

## DESCRIPTION

Demonstration circuit 650 is a high voltage micro-power voltage regulator using the LT3010 low drop-out linear regulator, which comes in a small 8-Pin MS8 package. DC650 has an input voltage range from 3V to 80V and an output voltage range of 1.22V to 60V. The circuit is capable of delivering 50mA max.

DC650 uses low cost ceramic capacitors because the LT3010 can maintain stability with low impedance ceramic output capacitors. Due to its high input voltage range, the DC650 voltage regulator is ideally suited for automotive and industrial applications.

**Gerber files for this circuit are available. Call the LTC Factory.**

## QUICK START PROCEDURE

Demonstration circuit 650 is easy to set up to evaluate the performance of the LT3010 high voltage micro-power LDO regulator. Be careful when connecting the test equipment to the board. High voltages are used in the testing of this circuit. Use with caution! Set up the circuit appropriately. Refer to figure 1 for the proper measurement equipment setup.

Please follow the procedure outlined below for proper operation.

Note of Caution: There will be high voltages in testing this circuit. Use with caution.

1. Before proceeding to test, insert jumper JP1 into the OFF position, and insert jumper JP2 into the 3.3V option (the lower position).
2. Apply 4V across  $V_{in}$  (to GND) with 1 mA load current. Insert jumper JP1 into the ON position. Measure  $V_{out}$ ; it should be 3.3V +/- 1% (3.26V to 3.34V). After the test, increase the load current to 5 mA.
3. Increase the input voltage to 80V. Again measure  $V_{out}$ ; it should be 3.3V +/- 2% (3.23V to 3.37V).
4. Increase the load current to 50 mA. Measure  $V_{out}$  again; it should be 3.3V +/- 3% (3.2V to 3.4V). When finished, set  $V_{in}$  to 6V and  $I_{out}$  to 1 mA.
5. Insert jumper JP1 into the OFF position and move jumper JP2 into the 5V option (the middle position). Re-insert jumper JP1 into the ON position;  $V_{out}$  should be 5V +/- 1% (4.95V to 5.05V). After the test, increase the load current to 5 mA.
6. Increase the input voltage to 80V. Again measure  $V_{out}$ ; it should be 5V +/- 2% (4.9V to 5.1V).
7. Increase the load current to 50 mA. Measure  $V_{out}$  again; it should be 5V +/- 3% (4.85V to 5.15V). The test is now complete.

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 650

## HIGH VOLTAGE MICROPOWER LINEAR REGULATOR

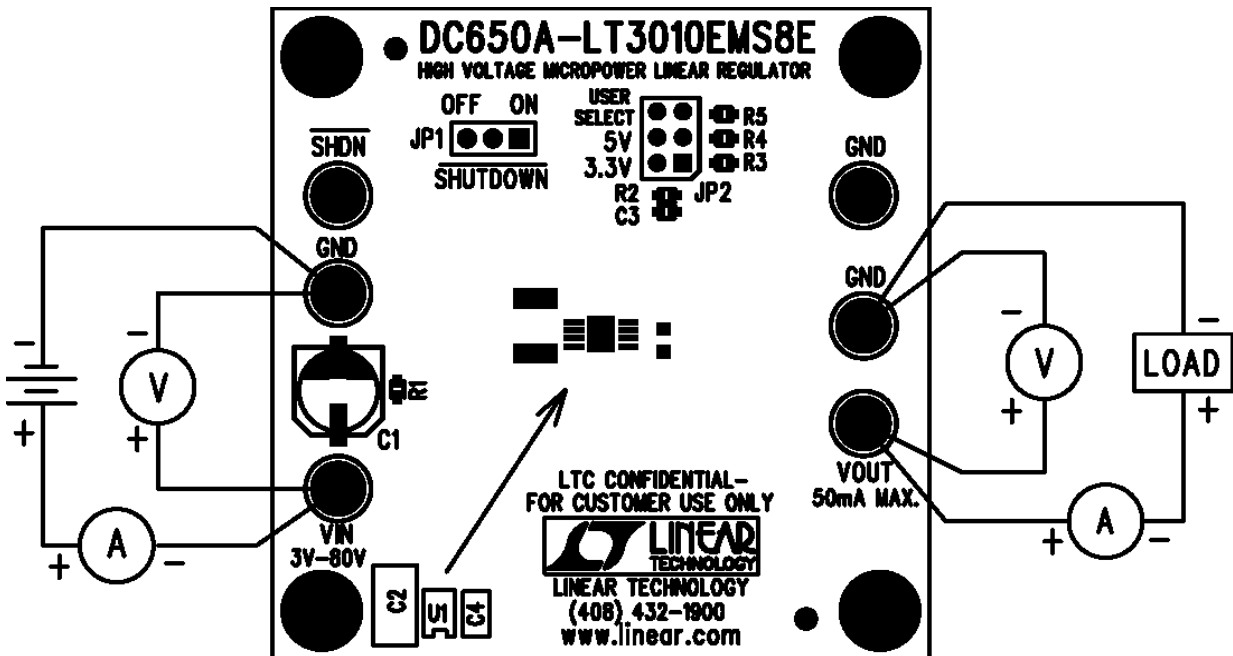
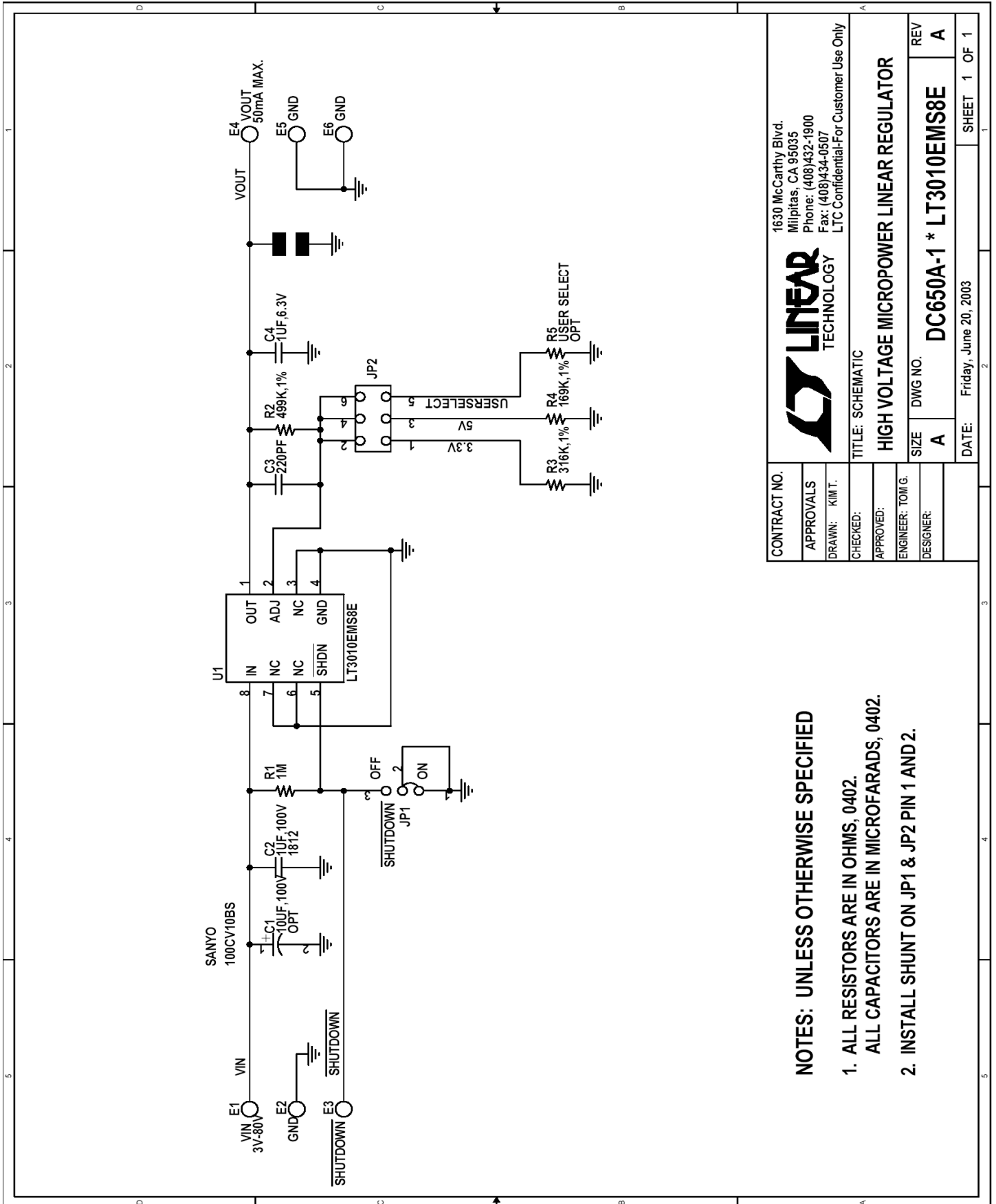


Figure 1. Proper Measurement Equipment Setup

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 650

## HIGH VOLTAGE MICROPOWER LINEAR REGULATOR



CONTRACT NO.		1630 McCarthy Blvd. Milpitas, CA 95035 Phone: (408)432-1900 Fax: (408)434-0507 LTC Confidential-For Customer Use Only	
APPROVALS	LINEAR TECHNOLOGY		
DRAWN: KIM T.	TITLE: SCHEMATIC		
CHECKED:	HIGH VOLTAGE MICROPOWER LINEAR REGULATOR		
APPROVED:	ENGINEER: TOM G.		
DESIGNER:	DESIGNER:		
SIZE	DWG NO.	REV	
A	DC650A-1 * LT3010EMS8E	A	
DATE:	Friday, June 20, 2003	SHEET	1 OF 1

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL RESISTORS ARE IN OHMS, 0402.  
ALL CAPACITORS ARE IN MICROFARADS, 0402.
2. INSTALL SHUNT ON JP1 & JP2 PIN 1 AND 2.



