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 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 2×3mm 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).

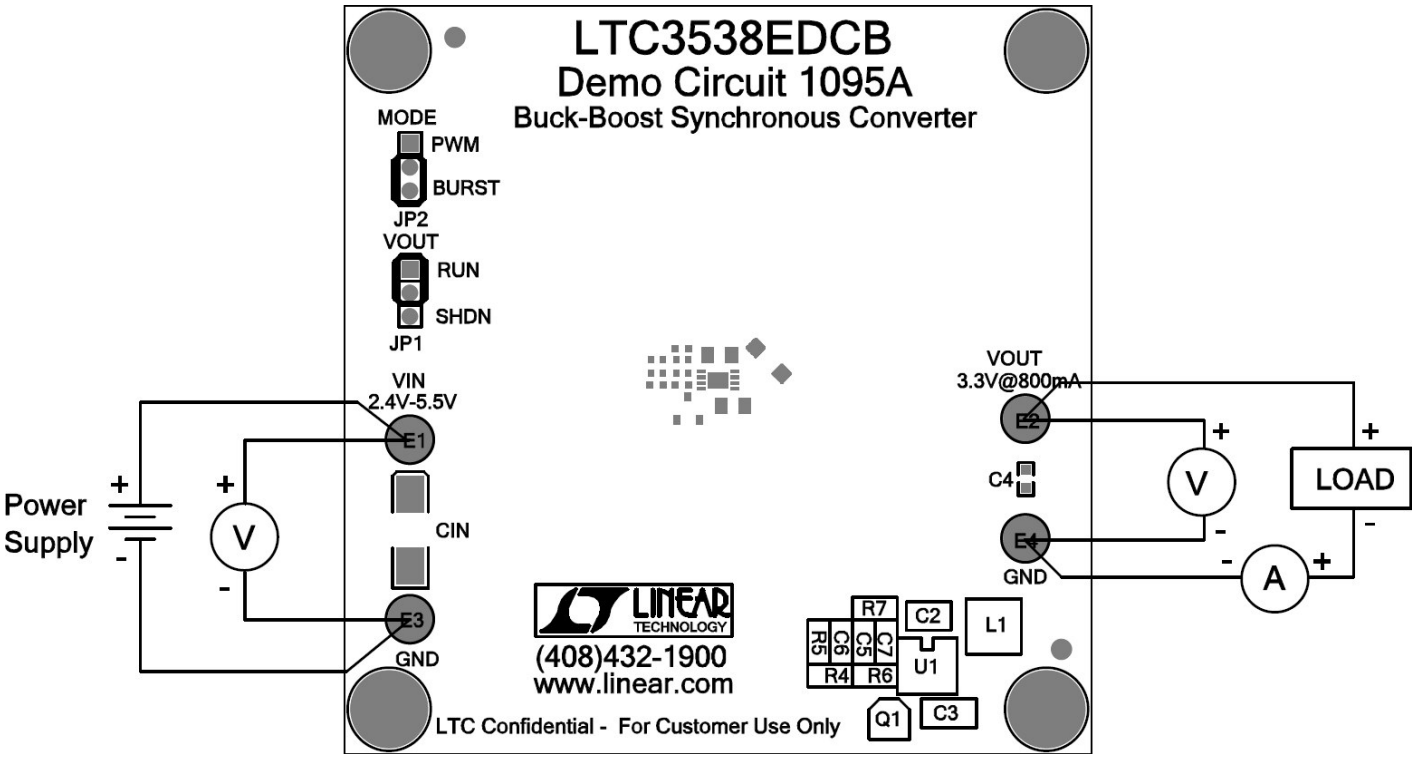
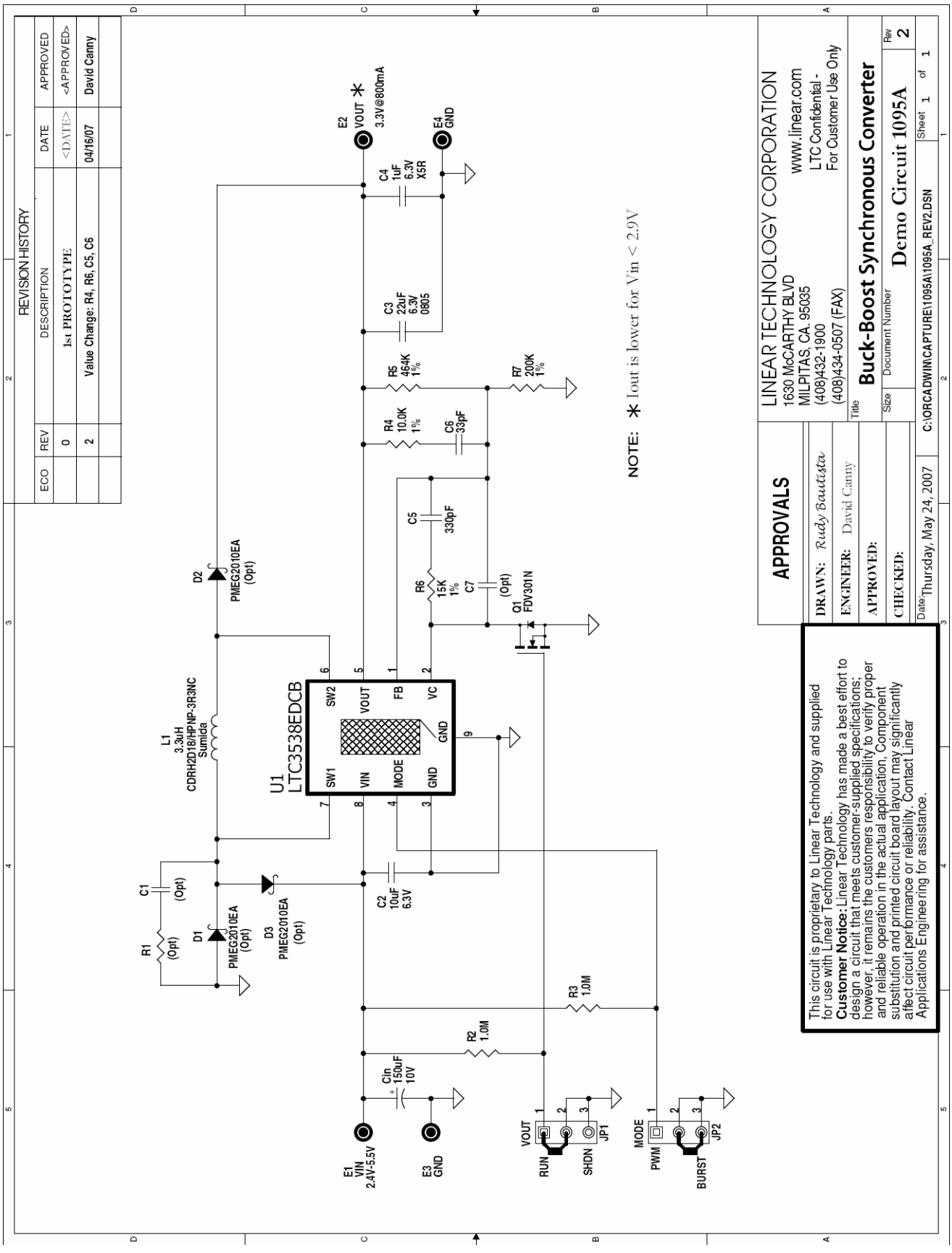


Figure 1. Proper Measurement Equipment Setup


REVISION HISTORY
ECO | REV | DESCRIPTION | DATE | APPROVED
0 | 1st PROTOTYPE | <DATE> | <APPROVED>
2 | Value Change: R4, R6, C5, C6 | 04/16/07 | David Canny
NOTE: * Iout is lower for Vin < 2.9V
APPROVALS
DRAWN: Rudy Bautista
ENGINEER: David Canny
APPROVED:
CHECKED:
Date: Thursday, May 24, 2007
LINEAR TECHNOLOGY CORPORATION
1630 McCARTHY BLVD
MILPITAS, CA. 95035
(408)432-1900
(408)434-0507 (FAX)
www.linear.com
LTC Confidential - For Customer Use Only
Title: Buck-Boost Synchronous Converter
Size | Document Number: Demo Circuit 1095A | Rev 2
Sheet 1 of 1
C:\ORCADWINCAPTURE\1095A\1095A_REV2.DSN
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 customers 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.
U1
LTC3538EDCB
SW2
VOUT
FB
VC
SW1
VIN
MODE
GND
GND
L1
3.3uH
CDRH2D18/HPNP-3R3NC
Sumida
D1
PMEG2010EA (Opt)
D2
PMEG2010EA (Opt)
D3
PMEG2010EA (Opt)
Q1
FDV301N
C1 (Opt)
C2 10uF 6.3V
C3 22uF 6.3V 0805
C4 1uF 6.3V X5R
C5 330pF
C6 33pF
C7 (Opt)
Cin 150uF 10V
R1 (Opt)
R2 1.0M
R3 1.0M
R4 10.0K 1%
R5 464K 1%
R6 15K 1%
R7 200K 1%
E1 VIN 2.4V-5.5V
E2 VOUT * 3.3V@800mA
E3 GND
E4 GND
VOUT
RUN
SHDN
JP1
MODE
PWM
BURST
JP2

Item	Qty	Reference	Part Description	ManUfactUre / Part #
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	