DESCRIPTION

Demonstration circuit 856A is a 500mA, 1.25MHz Synchronous Boost Converter featuring the LTC®3427EDC. The demo circuit demonstrates a DC/DC boost converter, with a 500mA switch current limit, providing 3.3V at 180mA from a 1.8V to 3.6V input voltage. The input voltage of this supply can go higher than the output, but thermal limitations reduce the output current that can be delivered. See **Vin>Vout Operation** section on the datasheet. The circuit demonstrates the advantages of output disconnect and inrush current limiting. Small circuit size and low component count make the LTC3427 suitable for use in many space-conscious applications such as Hand-Held Instruments, Cordless Phones, Wireless Handsets, GPS Receivers, MP3 players and other Portable Devices. Other integrated features include externally programmable burst mode threshold, internal compensation, peak current limit, soft-start, antiringing control and thermal shutdown. For customers who do not need the output disconnect feature of the LTC3427, an efficiency gain of about 3% can be achieved by adding a small Schottky diode between the SW and Vout pins.

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

LTC is a registered trademark of Linear Technology Corporation

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

PARAMETERS	CONDITION	VALUE
Minimum Input Voltage		1.8V
Maximum Input Voltage		3.6V
Output Voltage V_{OUT}	V_{IN} = 1.8V, I_{OUT} =0mA to 180mA	3.3V ±3%
Output Voltage V_{OUT}	V_{IN} = 3.0V, I_{OUT} =0mA to 180mA	3.3V ±3%
Typical Output Ripple V_{OUT}	V_{IN} = 1.8V, I_{OUT} = 180mA	20mV_{P-P}
Typical efficiency	V_{IN} =3V , I_{OUT} = 180mA	90%
Typical efficiency	V_{IN} =2V , I_{OUT} = 180mA	85%

QUICK START PROCEDURE

Demonstration circuit 856A is easy to set up to evaluate the performance of the LTC3427EDC. 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 Run.

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

3. Turn on the power at the input.

NOTE: Make sure that the input voltage does not exceed 3.6V.

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.

NOTE: 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.
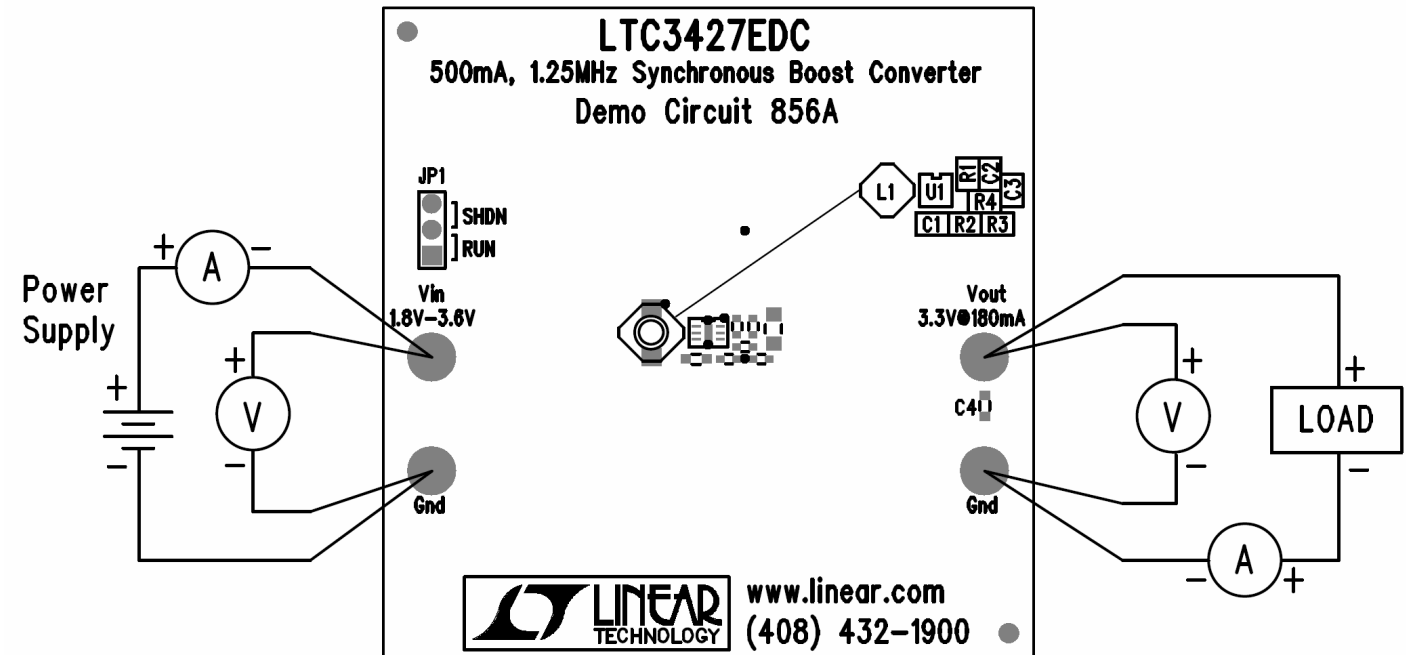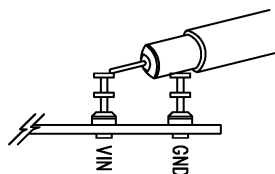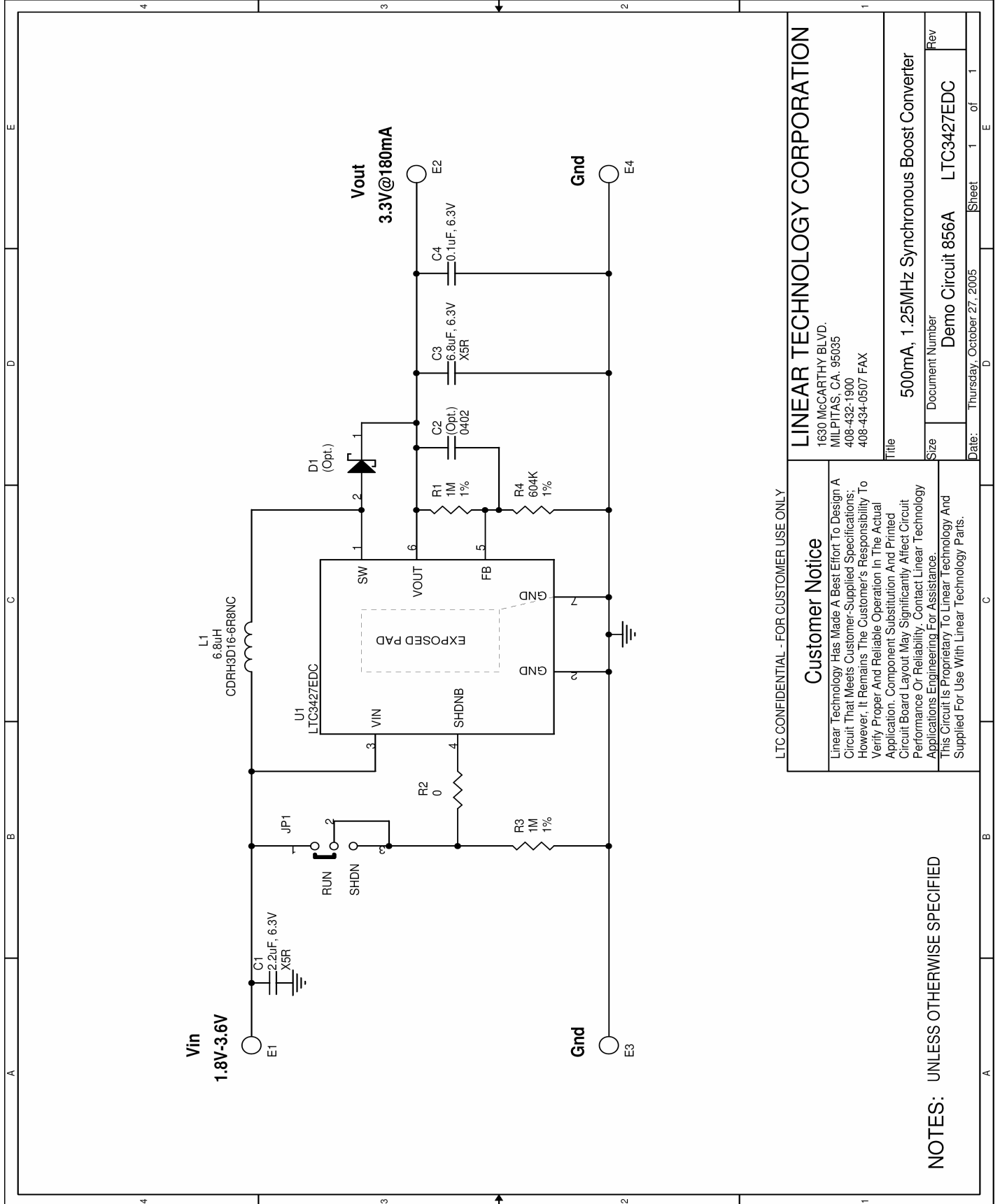

Figure 1. Proper Measurement Equipment Setup

Figure 2. Measuring Input or Output Ripple

LINEAR TECHNOLOGY CORPORATION

1630 McCARTHY BLVD.
MILPITAS, CA. 95035
408-432-1900
408-434-0507 FAX

Title: 500mA, 1.25MHz Synchronous Boost Converter

Size: Document Number: Demo Circuit 856A   LTC3427EDC   Rev

Date: Thursday, October 27, 2005   Sheet   1   of   1

LTC CONFIDENTIAL - FOR CUSTOMER USE ONLY

Customer Notice

Linear Technology Has Made A Best Effort To Design A
Circuit That Meets Customer-Supplied Specifications;
However, It Remains The Customer's Responsibility To
Verify Proper And Reliable Operation In The Actual
Application. Component Substitution And Printed
Circuit Board Layout May Significantly Affect Circuit
Performance Or Reliability. Contact Linear Technology
Applications Engineering For Assistance.
This Circuit Is Proprietary To Linear Technology And
Supplied For Use With Linear Technology Parts.

NOTES: UNLESS OTHERWISE SPECIFIED

Vin
1.8V-3.6V
E1

C1
2.2uF, 6.3V
X5R

L1
6.8uH
CDRH3D16-6R8NC

JP1
RUN   SHDN
2   1   3

R2
0

R3
1M
1%

U1
LTC3427EDC
VIN   3
SHDNB   4
SW   1
VOUT   6
FB   5
GND   7
GND   2
EXPOSED PAD

D1
(Opt.)

C2
(Opt.)
0402

R1
1M
1%

R4
604K
1%

C3
6.8uF, 6.3V
X5R

C4
0.1uF, 6.3V

Vout
3.3V@180mA
E2

Gnd
E4

Gnd
E3

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Power Management IC Development Tools *category:*

Click to view products by Analog Devices *manufacturer:*

Other Similar products are found below :

EVAL-ADM1168LQEBZ EVB-EP5348UI MIC23451-AAAYFL EV MIC5281YMME EV DA9063-EVAL ADP122-3.3-EVALZ ADP130-0.8-EVALZ ADP130-1.2-EVALZ ADP130-1.5-EVALZ ADP130-1.8-EVALZ ADP1714-3.3-EVALZ ADP1716-2.5-EVALZ ADP1740-1.5-EVALZ ADP1752-1.5-EVALZ ADP1828LC-EVALZ ADP1870-0.3-EVALZ ADP1871-0.6-EVALZ ADP1873-0.6-EVALZ ADP1874-0.3-EVALZ ADP1882-1.0-EVALZ ADP199CB-EVALZ ADP2102-1.25-EVALZ ADP2102-1.875EVALZ ADP2102-1.8-EVALZ ADP2102-2-EVALZ ADP2102-3-EVALZ ADP2102-4-EVALZ ADP2106-1.8-EVALZ ADP2147CB-110EVALZ AS3606-DB BQ24010EVM BQ24075TEVM BQ24155EVM BQ24157EVM-697 BQ24160EVM-742 BQ24296MEVM-655 BQ25010EVM BQ3055EVM NCV891330PD50GEVB ISLUSBI2CKIT1Z LM2744EVAL LM2854EVAL LM3658SD-AEV/NOPB LM3658SDEV/NOPB LM3691TL-1.8EV/NOPB LM4510SDEV/NOPB LM5033SD-EVAL LP38512TS-1.8EV EVAL-ADM1186-1MBZ EVAL-ADM1186-2MBZ