

## DESCRIPTION

Demonstration circuit 921 is a micropower synchronous buck-boost converter based on the LTC3532 monolithic buck-boost regulator. The DC921 has an input voltage range of 2.4 V to 5.5V and an output of 3.3V @ 300mA. The converter can work under manual or programmable automatic burst mode, providing high conversion efficiency over a wide range of load currents. The LTC3532 comes in a 10 lead 3x3 DFN package. These features make the DC921 demo board

an ideal circuit for use in Li-Ion battery-powered, hand-held applications.

NOTE: Some of the optional components should be stuffed for  $V_{in} > 4.5V$  as discussed in the Datasheet.

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

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## QUICK START PROCEDURE

Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. Start with Load set to 0A.
2. Set Power Supply anywhere between 2.4V to 5.5V.
3. The Load can be set from 0 – 300mA.

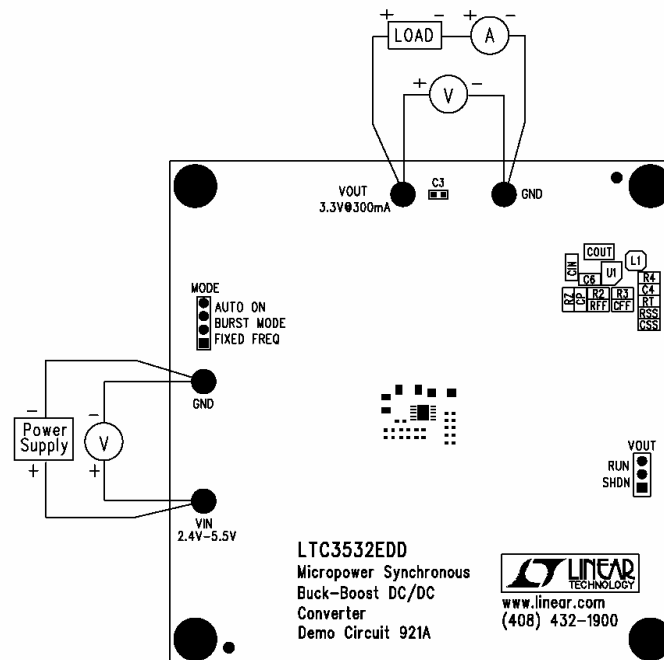
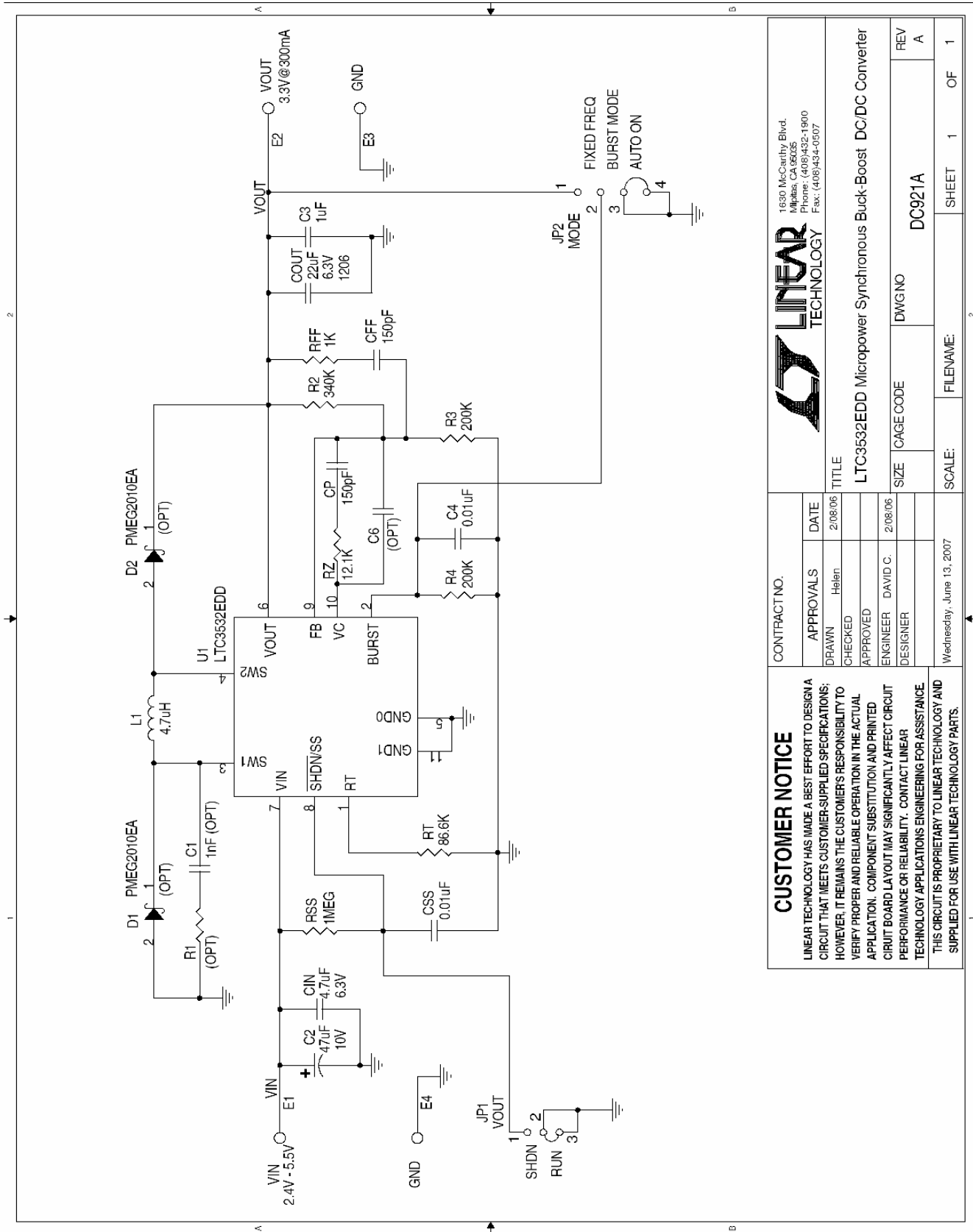


Figure 1. Proper Measurement Equipment Setup

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 921 MICROPOWER SYNCHRONOUS BUCK-BOOST CONVERTER



|  |  |   |                    |
|--|--|---|--------------------|
|  |  | 1650 McCarthy Blvd.<br>Milpitas, CA 95035<br>Phone: (415) 974-1900<br>Fax: (415) 974-0907 |                    |
|  |  | CONTRACT NO.  | DATE               |
| <b>CUSTOMER NOTICE</b><br>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 PARTS SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS. |  | APPROVALS<br>DRAWN Helen<br>CHECKED<br>APPROVED<br>ENGINEER DAVID C.<br>DESIGNER          | 2/08/06<br>2/08/06 |
| TITLE<br>LTC3532EDD Micropower Synchronous Buck-Boost DC/DC Converter  |  | SIZE CAGE CODE DWGNO<br>DC921A  | SCALE: FILENAME:   |
| Wednesday, June 13, 2007   |  | SHEET 1 OF 1  | REV A              |

| Item   | Qty | Reference   | Part Description                   | Manufacturer / Part #     |
|--|-----|-------------|------------------------------------|---------------------------|
| <b>REQUIRED CIRCUIT COMPONENTS:</b>              |     |             |                                    |                           |
| 1  | 2   | CFF,CP      | CAP., COG, 150pF, 50V, 10%, 0402   | AVX, 04025A151KAT2A       |
| 2  | 1   | CIN         | CAP., X5R, 4.7uF, 6.3V, 20%, 0805  | AVX, 08056D475MAT2A       |
| 3  | 1   | COUT        | CAP., X5R, 22uF, 6.3V, 10%, 1206   | AVX, 12066D106226KAT2A    |
| 4  | 2   | C4,CSS      | CAP., X5R, 0.01uF, 6.3V, 20% 0402  | AVX, 04026D103MAT2A       |
| 5  | 1   | C2          | CAP., TANT, 47uF, 10V, 20%, 3528   | AVX, TAJB476M010          |
| 6  | 1   | C3          | CAP., X5R, 1uF, 6.3V, 20%, 0603    | AVX, 06036D105MAT2A       |
| 7  | 1   | L1          | INDUCTOR, 4.7UH                    | SUMIDA, CDRH2D18/HP-4R7NC |
| 8  | 1   | RFF         | RES., CHIP, 1K, 1/16W, 5%, 0402    | AAC, CR05-102JM           |
| 9  | 1   | RSS         | RES., CHIP, 1MEG, 1/16W, 5%, 0402  | AAC, CR05-105JM           |
| 10   | 1   | RT          | RES., CHIP, 86.6K, 1/16W, 1%, 0402 | AAC, CR05-8662FM          |
| 11   | 1   | RZ          | RES., CHIP, 12.1K, 1/16W, 1%, 0402 | AAC, CR05-1212FM          |
| 12   | 1   | R2          | RES., CHIP, 340K, 1/16W, 1%, 0402  | AAC, CR05-3403FM          |
| 13   | 2   | R3,R4       | RES., CHIP, 200K, 1/16W, 1%, 0402  | AAC, CR05-2003FM          |
| 14   | 1   | U1          | LTC3532EDD 10PIN DFN               | LINEAR TECH., LTC3532EDD  |
| <b>ADDITIONAL DEMO BOARD CIRCUIT COMPONENTS:</b> |     |             |                                    |                           |
| 1  | 0   | C1 (OPT)    | CAP., 1nF, 0402                    |                           |
| 2  | 0   | C6 (OPT)    | CAP., 0402                         |                           |
| 3  | 0   | D1,D2(OPT)  | SCHOTTKY DIODE 1A/20V,SOD323       | PHILIPS,PMEG2010EA        |
| 4  | 0   | R1 (OPT)    | RES.,CHIP, 0402                    |                           |
| <b>HARDWARE-FOR DEMO BOARD ONLY:</b>             |     |             |                                    |                           |
| 1  | 4   | E1,E2,E3,E4 | TESTPOINT, TURRET, .095"           | MILL-MAX, 2501-2          |
| 2  | 1   | JP1         | 0.079 SINGLE ROW HEADER, 3 PIN     | COMM CON, 2802S-03-G2     |
| 3  | 1   | JP2         | 0.079 SINGLE ROW HEADER, 4 PIN     | SAMTEC, TMM-104-02-L-S    |
| 4  | 2   | JP1,JP2     | SHUNT, .079" CENTER                | SAMTEC, 2SN-BK-G          |
| 5  | 4   | (STAND-OFF) | STAND-OFF, NYLON 0.25" tall        | KEYSTONE, 8831 (SNAP ON)  |