DESCRIPTION

Demonstration circuit 760 is a Dual, 1.1MHz Boost/Inverter in 3mmx 3mm DFN featuring the LT3472EDD. The demo circuit demonstrates small size and low component count in a Boost Circuit and an Inverting Circuit. The Boost Converter is designed to convert a 2.7V-4.2V input to 15V output at 25mA-45mA load. The Inverting Circuit generates a -8V output at 35mA-65mA from the same input. Since the maximum Vin of the LT3472DD is 16V, this demo circuit will work well at higher inputs. The only limitation is the 10V rating of the input capacitor. The LT3472 features integrated Schottky diodes for both outputs and requires only one resistor (per output) to set the output voltage. Both circuits are designed to demonstrate the capacitor programmable Soft-Start feature, advantages of the 1.1MHz constant switching frequency and the internal 36V switches. Both outputs on this demo circuit can be modified for higher voltages. These circuits are intended for space-conscious applications such as CCD Bias, TFT LCD Bias, OLED Bias and +/- Rail Generation for Op Amps.

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

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

PARAMETERS FOR 15V BOOST CIRCUIT	CONDITION	VALUE
Minimum Input Voltage		2.7v
Maximum Input Voltage		4.2V
Output Voltage V_{OUT}	V_{IN} = 2.7V, I_{OUT} = 0mA to 25mA	15V ±5%
Output Voltage V_{OUT}	V_{IN} = 4.2V, I_{OUT} = 0mA to 45mA	15V ±5%
Maximum Output Current	Vin = 2.7V	25mA
Maximum Output Current	Vin = 4.2V	45mA
Typical Output Ripple V_{OUT}	V_{IN} = 3.3V , I_{OUT} = 35mA	20mV_{P-P}
Typical efficiency	V_{IN} = 4.2V, Vout = 15V@30mA and -8V turned off	82%
PARAMETERS FOR -8V INVERTING CIRCUIT		**VALUE**
Output Voltage V_{OUT}	V_{IN} = 2.7V, I_{OUT} = 0mA to 35mA	-8V ±5%
Output Voltage V_{OUT}	V_{IN} = 4.2V, I_{OUT} = 0mA to 65mA	-8V ±5%
Maximum Output Current	Vin = 2.7V	35mA
Maximum Output Current	Vin = 4.2V	65mA
Typical Output Ripple V_{OUT}	V_{IN} = 3.3V, I_{OUT} = 50mA	10mV_{P-P}
Typical efficiency	V_{IN} = 4.2V, Vout = 15V@0mA and -8V@30mA	71%

QUICK START PROCEDURE

Demonstration circuit 760A is easy to set up to evaluate the performance of the LT3472EDD. 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 jumpers in the following positions:

   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.

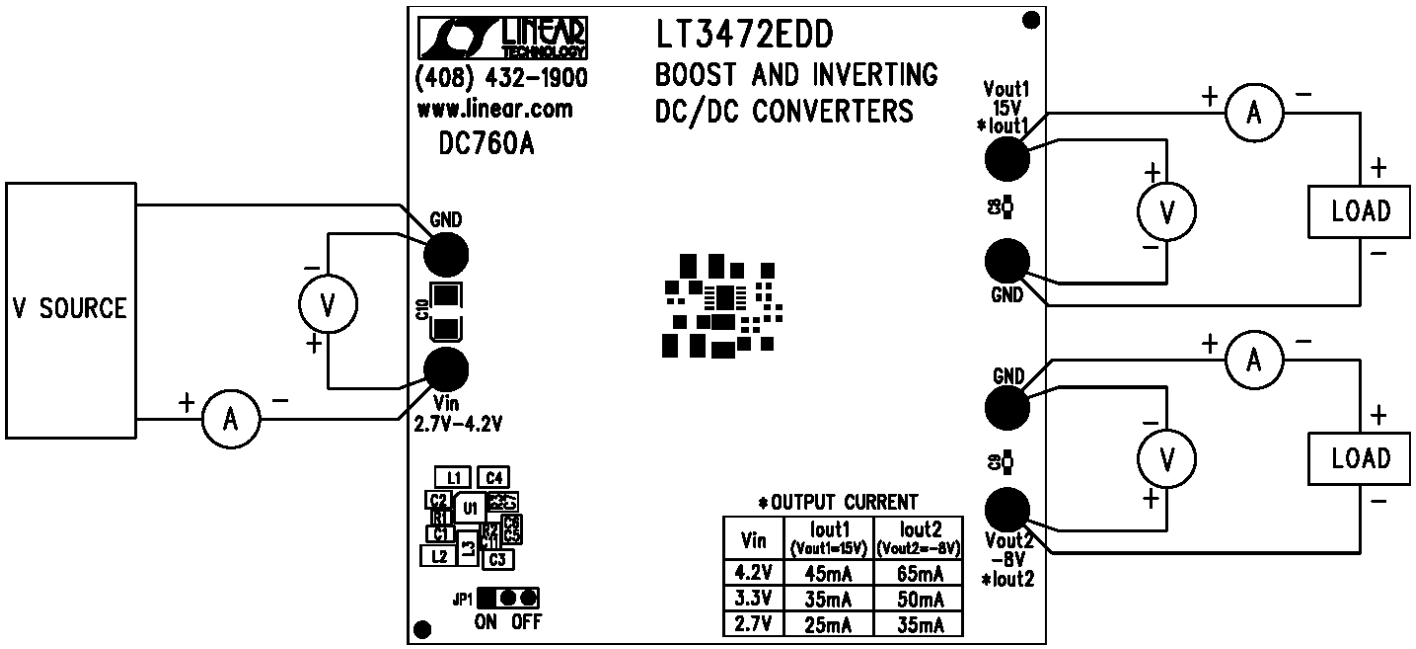


Figure 1. Proper Measurement Equipment Setup

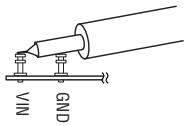
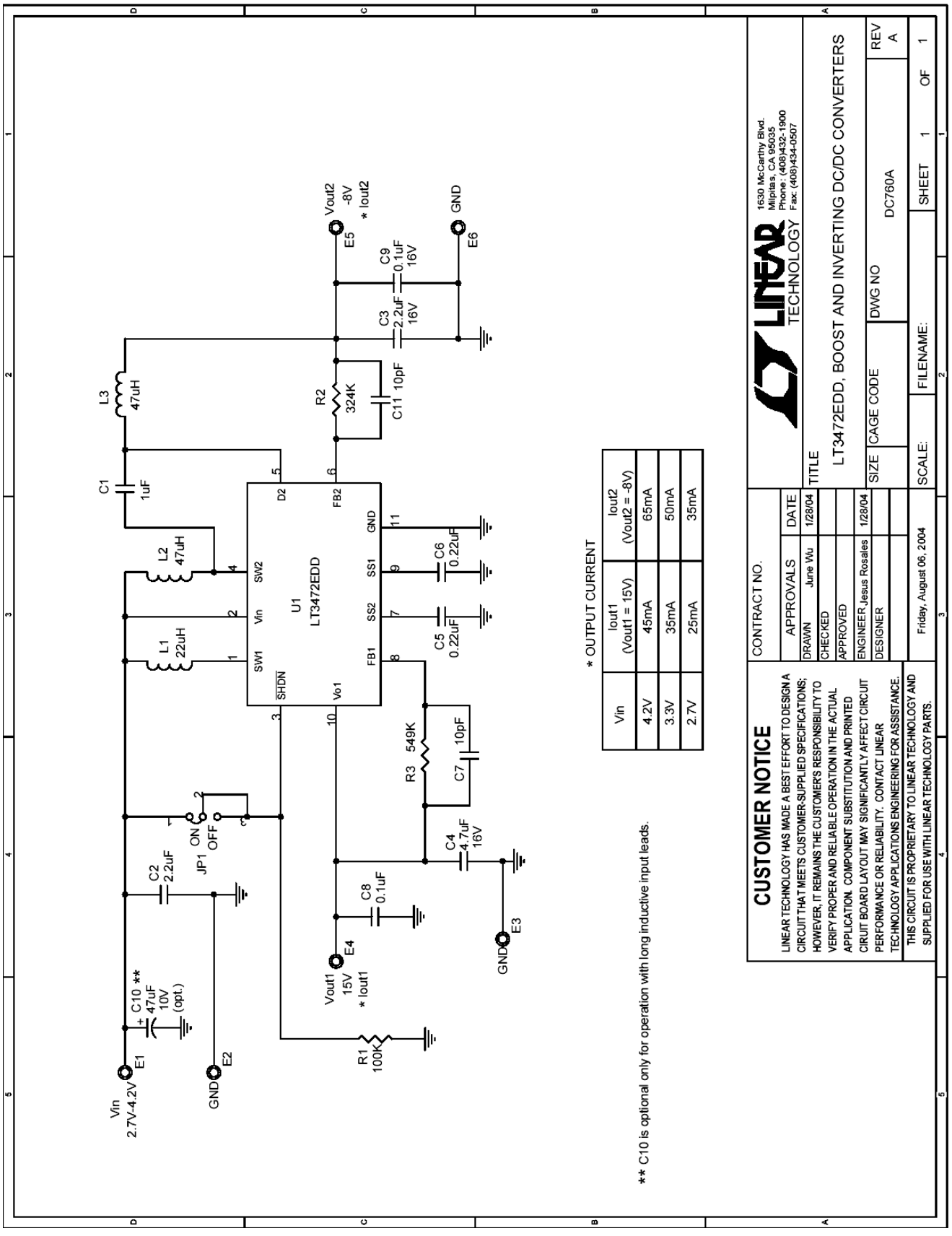


Figure 2. Measuring Input or Output Ripple



Vin	Iout1 (Vout1 = 15V)	Iout2 (Vout2 = -8V)
4.2V	45mA	65mA
3.3V	35mA	50mA
2.7V	25mA	35mA