by power consumption, isolated regulated single output DC-DC converter, could be widely used for industrial control, instrument, communication, power electricity field.

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.		
*UD3-18S3V3E3	18	9-36	3.3	600/0	145	20	470	30	100	74	76
UD3-18S05E3			5	600/0	214	20	470	30	100	76	78
*UD3-18S09E3			9	333/0	208	20	330	30	100	78	80
*UD3-18S12E3			12	250/0	203	20	220	30	100	80	82
*UD3-18S15E3			15	200/0	203	20	100	30	100	80	82
UD3-18S16E3			16	188/0	206	20	100	30	100	79	81
*UD3-18S24E3			24	125/0	203	20	47	30	100	80	82
*UD3-36S3V3E3	36	18-75	3.3	600/0	72	10	470	30	100	74	76
*UD3-36S05E3			5	600/0	107	10	470	30	100	76	78
*UD3-36S09E3			9	333/0	104	10	330	30	100	78	80
*UD3-36S12E3			12	250/0	102	10	220	30	100	80	82
*UD3-36S15E3			15	200/0	102	13	100	30	100	80	82
*UD3-36S24E3			24	125/0	102	13	100	30	100	80	82

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

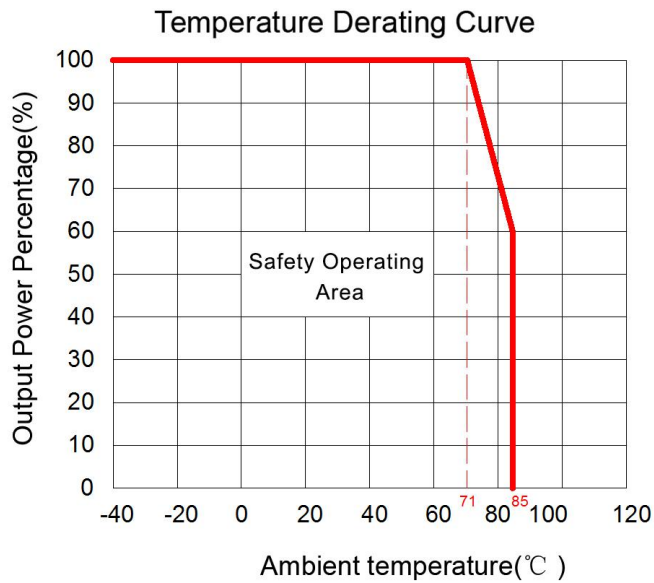
Output Specifications

Output Voltage Accuracy	Nominal load, full voltage range	V_o	$\leq \pm 2.0\%$
Voltage Regulation	Nominal load, full voltage range	V_o	$\leq \pm 0.5\%$
Load Regulation	10% ~ 100% nominal load	V_o	$\leq \pm 1.0\%$
Ripple & Noise*	Nominal Load, Nominal Voltage	$\leq 100\text{mVp-p}$ (20MHz bandwidth)	
Output Over voltage protection	110%~140% V_o		
Output Short Circuit Protection	Continuous, Self-recovery		
Dynamic Response	25% nominal load step change	$\Delta V_o/\Delta t$	$\leq \pm 5.0\%/500\mu\text{s}$
Output Voltage Adjustment	Not Available		
Turn-on delay time	Typical	200ms	

General Specification

Switching Frequency	Typical	250KHz
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
Isolation Voltage	Input to Output	Input-output 1500Vdc $\leq 0.5\text{mA} / 1\text{min}$
Meantime Between Failure	MIL-HDBK-217F@25°C	2X10 ⁵ Hrs
Product Weight	Average	15g

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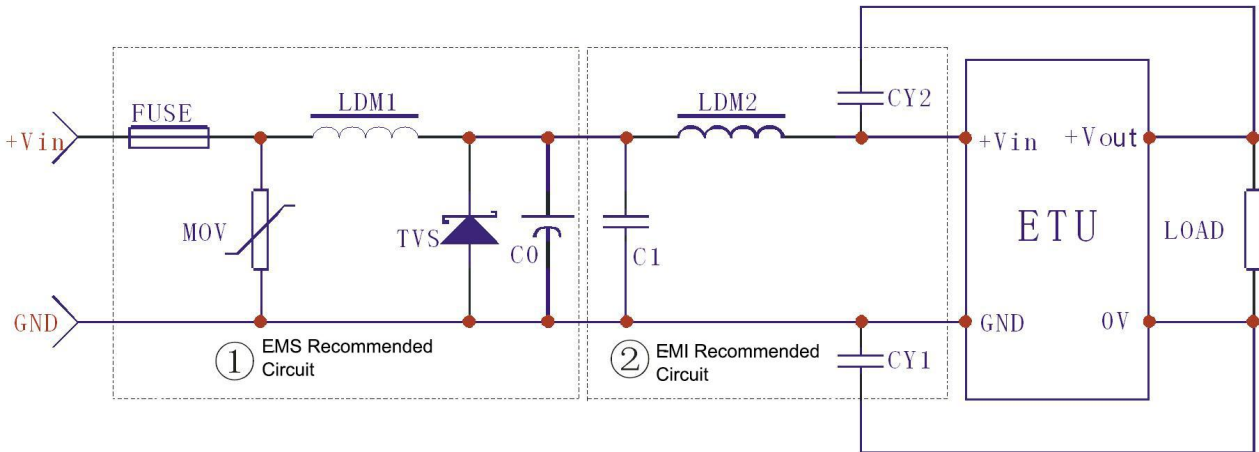

Temperature Derating Curve

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

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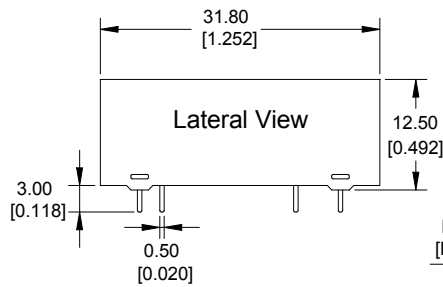
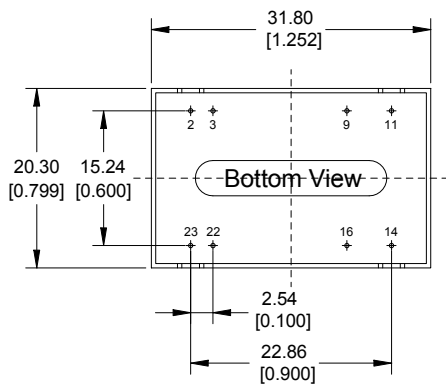
EMC External Recommended Circuit:



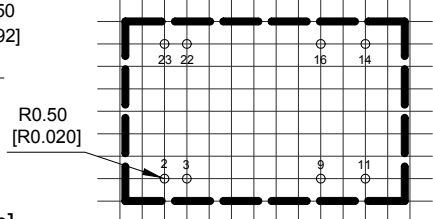
Recommended Spec:

Component	18V Input	36V Input
FUSE	According to customer's request	
MOV	14D560K	14D101K
LDM1	56uH	68H
TVS	SMCJ48A	SMCJ90A
C0	100uF/50V	100uF/100V
C1	1uF/50V	1uF/100V
LDM2	5.6uH	6.8uH
CY1,CY2	1nF/2000V	

Packing Dimension



Unit:mm
 Printed board vertical view
 Latic spacing:2.54mm(0.1inch)



Unit:mm

Tolerances: x.x± 0.10mm[± 0.004inch]
 xx.x± 0.25mm[± 0.010inch]



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

Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

Packing Dimension

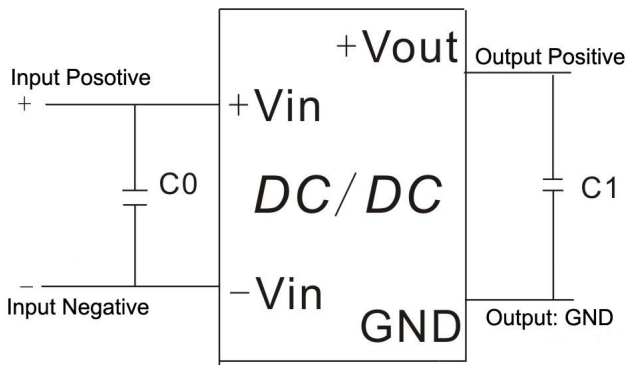
Packing Code	L x W x H	
E3	31.80 × 20.30 × 12mm	1.252 × 0.800 × 0.472inch

Design and Application Reference

Recommended circuit

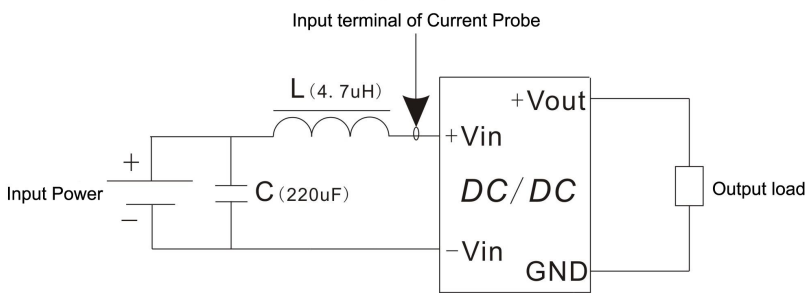
① DC/DC test circuit

Normal recommended capacitors: C0: 47-100uF; C1: 10-22uF.



② Input reflecting ripple current test circuit:

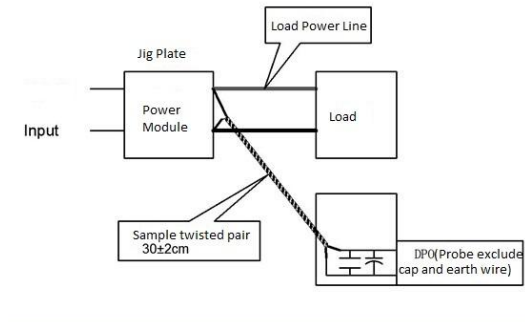
Capacitor C choose low ESR ones, withstand voltage value should be bigger than max input voltage;



③ Ripple & Noise Test: (Twisted Pair Method 20MHz bandwidth)

Test Method:

- 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.
- 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.



Application Reference:



1. Recommend to use module with at least 5%-10% load, if not, the ripple of the product may increase, other functions basically not be affected;
2. The recommended unbalance degree of the dual output module load is $\leq \pm 5\%$;
3. The maximum capacitive load offered were tested at pure resistance and full load;
4. We can provide overall power solution, or product customization service;
5. Due to space limitation, please contact our team if need more information.