

DESCRIPTION

Demonstration circuit 877 is a high efficiency synchronous Buck-Boost converter using the LTC3531-3.3. The input range is from 1.8V to 5.5V making it ideal for single-cell Lithium-Ion, multicell alkaline or nickel battery applications. This converter can provide 200mA when the input voltage is above 2.9V.

The DC877 features the LTC3531-3.3 in a tiny 6-pin ThinSOT package. The converter operates in Burst Mode, which provides conversion efficiency over a wide range of load currents. It has minimum

component count and tiny solution size. Other features include current limiting, thermal shutdown and output disconnect. In shutdown, the IC itself draws less than 1uA. The DC877A is ideal for battery powered, handheld applications such as MP3 players, handheld computers and PDAs.

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

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Table 1. Performance Summary ($T_A = 25^{\circ}\text{C}$)

PARAMETER FOR LED DRIVER	CONDITION	VALUE
Minimum input voltage		1.8V
Maximum input voltage		5.5V
Output voltage V_{OUT}		3.3V +/- 4%
Maximum output current	$V_{IN}=1.8\text{V}$	90mA
Maximum output current	$V_{IN}=2.5\text{V}$	150mA
Maximum output current	$V_{IN}=2.9\text{V}$	200mA

QUICK START PROCEDURE

DC877 is easy to set up for evaluating the performance of the LTC3531. See Figure 1 for proper measurement equipment setup and follow the test procedure outlined below.

1. Place JP1 in the RUN position.
2. Connect a bench supply to the VIN and GND terminals.
3. Turn on the input power supply and make sure that the input voltage does not exceed 5.5V.
4. Check for the proper output voltage. If there is no output, temporarily disconnect the load to make sure that the load is not set too high.
5. Once the proper output voltage is established, adjust the load within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters. See Figure 2 for proper scope probe placement for measuring input or output ripple.

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 877

BUCK-BOOST REGULATOR

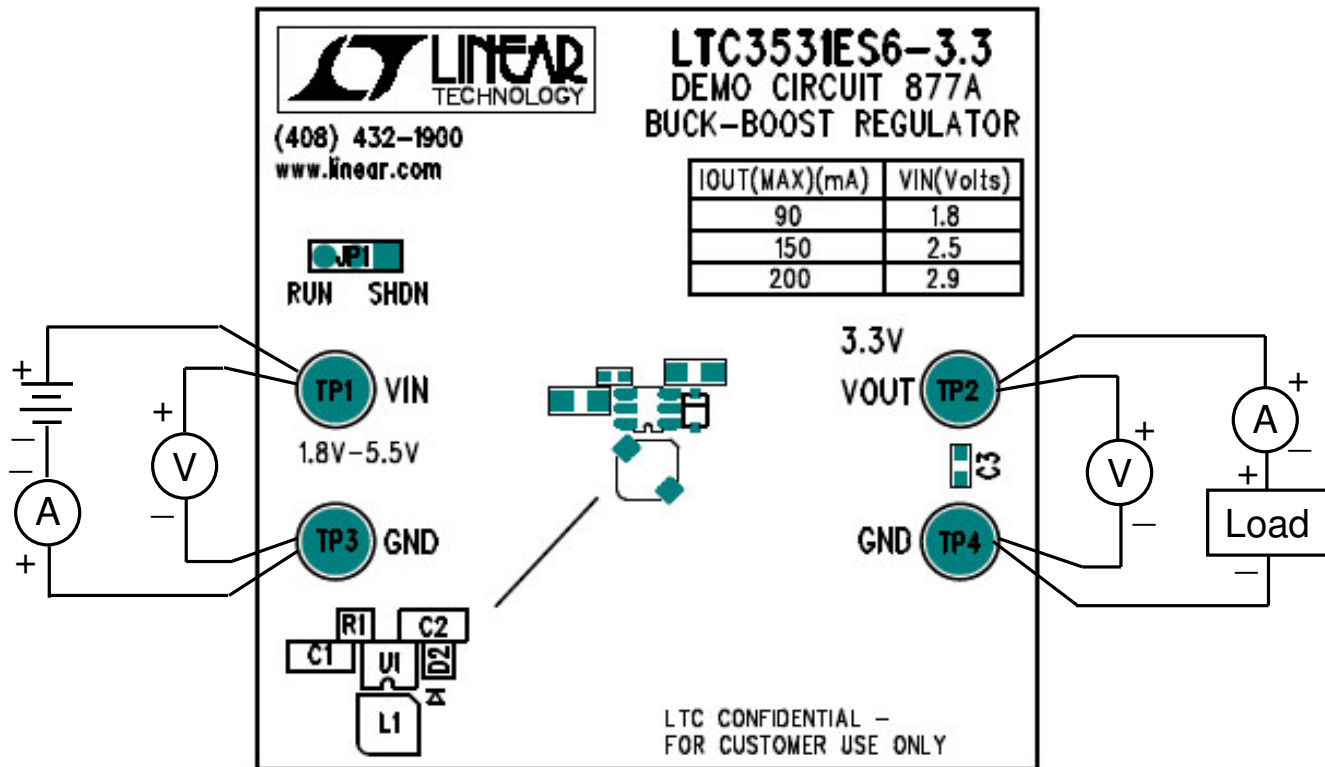


Figure 1. Proper Measurement Equipment Setup

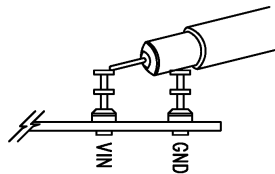
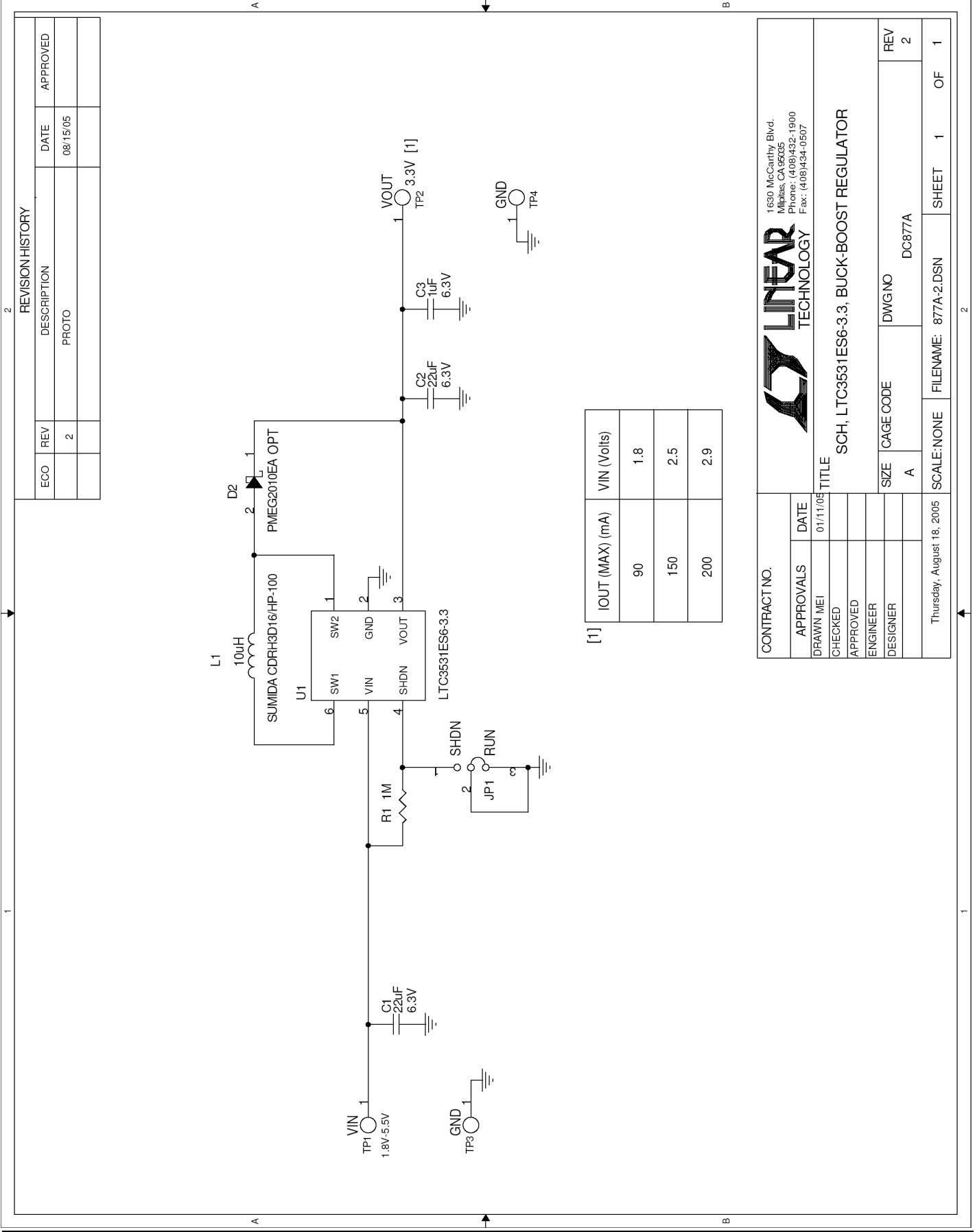


Figure 2. Scope Probe Placement for Measuring Input or Output Ripple

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 877 BUCK-BOOST REGULATOR



[1]

IOUT (MAX) (mA)	VIN (Volts)
90	1.8
150	2.5
200	2.9

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	APPROVED
	2	PROTO	08/15/05	

CONTRACT NO.		1630 McCarthy Blvd. Milpitas, CA 95035 Phone: (408)432-1900 Fax: (408)434-0507	
APPROVALS	DATE	TITLE	
DRAWN MEI	01/11/05	SCH, LTC3531ES6-3.3, BUCK-BOOST REGULATOR	
CHECKED		SIZE	CAGE CODE
APPROVED		A	DC877A
ENGINEER		DWGNO	
DESIGNER		SCALE: NONE	FILENAME: 877A-2.DSN
Thursday, August 18, 2005		SHEET	1 OF 1