LTM8032 Ultralow EMI, 36V, 2A DC/DC µModule Regulator

DESCRIPTION

Demonstration circuit 1386 features the LTM®8032, a 2A EN55022 Class B certified step-down converter. This µModule® regulator is configured to deliver a 3.3V output from an input voltage between 5.5V to 36V at a switching frequency of 600kHz. The wide input range of the LTM8032 allows a variety of input sources. Under light load conditions, the available Burst Mode® operation supports high efficiency with low output ripple.

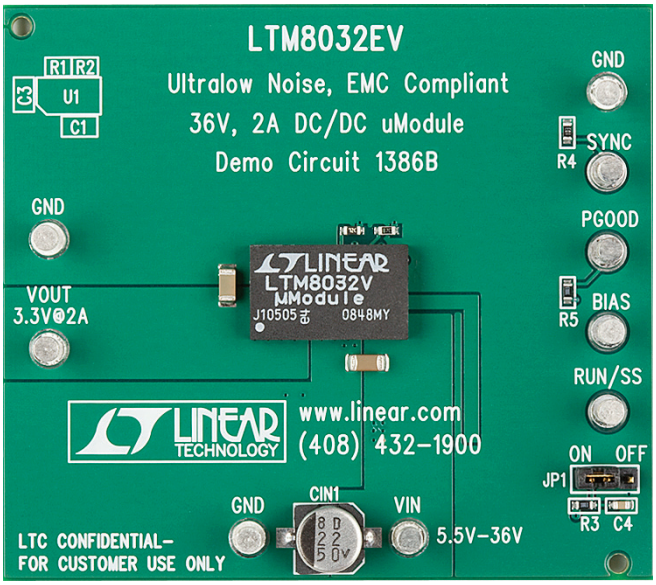
The LTM8032 data sheet gives a complete description of the part, operation and application information. The data sheet must be read in conjunction with this manual to modify demo circuit 1386.

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

PERFORMANCE SUMMARY (T_A = 25°C)

PARAMETER	CONDITION	VALUE
Input Voltage Range		5.5V to 36V
Output Voltage V_{OUT}		3.3V
Maximum Output Current		2A
Typical Switching Frequency		600kHz

BOARD PHOTO



QUICK START PROCEDURE

Demonstration circuit 1386 is easy to set up to evaluate the performance of the LTM8032. 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 V_{IN} or V_{OUT} and GND terminals. See Figure 2 for proper scope probe technique.

1. Place JP1 on the ON position.
2. With power off, connect the input power supply to V_{IN} and GND.
3. Turn on the power at the input.

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

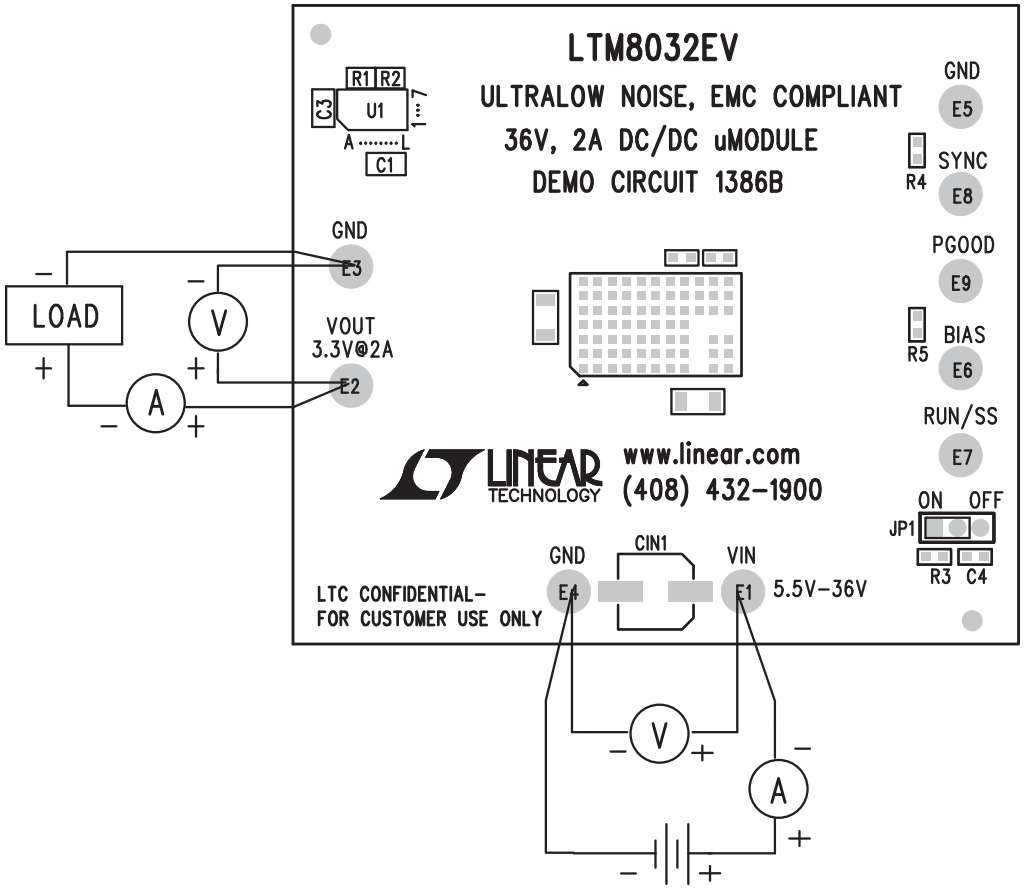


Figure 1. Proper Measurement Equipment Setup

QUICK START PROCEDURE

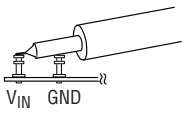


Figure 2. Measuring Input or Output Ripple

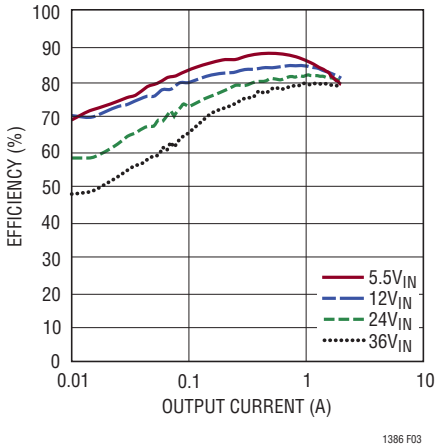
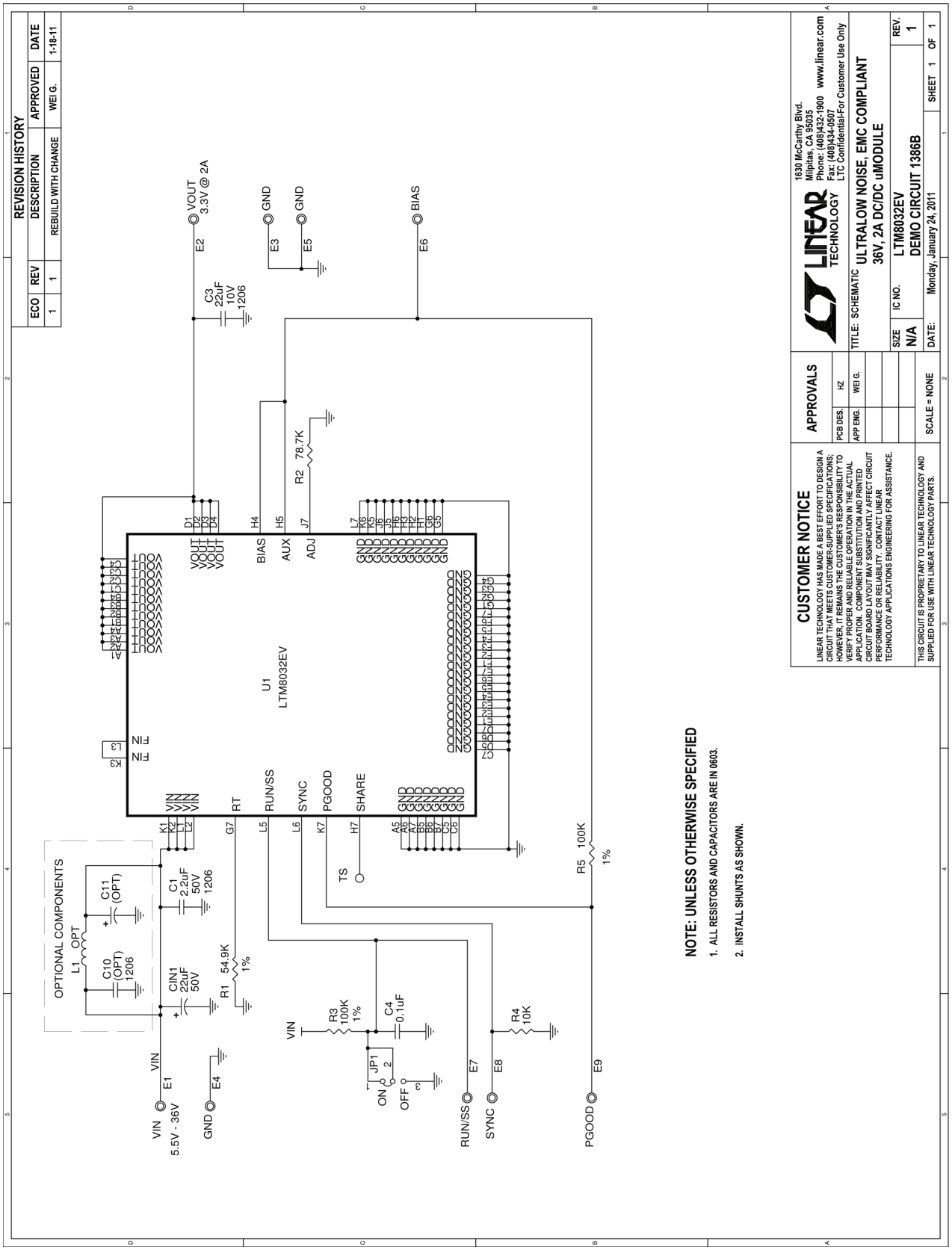


Figure 3. Efficiency

PARTS LIST

ITEM	QUANTITY	REFERENCE-DESCRIPTION	DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components				
1	1	C1	Cap, X7R, 2.2µF, 50V, 10%,1206	Murata GCM31CR71H225KA55L
2	1	CIN1	Cap, 22µF, 50V	Sanyo 50CE22BS
3	1	C3	Cap, X5R, 22µF, 10V, 20%, 1206	AVX 1206ZD226MAT2A
4	1	C4	Cap, X7R, 0.1µF, 50V, 10%, 0603	AVX 06035C104KAT2A
5	1	R1	Res, 54.9k, 1%, 1/16W, 0603	Vishay CRCW060354K9FKEA
6	1	R2	Res, 78.7k, 1%, 1/16W, 0603	Vishay CRCW060378K7FKEA
7	2	R3, R5	Res, 100k, 1%, 1/16W, 0603	Vishay CRCW0603100KFKED
8	1	R4	Res, 10k, 5%, 1/16W, 0603	Vishay CRCW060310K0JNED
9	1	U1	IC, LTM8032EV, µModule	Linear Technology LTM8032EV#PBF
Additional Demo Board Circuit Components				
1	0	C10 (OPT)	Cap, 1206	
2	0	C11 (OPT)	Cap, 22µF, 50V	
3	0	L1 (OPT)	Ind, High Current, Size 2525	
Hardware for Demo Board Only				
1	9	E1 to E9	Turret	Mill-Max 2501-2-00-80-00-00-07-0
2	1	JP1	Header, 3 Pin 2mm	Samtec TMM-103-02-L-S
3	1	Shunt	Shunt, 2mm	Samtec 2SN-BK-G

SCHEMATIC DIAGRAM



REVISION HISTORY

REV	DATE	DESCRIPTION	PAGE NUMBER
A	04/11	Updated Board Photo	1
		Updated Figure 1	2
		Updated Schematic Diagram	4

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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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