QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1213
DUAL MICROPOWER SYNCHRONOUS BUCK AND BOOST CONVERTER

LTC3523

DESCRIPTION

Demonstration circuit DC1213 is a micropower dual Buck and Boost synchronous converter based on the LTC3522 monolithic regulator. The DC1213 has an input voltage range of 1.8V all the way up to 4.2V depending on the Vout1 settings. Since Vout1 is a boost converter, Vin must be below the Vout1 voltage at all times. The board is configured at the factory for Vout1 at 3.3V @ 200mA with Vin being limited to 1.8V to 3.2V. Vout2 is fixed at 1.2V @ 200mA. See the tables below for all of the Vin vs Vout 1 operating limits as well as the default settings. The converters can be set for Fixed Frequency (PWM) or Burst Mode, which provides high conversion efficiency over a wide range of load currents. Both VOUTs can be sequenced on startup. Jumpers are provided for shutting down VOUT1 and VOUT2 independently, for Vout sequencing, Changing Switching modes Fixed PWM or burst and for choosing between 3.3V and 5V for VOUT1. The LTC3522 comes in a 16 lead 3×3 QFN package. These features make the DC1213 demo board an ideal circuit for use in Li-Ion battery-powered, hand-held applications such as PDAs, MP3 Players, and Personal Navigation Devices.

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

*	JP1 = 3.3V	VIN = 1.8V – 3.2V	VOUT1 = 3.3V @ 200mA
	JP1 = 5.0V	VIN = 2.7V – 4.2V	VOUT1 = 5V @ 200mA
	JP1 = 5.0V	VIN = 1.8V – 2.7V	VOUT1 = 5V @ 125mA

Jumper #	Function	Default Value
JP1	VOUT1 Voltage	3.3V
JP2	VOUT1 Shutdown	ON
JP3	Sequence VOUTs	YES
JP4	VOUT1 Shutdown	ON
JP5	Burst or Fixed PWM mode	Burst

QUICK START PROCEDURE

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

1. **Set Load1 between 0A → 200mA and Load2 between 0A → 200mA.**
2. **Set the Power Supply to ~ 3.0Vin**
3. **VIN can be adjusted between 1.8V and 3.2V for VOUT1 = 3.3V and VIN can be adjusted between 2.7V and 4.2V for VOUT1 = 3.3V (note: max output current for VOUT1 is lower than 400mA at VIN below 3.0V).**

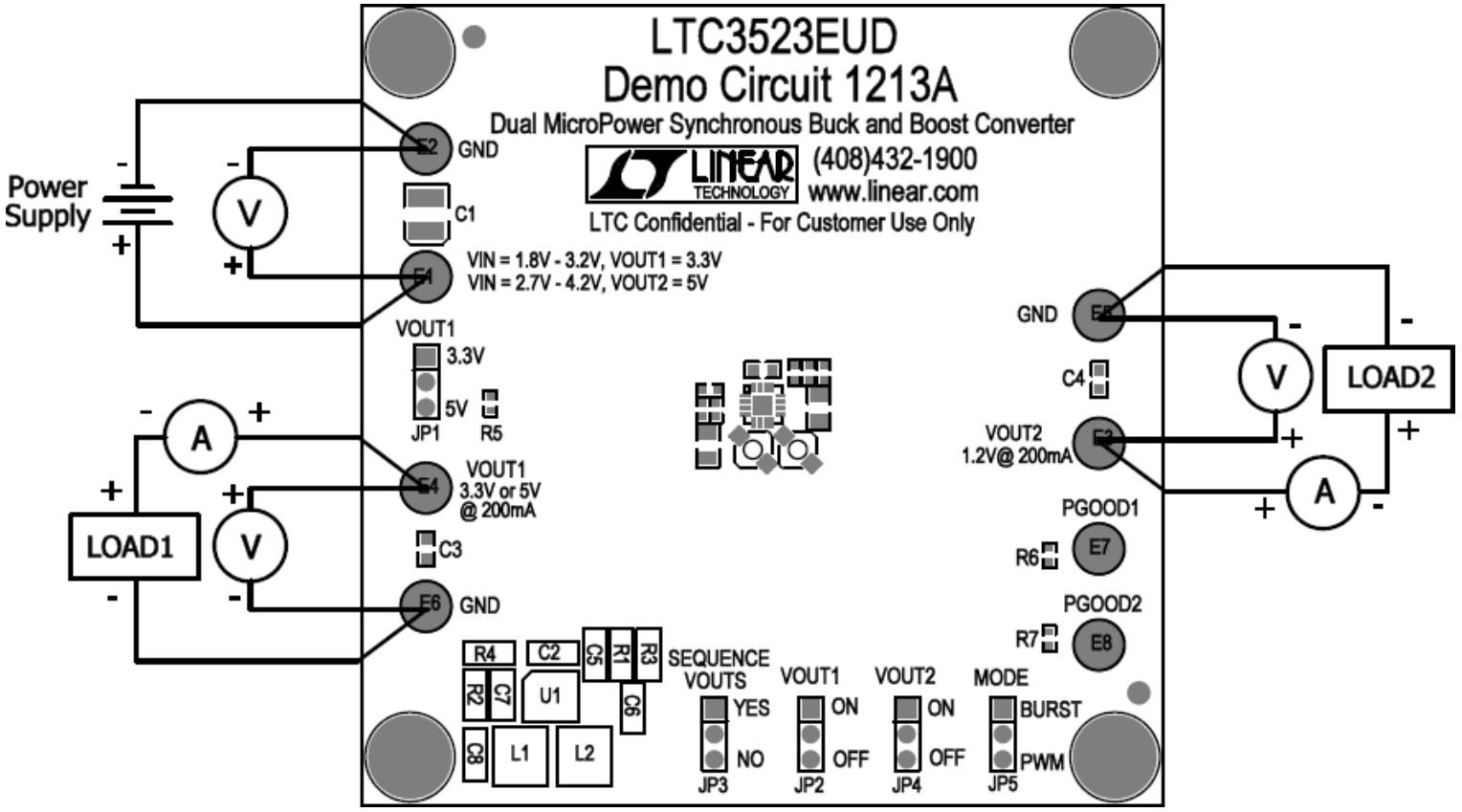
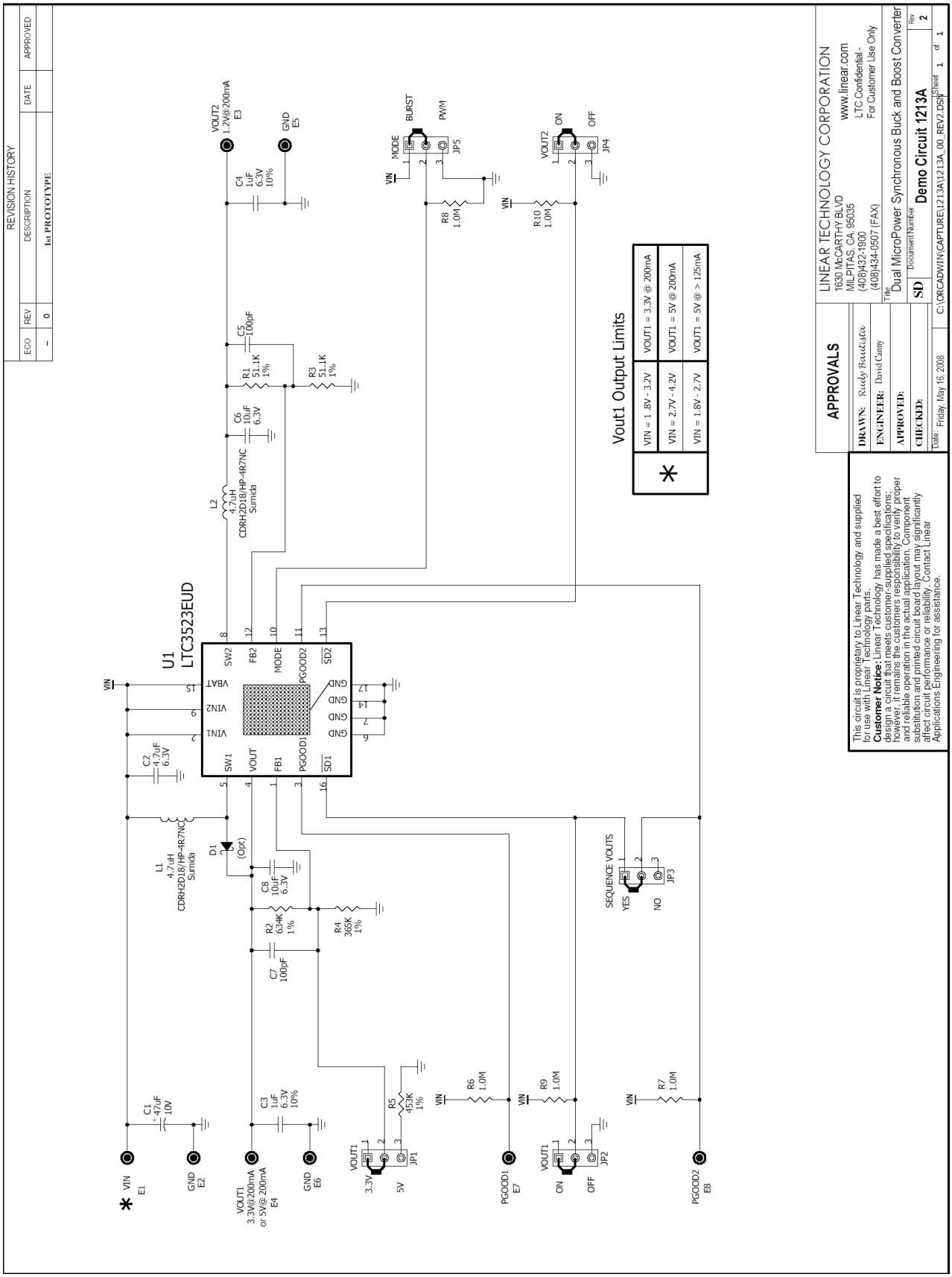


Figure 1. Proper Measurement Equipment Setup


REVISION HISTORY
ECO
REV
DESCRIPTION
DATE
APPROVED
-
0
1st PROTOTYPE
U1
LTC3523EUD
VIN
VOUT2
1.2V@200mA
E3
GND
E5
C4
1uF
6.3V
10%
C5
100pF
R1
51.1K
1%
R3
51.1K
1%
C6
10uF
6.3V
L2
4.7uH
CDRH2D18/HP-4R7NC
Sumida
MODE
BURST
PWM
JP5
R8
1.0M
R10
1.0M
ON
OFF
JP4
Vout1 Output Limits
VIN = 1.8V - 3.2V
VOUT1 = 3.3V @ 200mA
VIN = 2.7V - 4.2V
VOUT1 = 5V @ 200mA
VIN = 1.8V - 2.7V
VOUT1 = 5V @ > 125mA
C2
4.7uF
6.3V
L1
4.7uH
CDRH2D18/HP-4R7NC
Sumida
D1
(Opt)
C8
10uF
6.3V
R2
634K
1%
R4
365K
1%
C7
100pF
SEQUENCE VOUTS
YES
NO
JP3
C1
4.7uF
10V
C3
1uF
6.3V
10%
R5
453K
1%
VOUT1
3.3V
5V
JP1
R6
1.0M
R9
1.0M
R7
1.0M
JP2
VIN
E1
GND
E2
VOUT1
3.3V@200mA
or 5V@ 200mA
E4
GND
E6
PGOOD1
E7
PGOOD2
E8
APPROVALS
DRAWN: Rudy Bautista
ENGINEER: David Canny
APPROVED:
CHECKED:
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
Dual MicroPower Synchronous Buck and Boost Converter
Document Number
SD
Demo Circuit 1213A
Rev
2
Date: Friday, May 16, 2008
Sheet 1 of 1
C:\ORCADWIN\CAPTURE\1213A\1213A_00_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.

Item	Quantity	Reference	Part Description	Manuacturer / Part #
REQUIRED CIRCUIT COMPONENTS				
1	1	C1	Cap., Tant. 47uF 10V 20%	AVX TAJB476M010
2	1	C2	Cap., X5R 4.7uF 6.3V 20%	Taiyo Yuden JMK107BJ475MA-T
3	2	C3,C4	Cap., X5R 1uF 6.3V 10%	Taiyo Yuden JMK107BJ105KA-T
4	2	C7,C5	Cap., NPO 100pF 25V 10%	AVX 04023A101KAT2A
5	2	C6,C8	Cap., X5R 10uF 6.3V 20%	Taiyo Yuden JMK107BJ106MA-T
6	2	L1,L2	Inductor, 4.7uH	Sumida CDRH2D18/HP-4R7NC
7	2	R3,R1	Res., Chip 51.1K 1/16W 1%	AAC CR05-5112FM
8	1	R2	Res., Chip 634K 1/16W 1%	AAC CR05-6343FM
9	1	R4	Res., Chip 365K 1/16W 5%	AAC CR05-364JM
10	1	R5	Res., Chip 453K 0.06W 1%	Vishay CRCW0402453KFKED
11	5	R6,R7,R8,R9,R10	Res., Chip 1.0M 1/16W 5%	AAC CR05-105JM
12	1	U1	I.C., DC/DC CONVERTER	Linear Tech. Corp. LTC3523EUD
ADDITIONAL DEMO BOARD CIRCUIT COMPONENTS				
1	0	D1 (Opt)	Schottky Diode, 30V/200mA	Central Semi. CMDSH2-3

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