

# LTM8032 Ultralow EMI, 36V, 2A DC/DC $\mu$ Module Regulator

## DESCRIPTION

Demonstration circuit 1386 features the LTM<sup>®</sup>8032, a 2A EN55022 Class B certified step-down converter. This  $\mu$ Module<sup>®</sup> 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<sup>®</sup> 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.

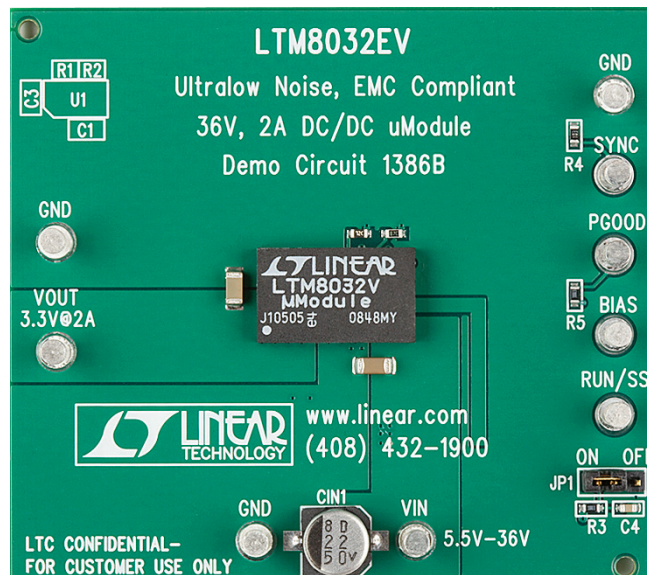
**Design files for this circuit board are available at <http://www.linear.com/demo>**

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## PERFORMANCE SUMMARY (T<sub>A</sub> = 25°C)

| PARAMETER                       | CONDITION | VALUE       |
|---------------------------------|-----------|-------------|
| Input Voltage Range             |           | 5.5V to 36V |
| Output Voltage V <sub>OUT</sub> |           | 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.

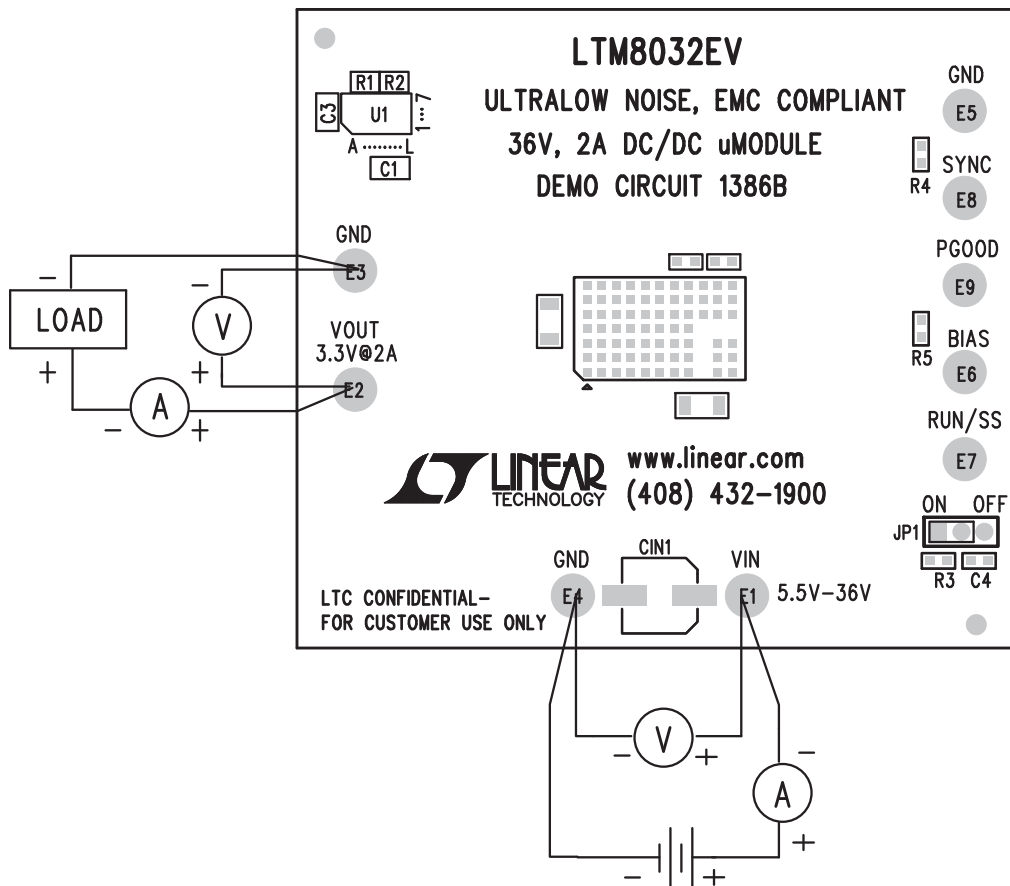


Figure 1. Proper Measurement Equipment Setup

## QUICK START PROCEDURE

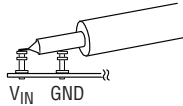


Figure 2. Measuring Input or Output Ripple

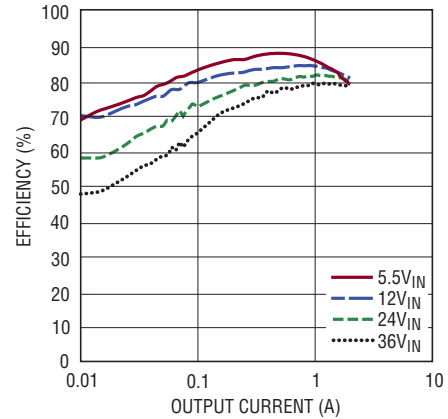


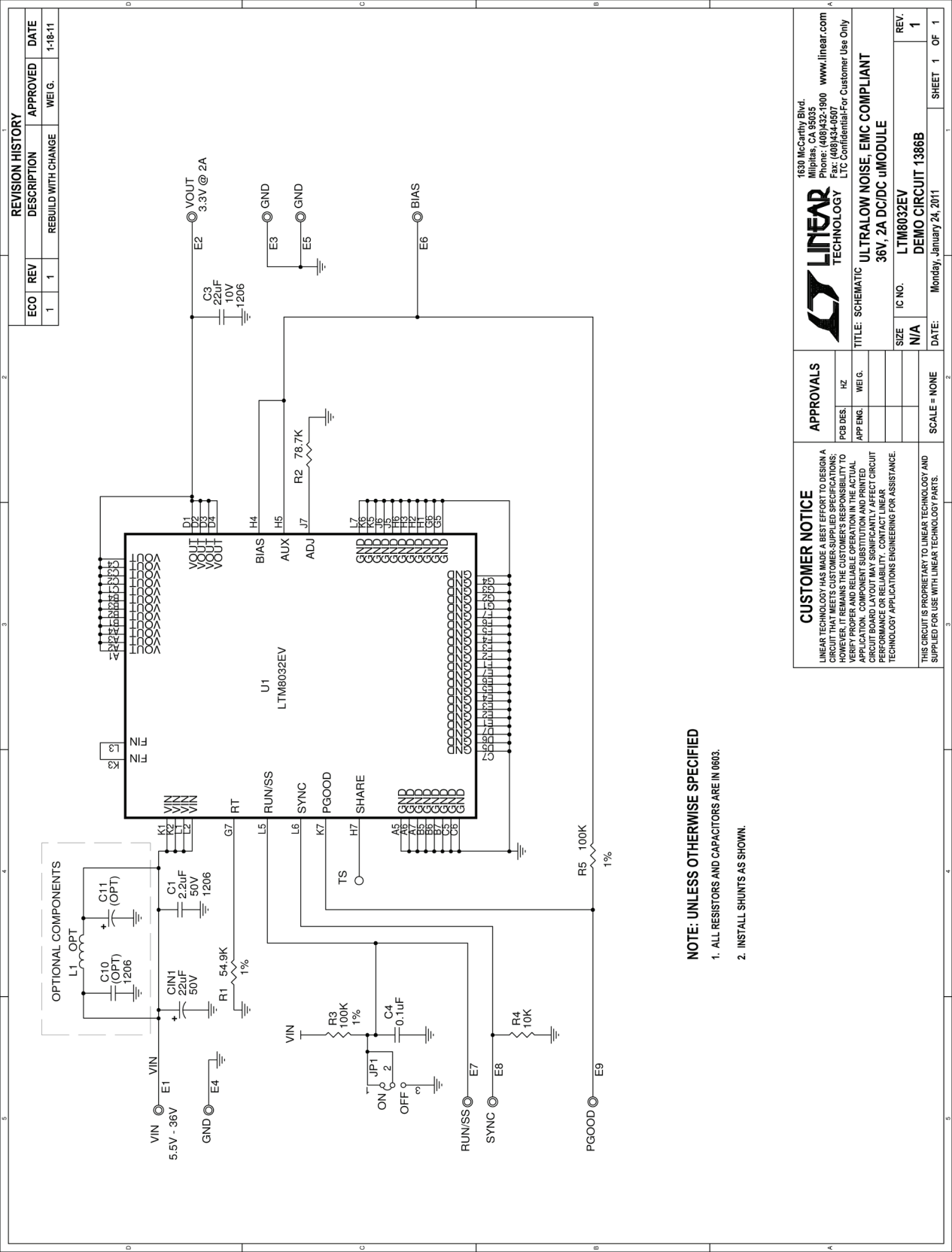
Figure 3. Efficiency

## PARTS LIST

| ITEM                                            | QUANTITY | REFERENCE-DESCRIPTION | DESCRIPTION                     | MANUFACTURER/PART NUMBER         |
|-------------------------------------------------|----------|-----------------------|---------------------------------|----------------------------------|
| <b>Required Circuit Components</b>              |          |                       |                                 |                                  |
| 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 CRCW0603100KFKEA          |
| 8                                               | 1        | R4                    | Res, 10k, 5%, 1/16W, 0603       | Vishay CRCW060310K0JNED          |
| 9                                               | 1        | U1                    | IC, LTM8032EV, μModule          | Linear Technology LTM8032EV#PBF  |
| <b>Additional Demo Board Circuit Components</b> |          |                       |                                 |                                  |
| 1                                               | 0        | C10 (OPT)             | Cap, 1206                       |                                  |
| 2                                               | 0        | C11 (OPT)             | Cap, 22μF, 50V                  |                                  |
| 3                                               | 0        | L1 (OPT)              | Ind, High Current, Size 2525    |                                  |
| <b>Hardware for Demo Board Only</b>             |          |                       |                                 |                                  |
| 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                  |

# DEMO MANUAL DC1386B

## 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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