

## DESCRIPTION

Demonstration circuit 1062 is a micropower synchronous buck-boost + buck converter based on the LTC3520. The DC1062 has an input voltage range of 2.2 V to 5.5V and three output voltages: 3.3V @ up to 1A, 1.8V @ 600mA and 1.5V @ 200mA. The 1.5Vout is an LDO regulator derived from either the 3.3Vout or the 1.8Vout. The Buck-Boost + Buck converters can operate in either low-power burst mode or low-noise fixed-frequency PWM mode. The switching frequency is programmed using a single resistor and each of the

output voltages can be independently shutdown. The LTC3520 comes in a 24 pin 4x4 QFN package. These features make the DC1062 demo board an ideal circuit for use in Li-Ion battery-powered, hand-held applications.

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

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LTC is a trademark of Linear Technology Corporation

## QUICK START PROCEDURE

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

1. Start with Loads 1, 2 and 3 set to 0A.
2. Set Power Supply anywhere between 2.2V to 5.5V.
3. Loads 1, 2 and 3 can be set from 0 – 500mA, 0 – 600mA and 0 – 200mA respectively. Load 1 can be set up to 1A for  $V_{in} > 3V$ .

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1062

## DUAL BUCK-BOOST + BUCK SYNCHRONOUS CONVERTERS

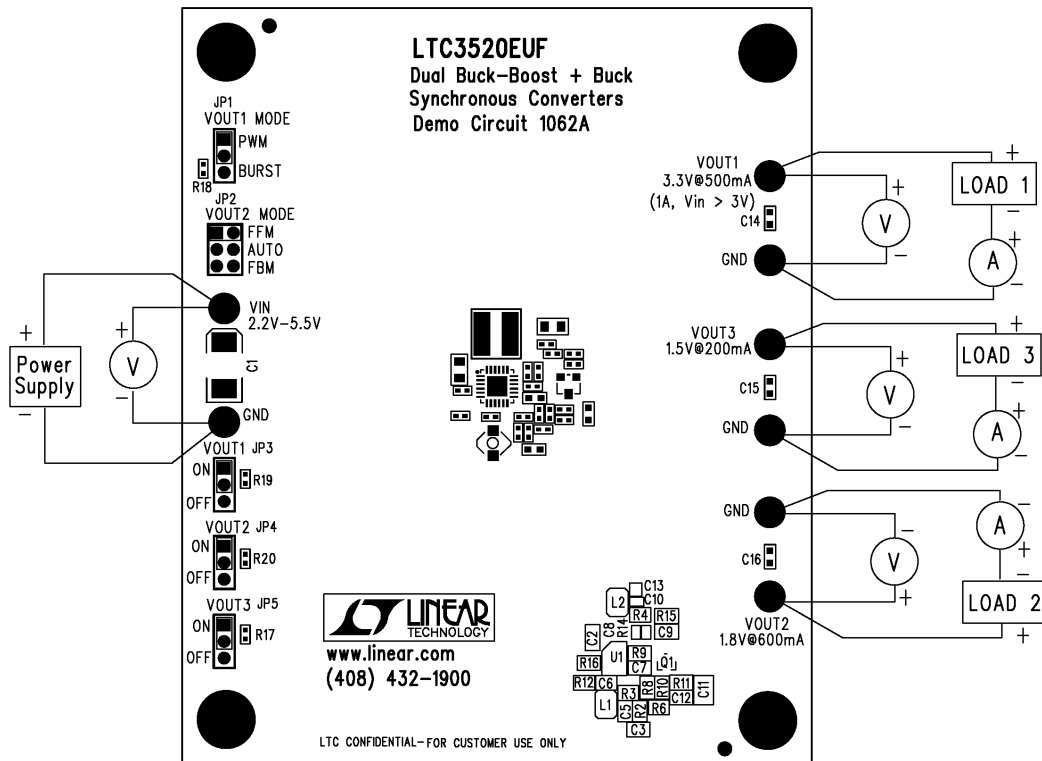
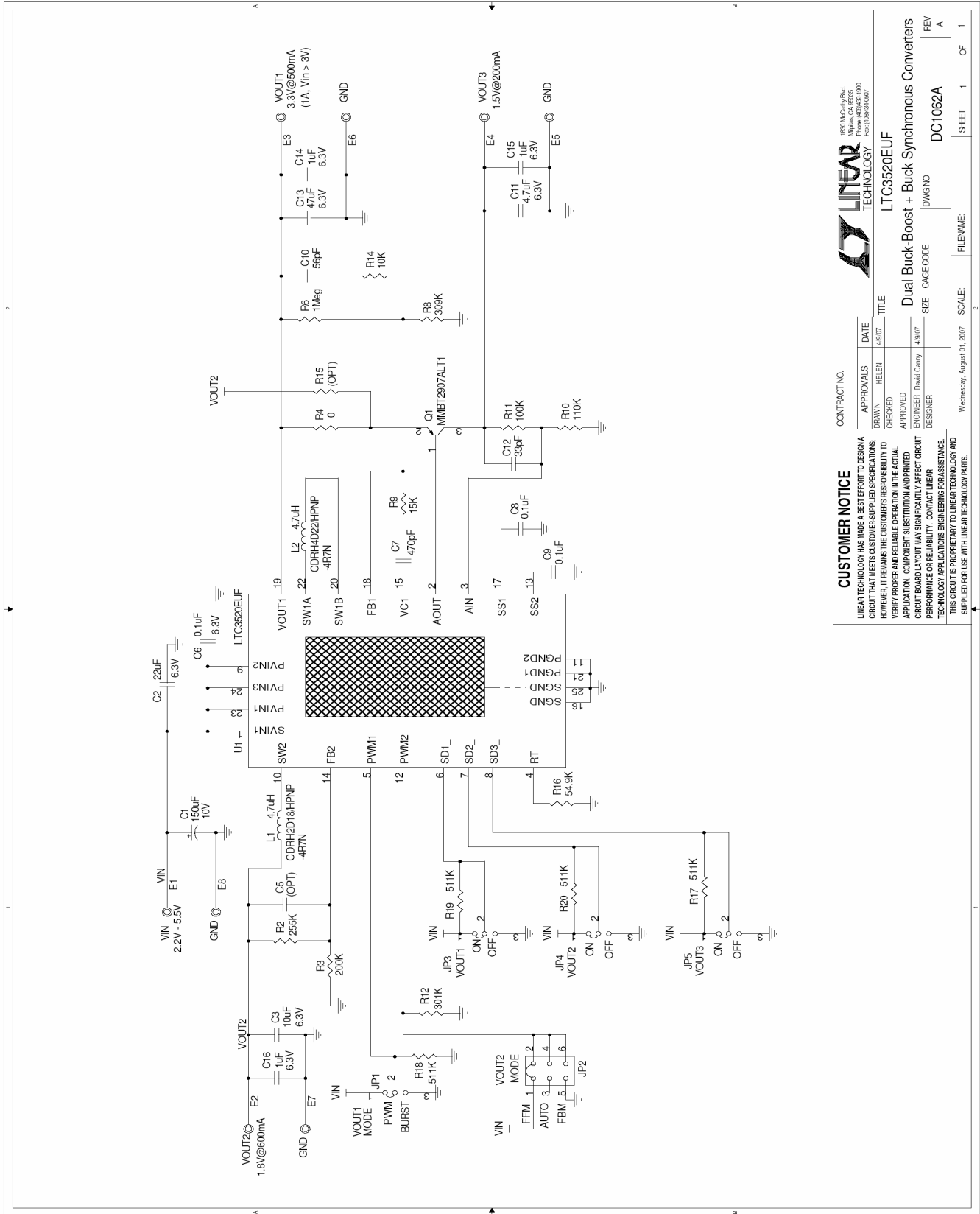


Figure 1.:Proper Measurement Equipment Setup

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1062

## DUAL BUCK-BOOST + BUCK SYNCHRONOUS CONVERTERS



<b>CUSTOMER NOTICE</b>		CONTRACT NO.	
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 THAT DEPART FROM LINEAR TECHNOLOGY'S ORIGINAL DESIGN REQUIREMENTS ARE NOT WARRANTED. LINEAR TECHNOLOGY AND ITS SUPPLIERS DO NOT WARRANT LINEAR TECHNOLOGY AND ITS SUPPLIES FOR USE WITH LINEAR TECHNOLOGY PARTS.		APPROVALS	DATE
		DRAWN HELEN	4/9/07
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		ENGINEER David Camry	4/9/07
		DESIGNER	
		DATE	
		SCALE: Wednesday, August 01, 2007	
		FILENAME	
		DWG NO	DC-1062A
		REV	A
		SHEET	1 OF 1



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LTC3520EUF

Dual Buck-Boost + Buck Synchronous Converters

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1062  
DUAL BUCK-BOOST + BUCK SYNCHRONOUS CONVERTERS

Item	Qty	Reference	Part Description	Manufacturer / Part #
<b>REQUIRED CIRCUIT COMPONENTS:</b>				
1	1	C1	CAP., TANT, 150uF, 10V, 20%, 7343	AVX, TPSD157M010R0100
2	1	C2	CAP., X5R, 22uF, 6.3V, 10%, 0805	Taiyo Yuden, JMK212BJ226KG-T
3	1	C11	CAP., X5R, 4.7uF, 6.3V, 10%, 0603	AVX, 06036D475KAT2A
4	1	C13	CAP., X5R, 47uF, 6.3V, 20%, 0805	Taiyo Yuden, JMK212BJ476MG-T
5	1	C3	CAP., X5R, 10uF, 6.3V, 20%, 0603	Taiyo Yuden, JMK107BJ106MA-T
6	3	C6,C8,C9	CAP., X5R, 0.1uF, 10V, 10%, 0402	Taiyo Yuden, LMK105BJ104KV-F
7	1	C7	CAP., C0G, 470pF, 6.3V, 5%, 0603	AVX, 06036A471JAT2A
8	1	C10	CAP., C0G, 56pF, 16V, 5%, 0402	AVX, 0402YA560JAT2A
9	1	C12	CAP., C0G, 33pF, 16V, 10%, 0402	AVX, 0402YA330KAT2A
10	3	C14,C15,C16	CAP., X5R, 1uF, 6.3V, 10%, 0603	Taiyo Yuden, JMK107BJ105KA-T
11	1	L1	INDUCTOR., 4.7uH	Sumida, CDRH2D18/HPNP-4R7NC
12	1	L2	INDUCTOR., 4.7uH	Sumida, CDRH4D22HPNP-4R7NC
13	1	Q1	PNP TRANSISTERS, SOT23	ON Semiconductor, MMBT2907ALT1G
14	1	R2	RES., CHIP, 255K, 1/16W, 1%, 0402	VISHAY, CRCW0402255KFKED
15	1	R3	RES., CHIP, 200K, 1/16W, 1%, 0402	VISHAY, CRCW0402200KFKED
16	1	R4	RES., CHIP, 0, 1/16W, 0402	VISHAY, CRCW0402000Z0ED
17	4	R17-R20	RES., CHIP, 511K, 1/16W, 1%, 0402	VISHAY, CRCW0402511KFKED
18	1	R6	RES., CHIP, 1Meg, 1/16W, 1%, 0402	VISHAY, CRCW04021M00FKED
19	1	R8	RES., CHIP, 309K, 1/16W, 1%, 0402	VISHAY, CRCW0402309KFKED
20	1	R9	RES., CHIP, 15K, 1/16W, 1%, 0402	VISHAY, CRCW040215K0FKED
21	1	R10	RES., CHIP, 110K, 1/16W, 1%, 0402	VISHAY, CRCW0402110KFKED
22	1	R14	RES., CHIP, 10K, 1/16W, 1%, 0402	VISHAY, CRCW040210K0FKED
23	1	R11	RES., CHIP, 100K, 1/16W, 1%, 0402	VISHAY, CRCW0402100KFKED
24	1	R12	RES., CHIP, 301K, 1/16W, 1%, 0402	VISHAY, CRCW0402301KFKED
25	1	R16	RES., CHIP, 54.9K, 1/16W, 1%, 0402	VISHAY, CRCW040254K9FKED
26	1	U1	I.C, LTC3520EUF#PBF, 4X4mm QFN	LINEAR TECH., LTC3520EUF#PBF
<b>ADDITIONAL DEMO BOARD CIRCUIT COMPONENTS:</b>				
1	0	R15(OPT)	RES., CHIP, 0402	
2	0	C5(OPT)	CAP., 0402	
<b>HARDWARE-FOR DEMO BOARD ONLY:</b>				
1	8	E1-E8	TESTPOINT, TURRET, .095"	MILL-MAX, 2501-2-00-80-00-00-07-0
2	1	JP2	2MM DOUBLE ROW HEADER 2x3	SAMTEC, TMM-103-02-L-D
3	4	JP1,JP3-JP5	0.079 SINGLE ROW HEADER, 3 PIN	SAMTEC, TMM-103-02-L-S
4	5	JP1-JP5	SHUNT,	SAMTEC,2SN-BK-G
5	4	STAND-OFF	STAND-OFF, NYLON 0.50" tall	KEYSTONE, 8833(SNAP ON)