

LTM8022

36V, 1A Step-Down μModule Regulator

DESCRIPTION

Demonstration circuit 1261A features the LTM[®]8022 step-down μModule[®] regulator delivering a 3.3V output from a 4.5V to 36V input supply. As a step-down converter, the LTM8022 requires a minimum amount of headroom to keep the output in regulation. The device may be synchronized to an external clock or allowed to enter low ripple Burst Mode[®] operation at light load conditions by applying the appropriate signal to the SYNC pin. Current sharing with another LTM8022 is enabled by tying the VIN, VOUT and SHARE pins together to support higher output loads.

The LTM8022 data sheet must be read in conjunction with demo manual prior to working on or modifying demo circuit DC1261A.

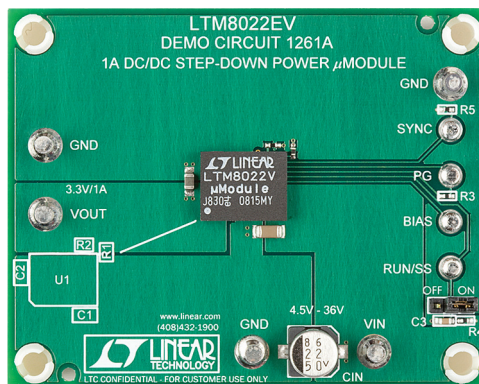
Design files for this circuit board are available at <http://www.linear.com/demo>

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PERFORMANCE SUMMARY (T_A = 25°C)

PARAMETER	CONDITION	VALUE
Input Voltage Range		4.5V to 36V
Output Voltage, V _{OUT}		3.3V ±3%
Maximum Output Current		1A
Typical Switching Frequency		600kHz

BOARD PHOTO



QUICK START PROCEDURE

Demonstration circuit 1261A is an easy way to evaluate the performance of the LTM8022. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

Note: When measuring the input or output voltage ripple, care must be taken to avoid a long ground lead on the oscilloscope probe. Measure the input or output voltage ripple by touching the probe tip directly across the VIN or VOUT and GND terminals. See Figure 2 for proper scope probe technique.

1. Place JP1 on the ON position.
2. With power off, preset the input supply within the operating range of the LTM8022 then connect the input power supply to VIN and GND.

3. Turn on the input power supply.

Note: Make sure that the input voltage does not exceed the maximum input voltage.

4. Check for the proper output voltage.

Note: 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 are established, adjust the load within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

QUICK START PROCEDURE

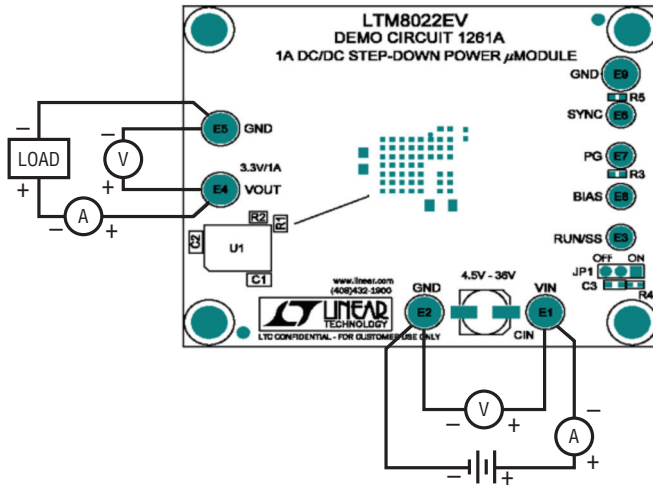


Figure 1. Proper Measurement Equipment Setup

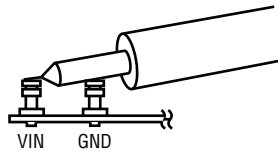


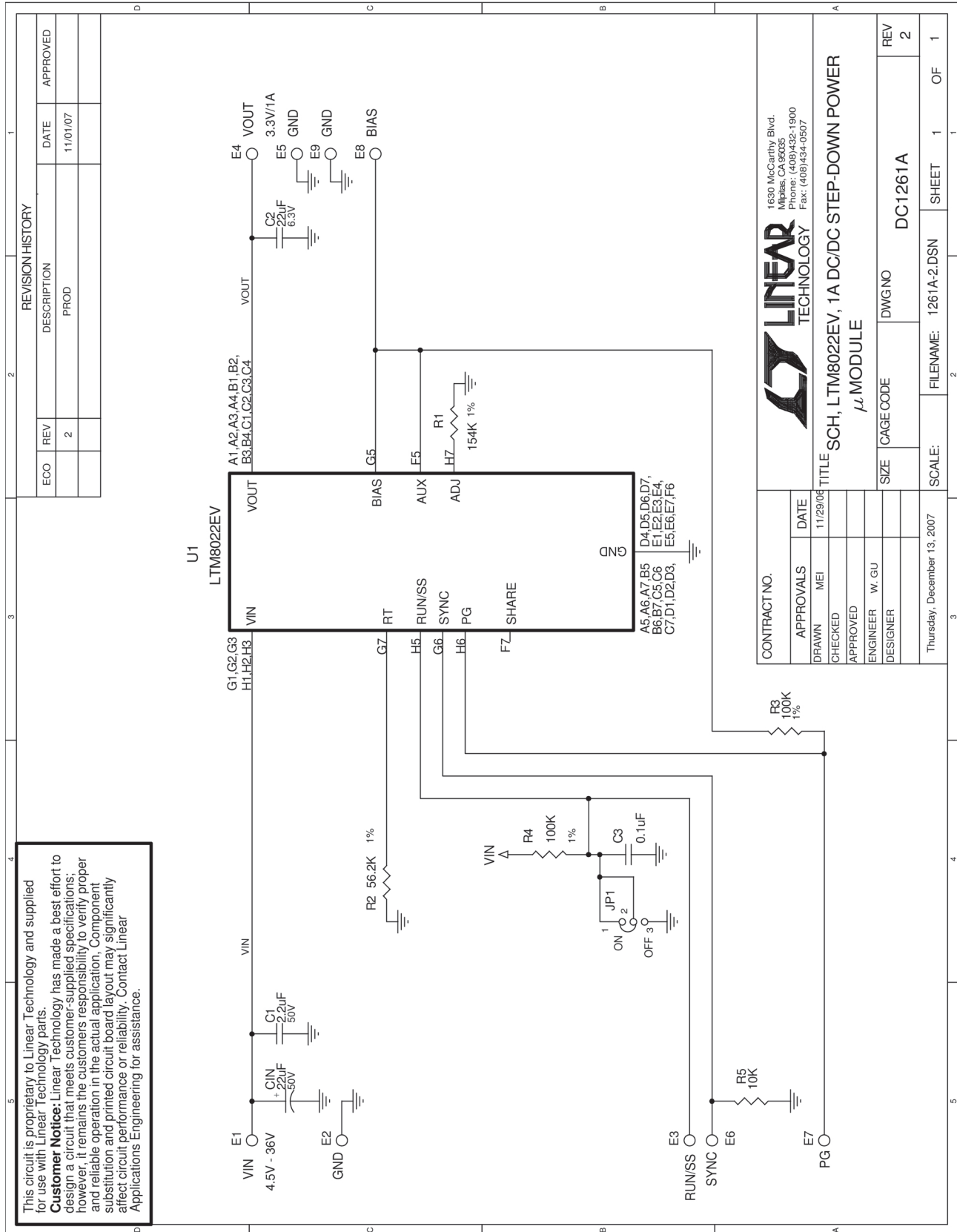
Figure 2. Measuring Input or Output Ripple

DEMO MANUAL DC1261A

PARTS LIST

ITEM	QTY	REFERENCE	DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components				
1	1	C1	CAP, 1206 2.2 μ F 10% 50V X7R	MURATA GCM31CR71H225KA55L
2	1	C2	CAP, 0805 22 μ F 10% 6.3V X5R	TAIYO YUDEN JMK212BJ226KG-T
3	1	R1	RES, 0402 154k 1% 1/16W	VISHAY CRCW0402154KFKEA
4	1	R2	RES, 0402 56.2k 1% 1/16W	VISHAY CRCW040256K2FKED
5	1	U1	IC, MODULE	LINEAR TECH. LTM8022EV
Additional Demo Board Circuit Components				
1	1	CIN	CAP, 22 μ F 20% 50V ALUM	SANYO 50CE22BS
2	1	C3	CAP, 0603 0.1 μ F 10% 50V X7R	TDK C1608X7R1H104K
3	2	R4, R3	RES, 0402 100k 1% 1/16W	VISHAY CRCW0402100KFKEA
4	1	R5	RES, 0402 10k 5% 1/16W	VISHAY CRCW040210K0JNED
Hardware For Demo Board Only				
1	5	E1, E2, E4, E5, E9	TURRET	MILL-MAX 2501-2-00-80-00-00-07-0
2	4	E3, E6, E7, E8	TURRET	MILL-MAX 2308-2-00-80-00-00-07-0
3	1	JP1	HEADER, 3-PIN, 2mm	SAMTEC TMM-103-02-L-S
4	1	XJP1	SHUNT, 2mm	SAMTEC 2SN-BK-G
5	4		STANDOFF, SNAP ON	KEYSTONE_8831

SCHEMATIC DIAGRAM



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 customer's 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.



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This notice contains important safety information about temperatures and voltages. For further safety concerns, please contact a LTC application engineer.

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