QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 767
SINGLE LI-ION BATTERY POWERED BUCK REGULATOR FOR PDA APPS

LTC3447

DESCRIPTION

Demonstration Circuit 767 is an I2C controlled high efficiency synchronous current mode buck regulator featuring the LTC3447. The circuit is ideally suited for single Li-Ion battery powered applications such as PDAs and other Handheld Devices. The I2C Power Rail, VCCD, can be connected to the main Supply Voltage VCCC. Both input voltage ranges are 2.5V → 5.5V. The buck regulator has a programmable output range of 0.7V to 2.00V with a 1A switch. The initial start-up voltage is set to 1.35V by feedback resistors R4 and R5 (the maximum start-up voltage (equal to VCCC) can be set by changing the R4 and R5 values). Automatic Burst Mode at light loads extends battery life in portable systems. The Burst Mode feature can be disabled using the I2C command.

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

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

PARAMETER	CONDITION	VALUE
VCCC Input Voltage Range		2.5V → 5.5V
VCCD Input Voltage Range		2.5V → 5.5V
V_{OUT} Buck Output Voltage		0.7V → 2.0V
Maximum Output Current	VCCC = 3V, V_{OUT} = 1.3V	600mA
Switching Frequency		1.0MHz Const.

QUICK START PROCEDURE

DC767 is easy to set up to evaluate the performance of the LTC3447. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. Connect a 100mA load, LOAD1, between the VOUT and GND terminals on the right hand side of the board.
2. Apply 3.3V between the VCCC and GND terminals on the left hand side of the board.
3. Apply 3.3V between the VCCD and GND terminals on the left hand side of the board.
4. Connect the DC410 to the Computer's serial port via a 9-pin RS232 cable.
5. Connect 8V – 10V to the VinExt and Gnd terminals on the DC410 (ensure the JP2 jumper on the DC410 is in the VinExt position and the JP1\JP3 jumpers are in their RES positions).
6. Connect the DC767 to the DC410 via their 5 pin connectors.
7. Run the LVDC767.exe User Interface program provided to issue the I2C command with the relevant information (note: the serpdrv file must be stored in the same directory as the LVDC767.exe file).
8. To change the Buck voltage ... set the Buck Voltage slider to whatever voltage you want the output to be and click on the Buck Voltage slider's Write button.

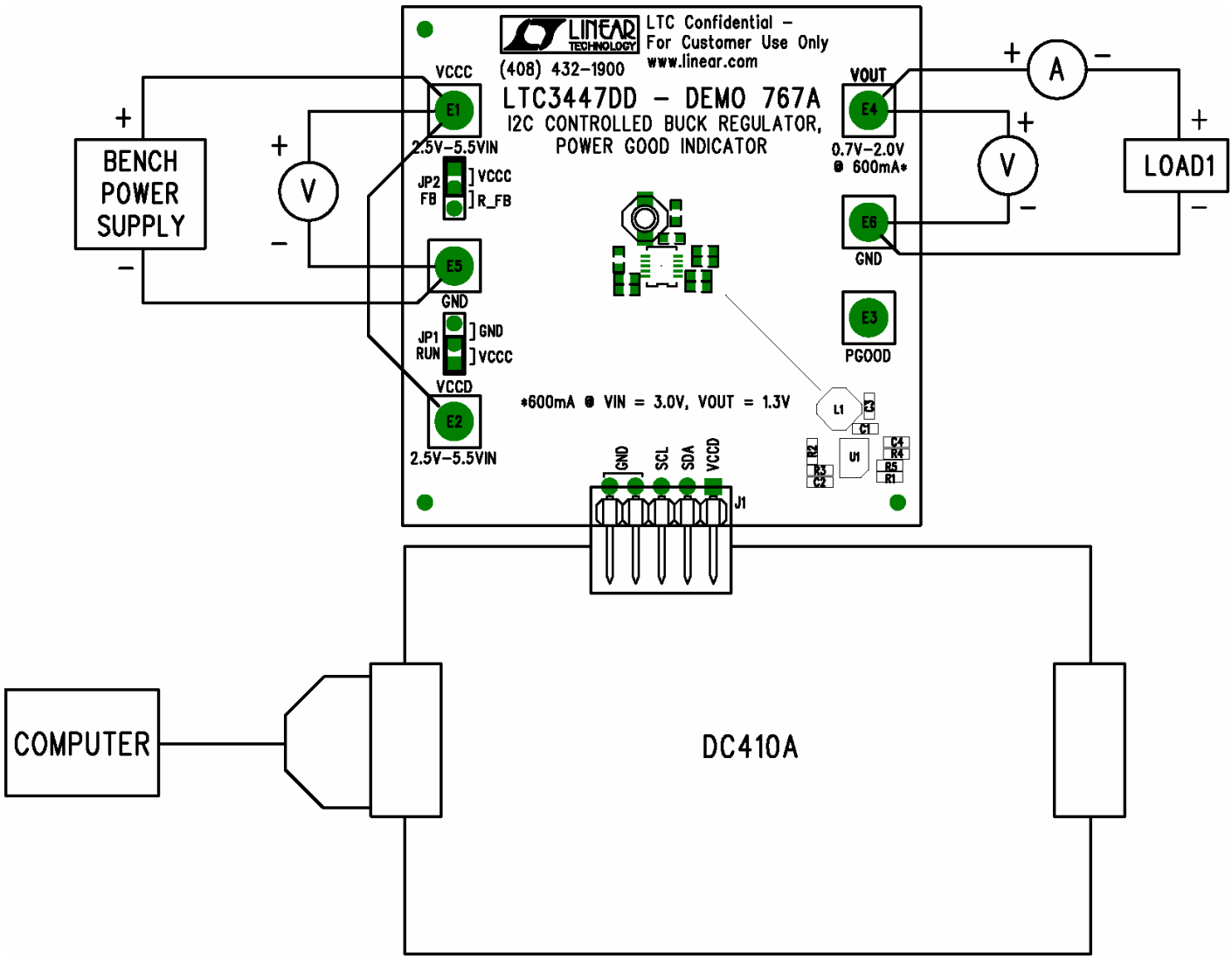
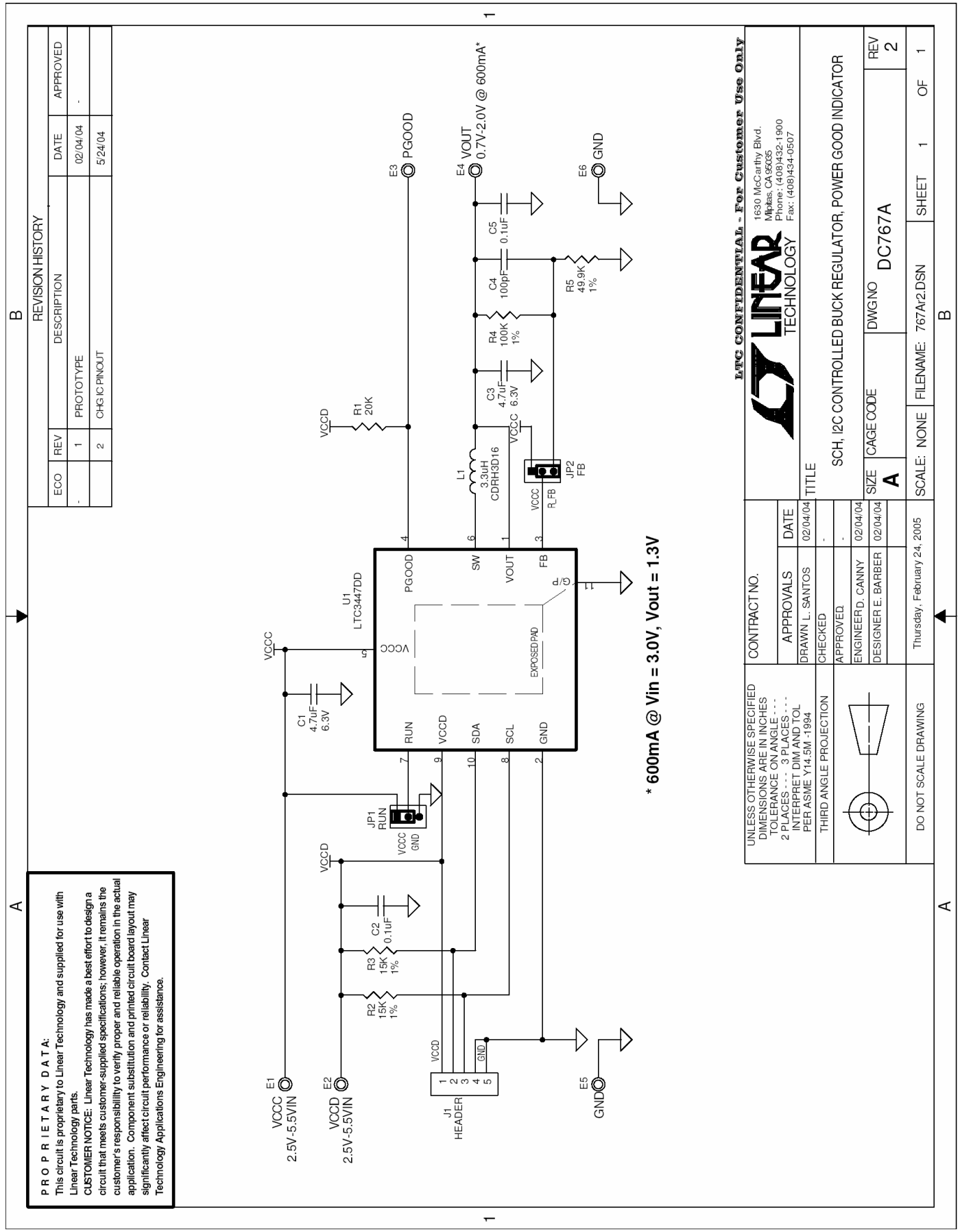


Figure 1. Proper Measurement Equipment Setup


REVISION HISTORY
ECO | REV | DESCRIPTION | DATE | APPROVED
- | 1 | PROTOTYPE | 02/04/04 | -
2 | CHG IC PINOUT | 5/24/04
PROPRIETARY DATA:
This circuit is proprietary to Linear Technology and supplied for use with Linear Technology parts.
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.
VCCC 2.5V-5.5VIN
VCCD 2.5V-5.5VIN
GND
VCCC
C1 4.7uF 6.3V
VCCD
R1 20K
R2 15K 1%
R3 15K 1%
C2 0.1uF
JP1 RUN
VCCC GND
U1 LTC3447DD
VCC
RUN
VCCD
SDA
SCL
GND
PGOOD
SW
VOUT
FB
EXPOSED PAD
L1 3.3uH CDRH3D16
C3 4.7uF 6.3V
R4 100K 1%
C4 100pF
C5 0.1uF
R5 49.9K 1%
JP2 FB
R_FB
PGOOD
VOUT 0.7V-2.0V @ 600mA*
GND
J1 HEADER
* 600mA @ Vin = 3.0V, Vout = 1.3V
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CONTRACT NO.
APPROVALS | DATE
DRAWN L. SANTOS | 02/04/04
CHECKED | -
APPROVED | -
ENGINEER D. CANNY | 02/04/04
DESIGNER E. BARBER | 02/04/04
TITLE
SCH, I2C CONTROLLED BUCK REGULATOR, POWER GOOD INDICATOR
SIZE A | CAGE CODE | DWG NO DC767A | REV 2
SCALE: NONE | FILENAME: 767Ar2.DSN | SHEET 1 OF 1
Thursday, February 24, 2005
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ON ANGLE - - - 2 PLACES - - - 3 PLACES - - - INTERPRET DIM AND TOL PER ASME Y14.5M -1994
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING