LT3483ES6

DESCRIPTION

Demonstration circuit 801 is a general purpose positive to negative converter featuring the LT®3483ES6. The demo board demonstrates two separate DC/DC converters. One converter generates a -8V at 20mA to 30mA from a 2.7V-4.2V input using a step up inverting charge pump topology. The other uses a dual coupled inductor in an inverting flyback topology to generate a -15V at 8mA to 40mA from a 2.7-12V input. This topology is useful to generate output voltages of lower, equal or higher magnitude than the input. For example, for a -12V supply just change the

value of R2 to 1.21M and for a -5V, change R2 to 511K. Both circuits demonstrate low component count and are intended for space-conscious applications such as LCD bias, Handheld Computers, Battery Backup, Digital Cameras and OLED Bias.

Design files for this circuit board are available. Call the LTC factory.

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Table 1. Performance Summary (T_A = 25°C)

PARAMETERS FOR -8V INVERTER	CONDITION	VALUE
Minimum Input Voltage		2.7V
Maximum Input Voltage		4.2V
Output Voltage V_{OUT}	Vin = 2.5V to 4.2V, Iout = 20mA to 30mA	-8V ±3%
Typical efficiency	V_{IN} =3.3V, Iout =25mA	67%
Typical Output Ripple	V_{IN} = 3.3V, I_{OUT} = 25mA	60m$V_{P–P}$
PARAMETERS FOR -15V INVERTER		**VALUE**
Minimum Input Voltage		2.7V
Maximum Input Voltage		12V
Output Voltage V_{OUT}	V_{IN} = 2.7V to 12V, I_{OUT} = 8mA to 40mA	-15V ±3%
Typical efficiency	V_{IN} = 6V, I_{OUT} = 20mA	75%
Typical Output Ripple V_{OUT}	V_{IN} = 6V, I_{OUT} = 20mA	80m$V_{P–P}$

QUICK START PROCEDURE

Demonstration circuit 801 is easy to set up to evaluate the performance of the LT3483ES6. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

NOTE: When measuring the input or output voltage ripple, care must be taken to avoid a long ground lead

on the oscilloscope probe. Measure the input or output voltage ripple by touching the probe tip directly across the Vin or Vout and GND terminals. See Figure 2 for proper scope probe technique.

1. Place jumper in the following positions for testing of -15V inverter:

JP1 On

2. With power off, connect the input power supply to Vin and GND.

3. Turn on the power at the input.

4. Check for the proper output voltages.

   NOTE: If there is no output, temporarily disconnect the load to make sure that the load is not set too high.

5. Once the proper output voltages are established, adjust the loads within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

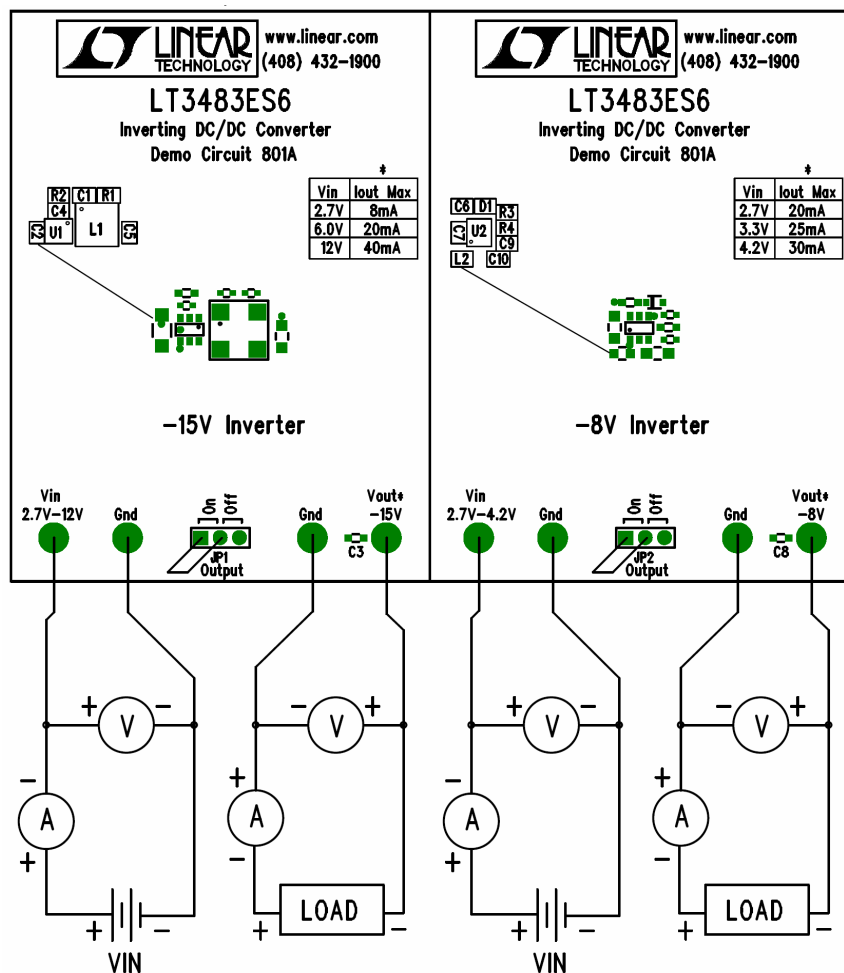6. For testing of -8V Inverter repeat steps 1-5 placing **JP2** in the **ON** position.

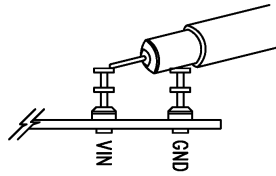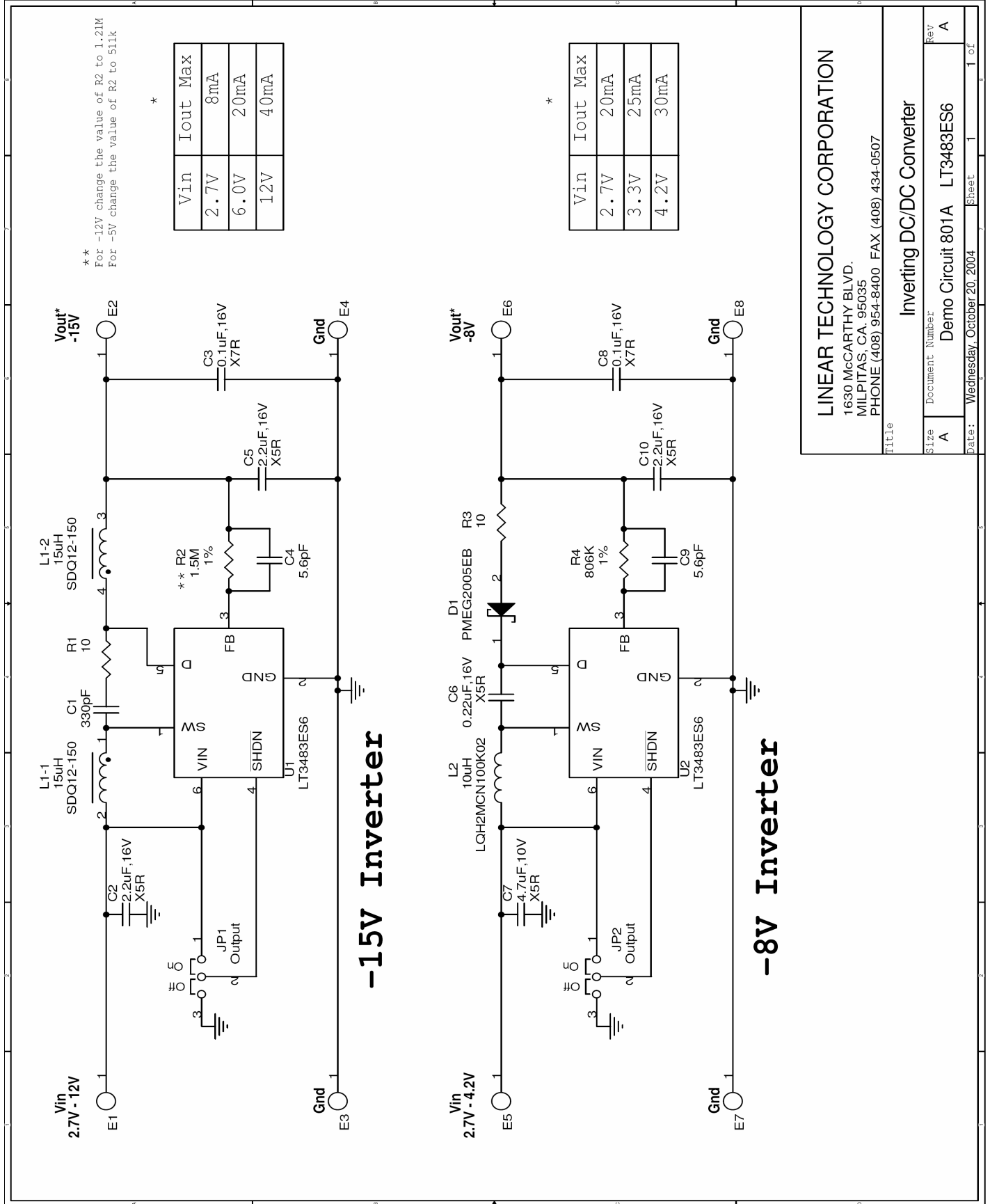**Figure 1. Proper Measurement Equipment Setup**

Figure 2. Measuring Input or Output Ripple

-15V Inverter

-8V Inverter

*
For -12V change the value of R2 to 1.21M
For -5V change the value of R2 to 511k

Vin	Iout Max
2.7V	8mA
6.0V	20mA
12V	40mA

Vin	Iout Max
2.7V	20mA
3.3V	25mA
4.2V	30mA

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Title: Inverting DC/DC Converter

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Date: Wednesday, October 20, 2004 Sheet: 1 of 1

Vout* -15V E2

Vout* -8V E6

Gnd E4

Gnd E8

C3 0.1uF,16V X7R
C5 2.2uF,16V X5R
L1-2 15uH SDQ12-150
** R2 1.5M 1%
C4 5.6pF
R1 10
C1 330pF
L1-1 15uH SDQ12-150
C2 2.2uF,16V X5R
U1 LT3483ES6
FB GND SW VIN SHDN D
JP1 Output
On
Off

C8 0.1uF,16V X7R
C10 2.2uF,16V X5R
R3 10
D1 PMEG2005EB
R4 806K 1%
C9 5.6pF
L2 10uH LQH2MCN100K02
C6 0.22uF,16V X5R
C7 4.7uF,10V X5R
U2 LT3483ES6
FB GND SW VIN SHDN D
JP2 Output
On
Off

Vin 2.7V - 12V E1

Gnd E3

Vin 2.7V - 4.2V E5

Gnd E7

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