DESCRIPTION

Demonstration circuit 912 features the LT®3487EDD. 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 3V-5V input to 15V output at 45mA-90mA maximum load. The Inverting Circuit generates a -8V output at 90mA-150mA maximum load from the same input. Since the maximum Vin of the LT3487EDD is 16V, this Demo circuit will work well at higher inputs. The only limitation is that the input has to be lower than the Boost converter output (15V) in order to stay in regulation. If Vin and VBAT will be powered separately, cut trace as indicated on farside of board and use "VBAT" pad on top.

The LT3487EDD features integrated Schottky diodes for both outputs and requires only one resistor (per output) to set the output voltage. Internal sequencing disables switching on the negative supply until the positive has reached 87% of its final value. Both circuits are designed to demonstrate the capacitor programmable Soft-Start feature with a single capacitor, advantages of the 2MHz constant switching frequency and the internal 32V 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.

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

PARAMETERS FOR 15V BOOST CIRCUIT	CONDITION	VALUE
Minimum Input Voltage		3V
Maximum Input Voltage		5V
Output Voltage V_{OUT}	V_{IN} = 3V, I_{OUT} = 0mA to 45mA	15V ±5%
Output Voltage V_{OUT}	V_{IN} = 5V, I_{OUT} = 0mA to 90mA	15V ±5%
Maximum Output Current	Vin = 3V	45mA
Maximum Output Current	Vin = 5V	90mA
Typical Output Ripple V_{OUT}	V_{IN} = 3.3V, I_{OUT} = 45mA	20mV_{P-P}
Typical Efficiency	V_{IN} = 3.6V, Vout = 15V@45mA	77%
PARAMETERS FOR -8V INVERTING CIRCUIT		**VALUE**
Output Voltage V_{OUT}	V_{IN} = 3V, I_{OUT} = 0mA to 90mA	-8V ±5%
Output Voltage V_{OUT}	V_{IN} = 5V, I_{OUT} = 0mA to 150mA	-8V ±5%
Maximum Output Current	Vin = 3V	90mA
Maximum Output Current	Vin = 5V	150mA
Typical Output Ripple V_{OUT}	V_{IN} = 3.6V, I_{OUT} = 100mA	10mV_{P-P}
Typical Efficiency	V_{IN} = 3.6V, Vout = -8V@100mA	70%

QUICK START PROCEDURE

Demonstration circuit 912 is easy to set up to evaluate the performance of the LT3487EDD. 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.

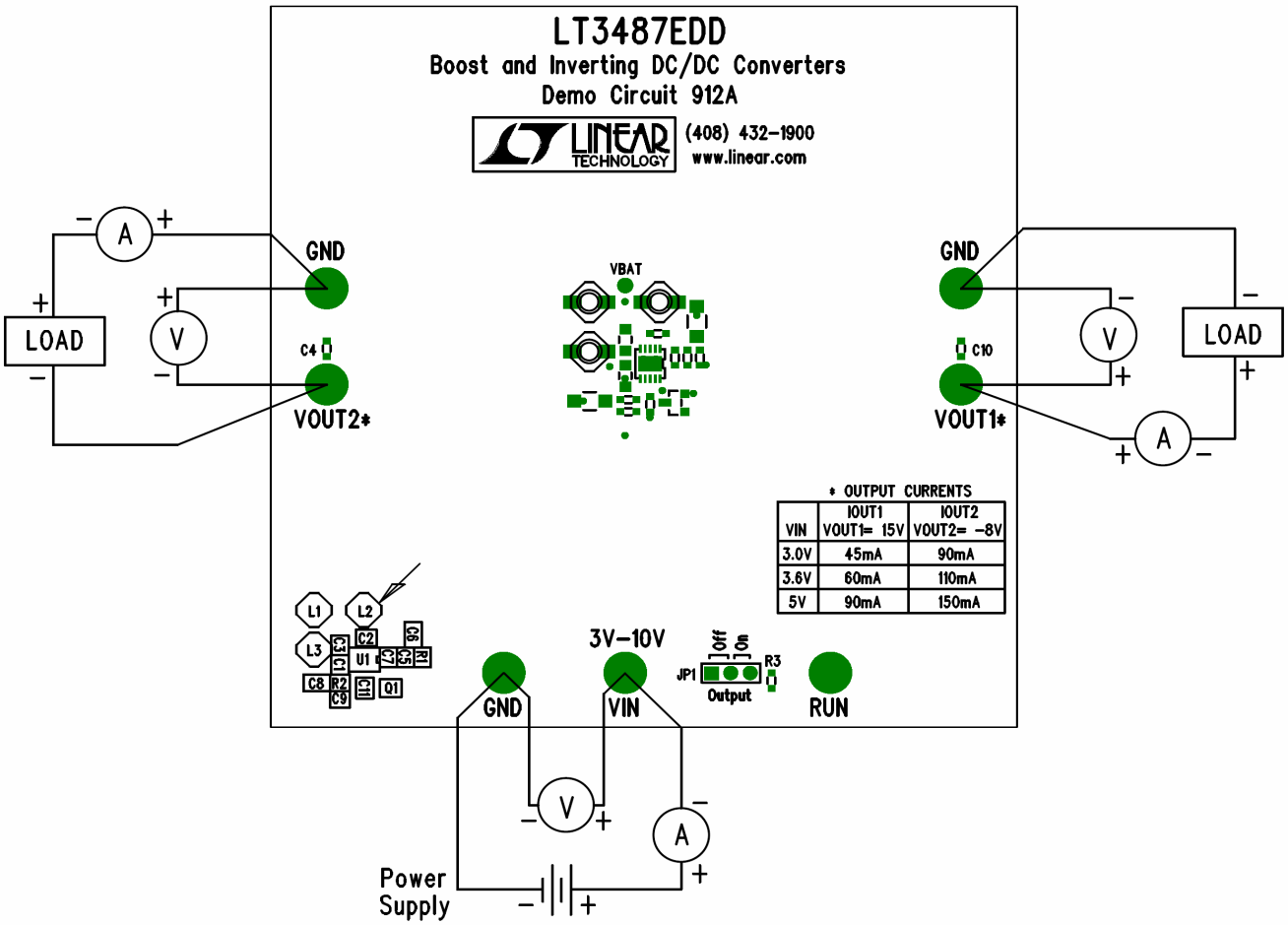


Figure 1. Proper Measurement Equipment Setup

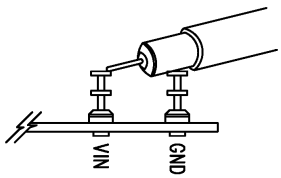
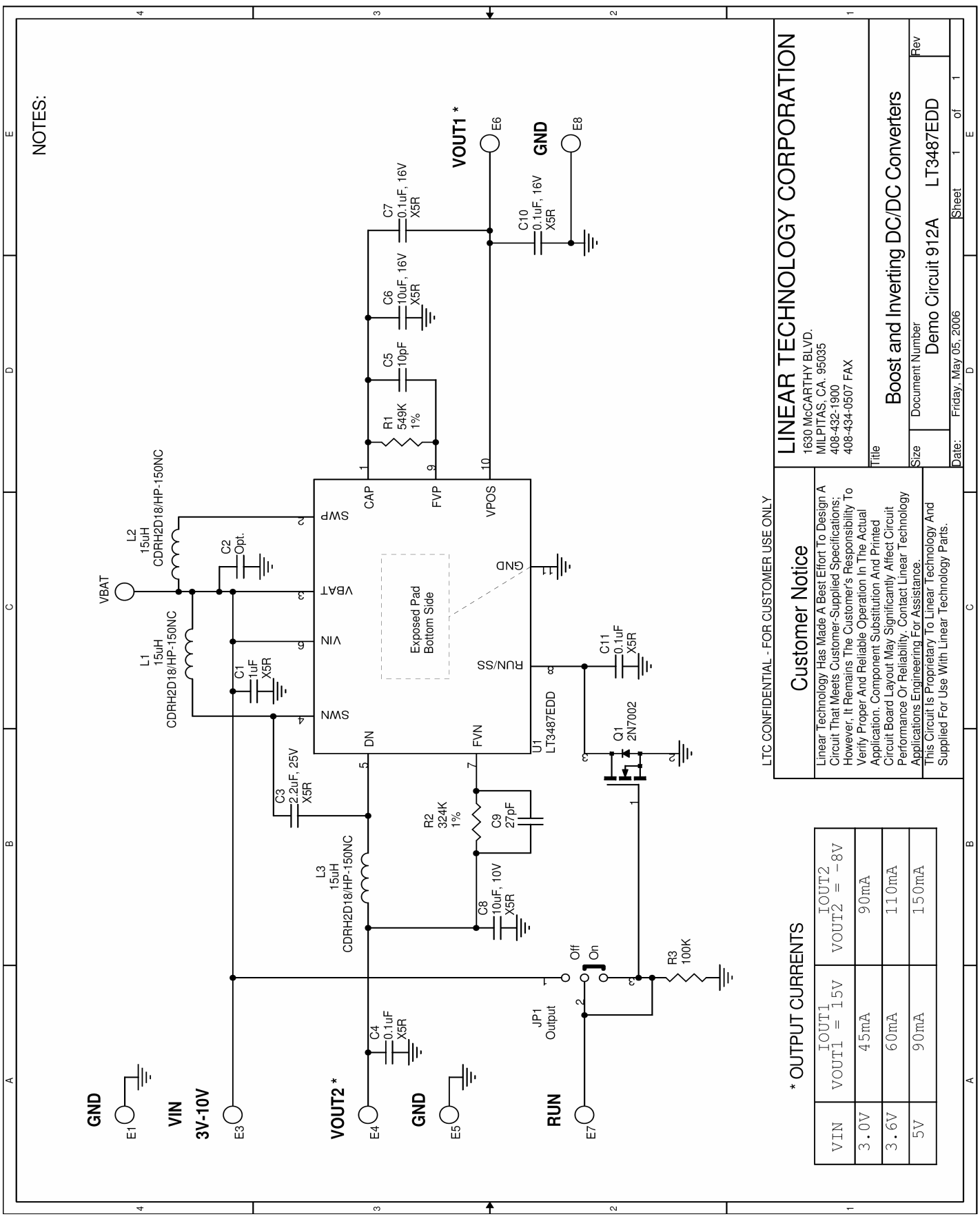


Figure 2. Measuring Input or Output Ripple



* OUTPUT CURRENTS

VIN	IOUT1 VOUT1 = 15V	IOUT2 VOUT2 = -8V
3.0V	45mA	90mA
3.6V	60mA	110mA
5V	90mA	150mA