

DESCRIPTION

Demonstration circuit DC1095 is a micropower synchronous buck-boost converter based on the LTC3538 monolithic buck-boost regulator. The DC1095 has an input voltage range of 2.4V to 5.5V and an output of 3.3V @ 800mA. The converter can be set to operate in Fixed Frequency (PWM) or Burst Mode, providing high conversion efficiency over a wide range of load currents.

The LTC3538 comes in an 8 lead 2x3mm DFN package. These features make the DC1095 demo board an ideal circuit for use in Li-Ion battery-powered, hand-held applications such as PDAs, MP3 Players, and GPS Receivers.

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

QUICK START PROCEDURE

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

1. Set the Power Supply to 3.3Vin.
2. Set the Load from 0 – 800mA.

3. Vin can be adjusted between 2.4V and 5.5V (note however, max output current is lower than 800mA at Vin below 2.9V).

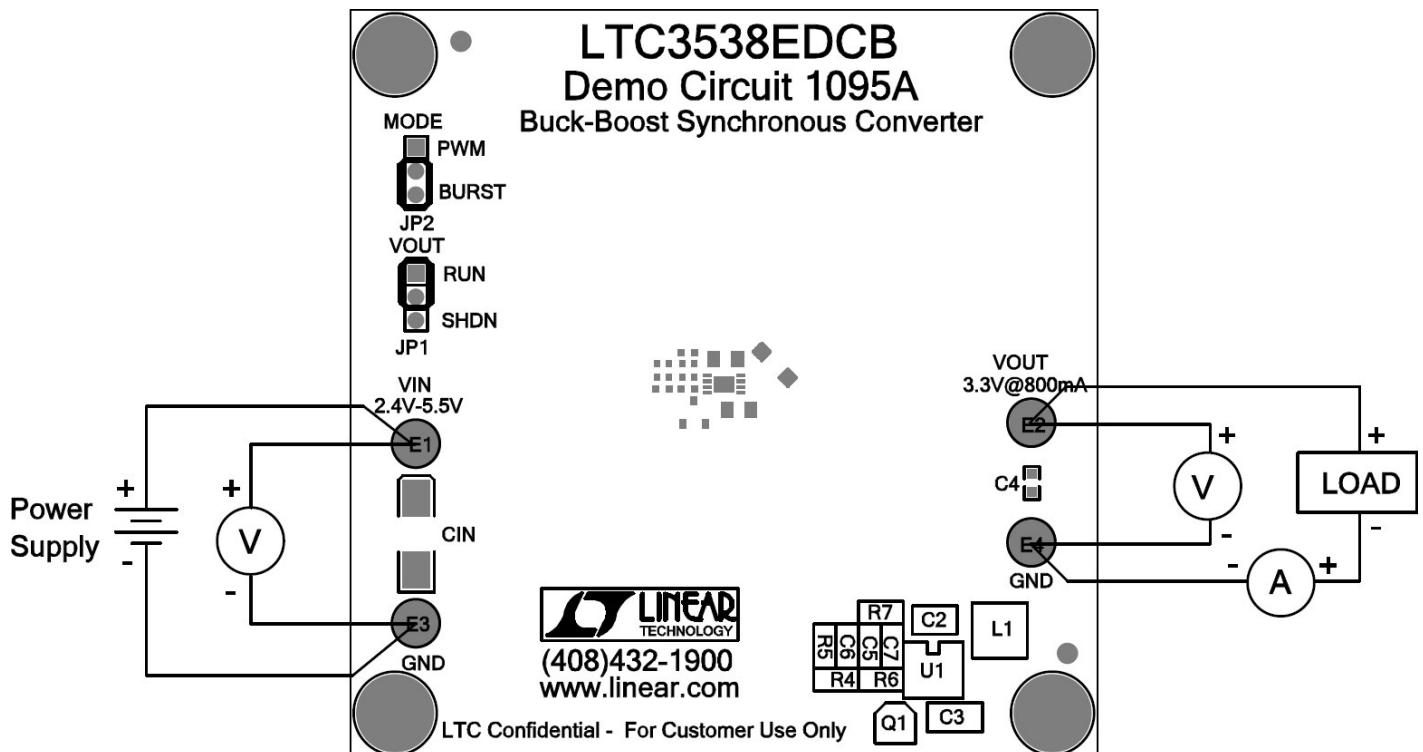
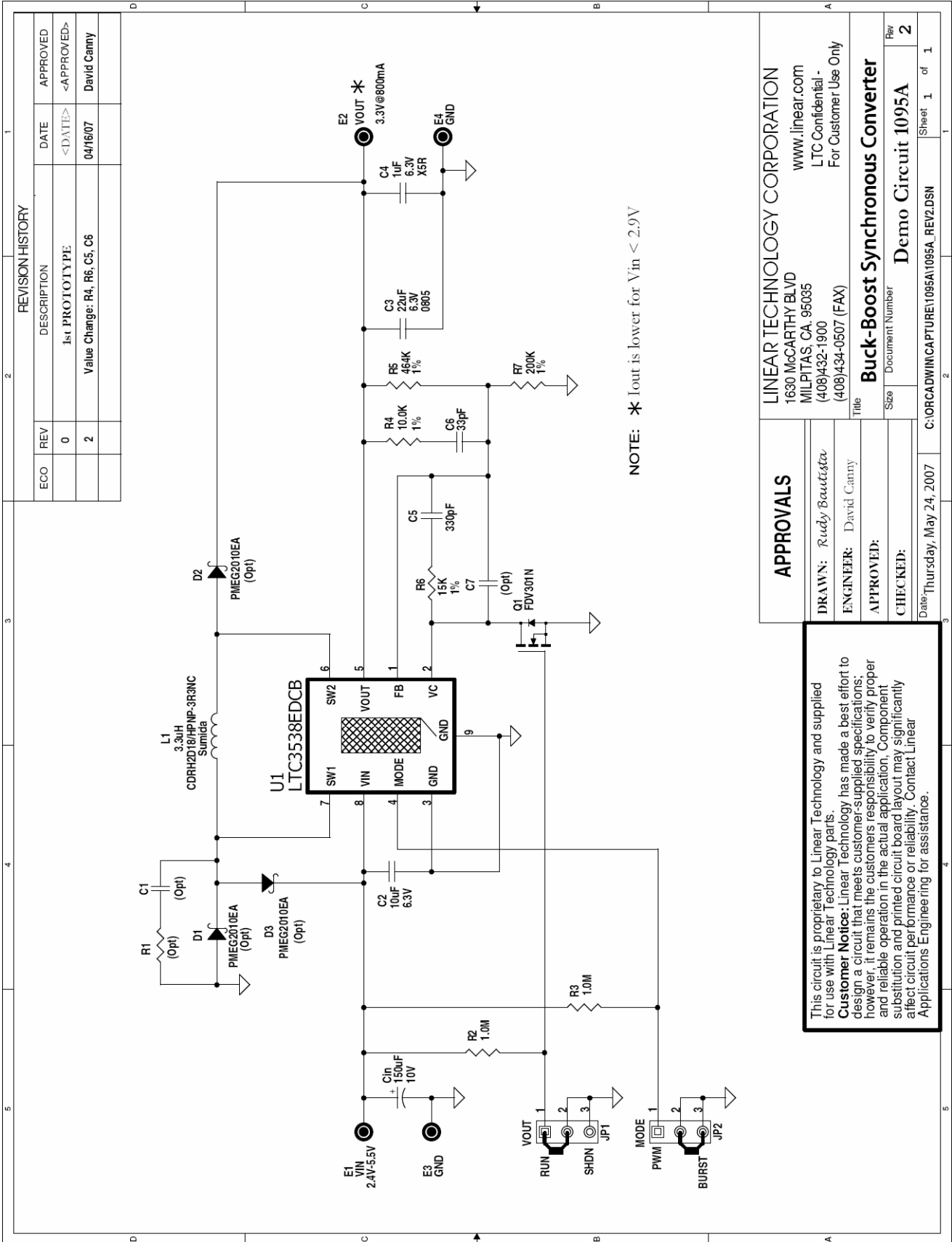


Figure 1. Proper Measurement Equipment Setup

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1095

MICROPOWER SYNCHRONOUS BUCK-BOOST CONVERTER



| REVISION HISTORY | | | | |
|------------------|-----|------------------------------|----------|--------------|
| ECO | REV | DESCRIPTION | DATE | APPROVED |
| | 0 | 1st PROTOTYPE | <DATE> | <APPROVED> |
| | 2 | Value Change: R4, R6, C5, C6 | 04/16/07 | David Cannoy |

| APPROVALS | |
|-----------|------------------------|
| DRAWN: | Rudy Bautista |
| ENGINEER: | David Cannoy |
| APPROVED: | |
| CHECKED: | |
| Date: | Thursday, May 24, 2007 |

| | |
|-------------------------------|----------------------------------|
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| For Customer Use Only | |
| Title | Buck-Boost Synchronous Converter |
| Size | Document Number |
| Rev | Demo Circuit 1095A |
| Sheet 1 | of 1 |

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 Applications Engineering for assistance.

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1095

MICROPOWER SYNCHRONOUS BUCK-BOOST CONVERTER

| <i>Item</i> | <i>Qty</i> | <i>Reference</i> | <i>Part Description</i> | <i>ManufactUre / Part #</i> |
|---|------------|------------------|---------------------------|--------------------------------|
| REQUIRED CIRCUIT COMPONENTS | | | | |
| 1 | 1 | Cin | Cap., Tant. 150uF 10V 10% | AVX TAJC157K010 |
| 2 | 1 | C2 | Cap., X5R 10uF 6.3V 20% | Taiyo Yuden JMK212BJ106MG-T |
| 3 | 1 | C3 | Cap., X5R 22uF 6.3V 20% | Taiyo Yuden JMK212BJ226MG-T |
| 4 | 1 | C4 | Cap., X5R 1uF 6.3V 10% | Taiyo Yuden JMK107BJ105KA-T |
| 5 | 1 | C5 | Cap., X7R 330pF 25V 10% | AVX 04023C331KAT2A |
| 6 | 1 | C6 | Cap., NPO 33pF 25V 10% | AVX 04023A330KAT2A |
| 7 | 1 | L1 | Inductor, 3.3uH | Sumida CDRH2D18/HPNP-3R3NC |
| 8 | 1 | Q1 | FET N-Chan., 25V | Fairchild Semi. FDV301N |
| 9 | 2 | R3,R2 | Res., Chip 1.0M 1/16W 5% | VISHAY,CRCW04021M00JNED |
| 10 | 1 | R4 | Res., Chip 10K 1/16W 1% | VISHAY,CRCW040210K0FKED |
| 11 | 1 | R5 | Res., Chip 464K 0.06W 1% | VISHAY,CRCW0402464KFKED |
| 12 | 1 | R6 | Res., Chip 15K 1/16W 1% | VISHAY,CRCW040215K0FKED |
| 13 | 1 | R7 | Res., Chip 200K 0.06W 1% | VISHAY,CRCW0402200FKED |
| 14 | 1 | U1 | I.C., Buck Converter | Linear Tech. Corp. LTC3538EDCB |
| ADDITIONAL DEMO BOARD CIRCUIT COMPONENTS | | | | |
| 1 | 0 | C1,C7 (Opt) | Cap., 0402 TBD | |
| 2 | 0 | D1,D2,D3 (Opt) | Schottky Diodes, 1A/20V | Philips PMEG2010EA |
| 3 | 0 | R1 (Opt) | Res., 0402 TBD | |