

LT8301

42V_{IN} Micropower Isolated Flyback Converter with 65V/1.2A Switch

DESCRIPTION

Demonstration circuit 2737A is an isolated flyback converter featuring the LT[®]8301. The demo circuit outputs 5V from input 10V to 32V, with a nominal 24V. The output current capability increases with the input voltage. The standby input current of the demo circuit is less than 950μA (typical) at V_{IN} = 24V.

Table 1 summarizes the performance of the demo board at room temperature. The demo circuit can be easily modified and attached to a system board as the isolated power supply for quick evaluation.

The LT8301 data sheet gives a complete description of the part, operation and applications information. The data sheet must be read in conjunction with this quick start guide for demo circuit 2737A.

Design files for this circuit board are available at <http://www.linear.com/demo/DC2737A>

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PERFORMANCE SUMMARY Specifications are at T_A = 25°C

Table 1

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Voltage		10	24	32	V
Standby Current	I _{OUT} = 0mA, V _{IN} = 24V		950		μA
Output Voltage	V _{IN} = 12V to 32V I _{OUT} = 6mA to 700mA	4.75	5	5.25	V
Maximum Output Current	V _{IN} = 12V V _{IN} = 24V	700 1000			mA mA
Output Voltage Ripple (Peak to Peak)	V _{IN} = 24V, I _{OUT} = 1A		90		mV
Switching Frequency	V _{IN} = 24V, I _{OUT} = 1A		190		kHz
Efficiency	V _{IN} = 24V, I _{OUT} = 1A		83.2		%

QUICK START PROCEDURE

Demo circuit 2737A is easy to set up to evaluate the performance of the LT8301. Refer to Figure 1 for proper equipment setup and follow the procedure below.

1. With power off, connect the input power supply to the board through V_{IN} and GND terminals. Connect the load to the terminals V_{OUT}^+ and V_{OUT}^- on the board.
2. Turn on the power at the input. Increase V_{IN} slowly to 10V.
3. Check for the proper output voltages. The output should be regulated at 5V ($\pm 5\%$).
4. Once the proper output voltage is established, adjust the input voltage and load current within the operating range and observe the output voltage regulation, transient response, ripple voltage, efficiency and other parameters.

QUICK START PROCEDURE

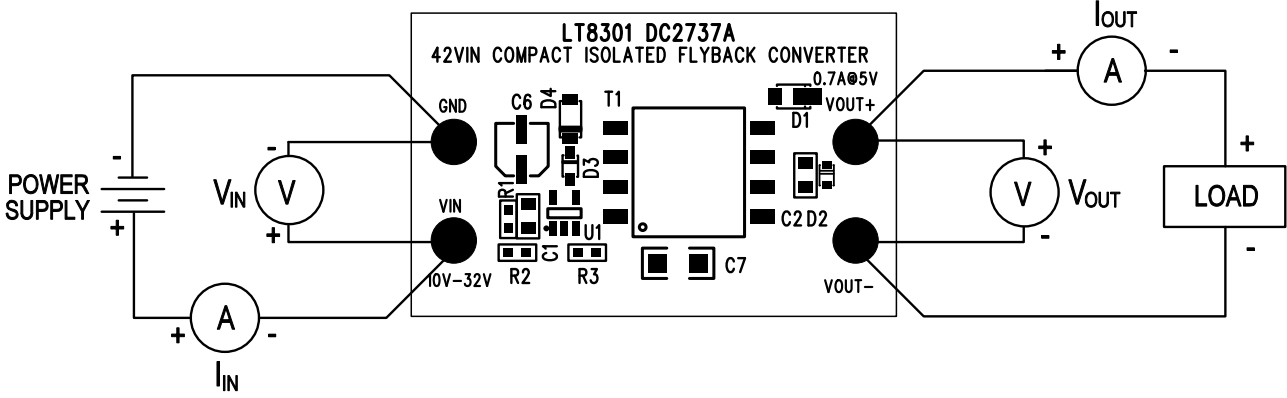


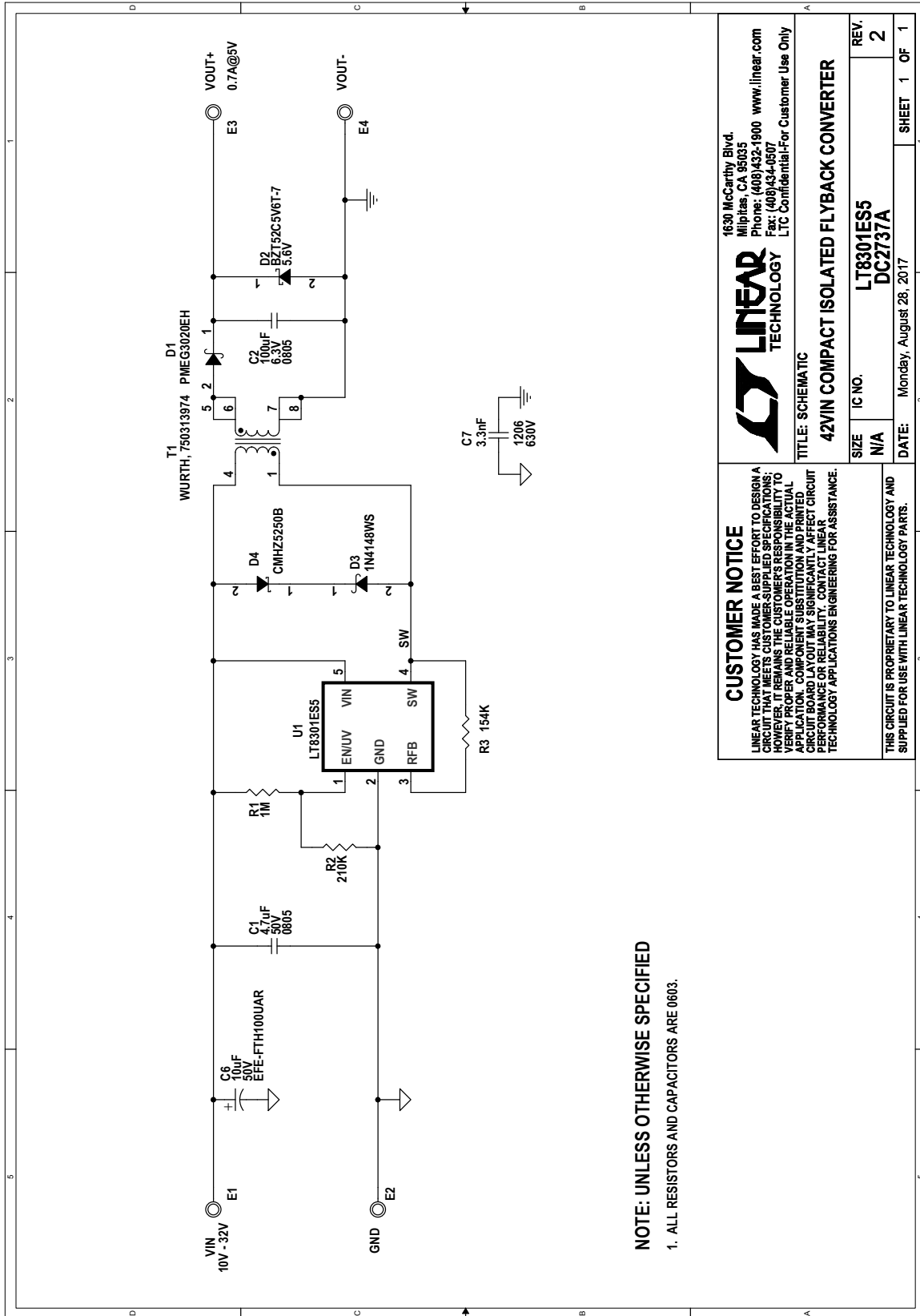
Figure 1. Proper Measurement Equipment Setup

DEMO MANUAL DC2737A

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components				
1	1	C1	CAP, X5R, 4.7 μ F, 50V, 10%, 0805	MURATA, GRM21BR61H475KE51L
2	1	C2	CAP, X5R, 100 μ F, 6.3V, 20%, 0805	MURATA, GRM21BR60J107ME15L
3	1	C6	CAP, ALUM, 10 μ F, 50V	PANASONIC, EFE-FTH100UAR
4	1	C7	CAP, X7R, 3300pF, 630V, 10%, 1206	MURATA, GRM31BR72J332KW01L
5	1	D1	SCHOTTKY DIODE, 30V, 2A, SOD123F	NXP, PMEG3020EH,115
6	1	D2	ZENER DIODE, 5.6V, SOD-523	DIODES, BZT52C5V6T-7-F
7	1	D3	DIODE, 1N4148WS SOD323	DIODES, 1N4148WS-7-F
8	1	D4	ZENER DIODE, 20V, 500mW, SOD123	CENTRAL, CMHZ5250B
10	1	R1	RES, CHIP, 1M, 1/10W, 1% 0603	VISHAY, CRCW06031M00FKEC
11	1	R2	RES, CHIP, 210k, 1/10W, 1% 0603	VISHAY, CRCW0603210KFKEA
12	1	R3	RES, CHIP, 154k, 1/10W, 1% 0603	VISHAY, CRCW0603154KFKEA
13	1	T1	TRANSFORMER, 750313974	WURTH, 750313974
14	1	U1	IC FLYBACK CONVERTER, SOT23-5	LINEAR TECH, LT8301ES5#PBF
Hardware: For Demo Board Only				
9	5	E1, E2, E3, E4, E5	TESTPOINT, TURRET, 0.094" pbf	MILL-MAX, 2501-2-00-80-00-00-07-0
15	4	MH1, MH2, MH3, MH4	STAND-OFF, NYLON 0.25"	KEYSTONE, 8831(SNAP ON)

SCHEMATIC DIAGRAM



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TITLE: SCHEMATIC
42VIN COMPACT ISOLATED FLYBACK CONVERTER

SIZE	IC NO.	REV.
N/A	LT8301ES5	2
DATE: Monday, August 28, 2017		SHEET 1 OF 1

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