

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 $\pm$ 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 $\pm$ 2% (3.23V to 3.37V).
4. Increase the load current to 50 mA. Measure V_{out} again; it should be 3.3V $\pm$ 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 $\pm$ 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 $\pm$ 2% (4.9V to 5.1V).
7. Increase the load current to 50 mA. Measure V_{out} again; it should be 5V $\pm$ 3% (4.85V to 5.15V). The test is now complete.

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 650

HIGH VOLTAGE MICROPOWER LINEAR REGULATOR

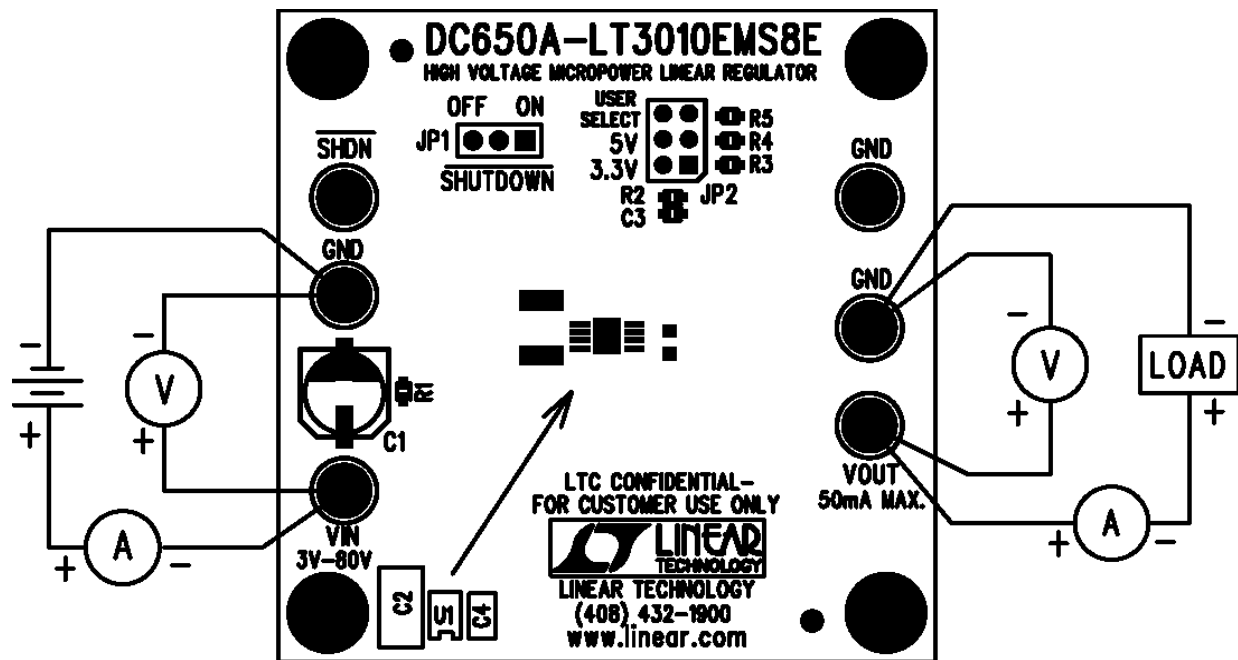
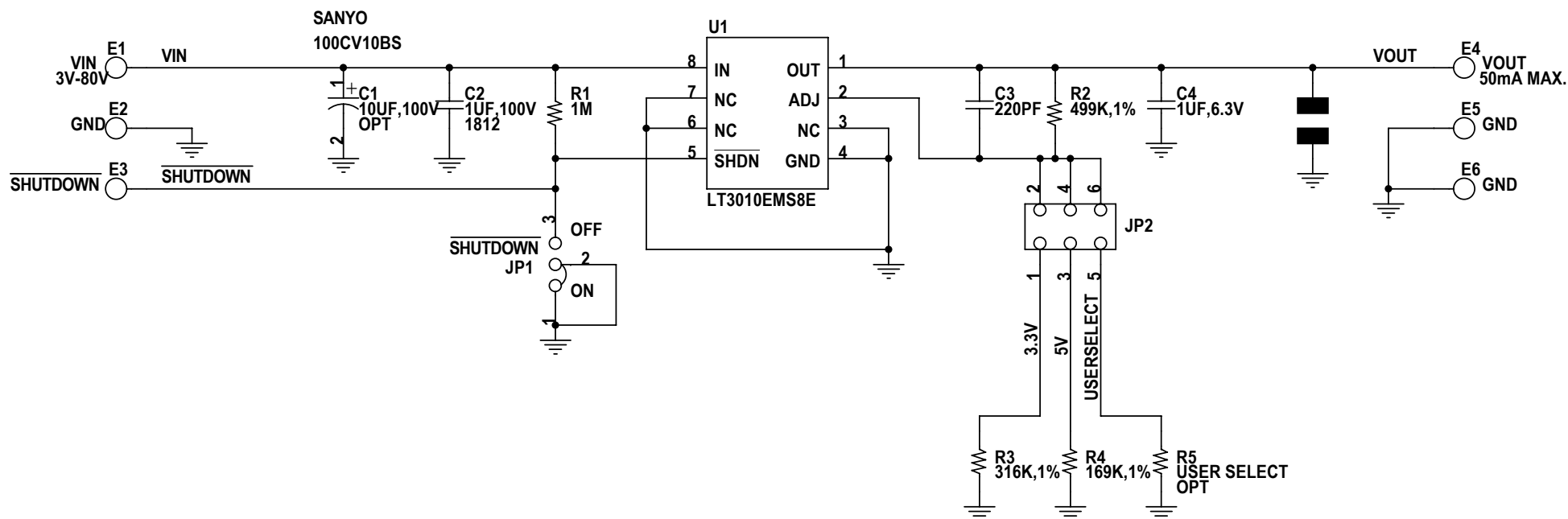


Figure 1. Proper Measurement Equipment Setup

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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.

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

Linear Technology Corporation

LT3010EMS8E

HIGH VOLTAGE MICROPOWER LINEAR REGULATOR

ENG: TOM GROSS (23-30)

BILL OF MATERIALS

DC650A-1

6/17/2005

4:25 PM

Item	Qty	Reference	Part Description	Manufacture / Part #
1	1	C1	CAP., ALUM, 10uF 100V 25%,C-SANYO-CV-BS-6.3X7.7	SANYO 100CV10BS
2	1	C2	CAP., X7R, 1UF 100V, 10%, 1812	TAIYO YUDEN, HMK432BJ105KM
3	1	C3	CAP., NPO, 220PF 25V, 10%, 0402	AVX, 04023A221KAT
4	1	C4	CAP., X5R, 1UF 10V, 20%, 0603	TAIYO YUDEN, LMK107BJ105MA
5	5	E1,E2,E3,E4,E5	TESTPOINT, TURRET, .064"	MILL-MAX, 2308-2
6	1	JP1	JMP, 1X3, .079CC	COMM-CON, 2802S-03-G2
7	1	JP2	JMP, 2X3, .079CC	COMM-CON, 2202S-06-G2
8	2	SHUNTS FOR JP1 & JP2	SHUNT, .079" CENTER	COMM-CON CCIJ2MM-138G
9	1	R1	RES., CHIP 100K 1/16W 5%,0402	AAC, CR05-104JM
10	1	R2	RES., CHIP 499K 1/16W 1%,0402	AAC, CR05-4993FM
11	1	R3	RES., CHIP 316K 1/16W 1%,0402	AAC, CR05-3163FM
12	1	R4	RES., CHIP 169K 1/16W 1%,0402	AAC, CR05-1693FM
13	0	R5	RES., CHIP,0402	OPT
14	1	U1	I.C., LT3010EMS8E, MS8E	LINEAR TECH., LT3010EMS8E
15	4	FOR 4 MTG	SCREW, #4-40, 1/4"	ANY
16	4	FOR 4 MTG	STANDOFF, #4-40 1/4"	MICRO PLASTICS 14HTSP101
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		2. INSTALL SHUNTS ON JP1 & JP2 PIN 1 AND 2.		