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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



DESCRIPTION

Demonstration circuit DC415 is a SEPIC (step-up or step-down) DC-DC converter featuring the LTC1871 controller. The circuit is capable of providing an output voltage of 12V at 2A from an input supply of 5V to 15V. External frequency synchronization is provided, as are two modes of operation at light load conditions:

- Burst Mode™ operation reduces switching losses and maintain high operating efficiency.
- Continuous mode provides constant operating frequency with low quiescent current.

The LTC1871 is a No R_{SENSE} ™ current mode controller, thus eliminating the need for a current sense resistor and bringing the efficiency of the demo circuit up to 90%. The LTC1871's operating frequency can be set up to 1 MHz, allowing for the use of a small inductor and capacitor. The low shutdown quiescent current of 10 μ A makes the LTC1871 ideally suited for battery-operated systems. Applications include telecom power supplies, cellular phones, PDAs, and other portable electronics.

Output current of this converter depends on the input voltage, as shown in Figure 1. The typical efficiency of the converter is shown in Figure 2.

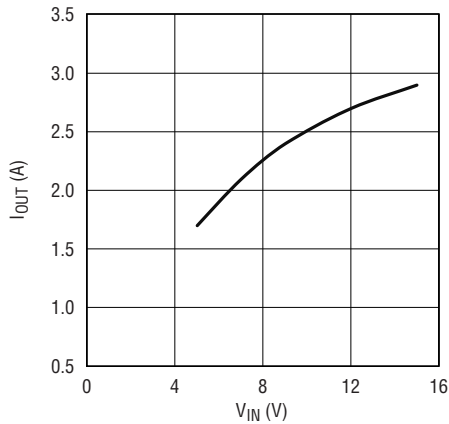


Figure 1. Maximum Load Current vs Input Voltage

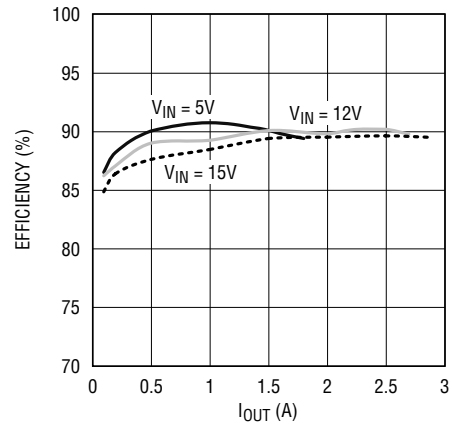


Figure 2. Typical Efficiency of the Converter

QUICK START PROCEDURE

Refer to Figure 3 for proper measurement equipment setup and follow the procedure below:

1. Connect input power to the V_{IN} and GND terminals. Input voltage is limited to between 5V and 15V.
2. Connect a load between the V_{OUT} and GND terminals.
3. Connect the SYNC MODE terminal to INTVCC by setting the jumper to the Cont. position to force continu-

ous operation at low load, or connect the SYNC MODE terminal to ground by setting the jumper to the Burst position to enable Burst Mode operation at low load.

4. To shut down the circuit, connect the RUN terminal to ground.

DEMO BOARD QUICK START GUIDE DC415

HIGH EFFICIENCY SEPIC CONVERTER

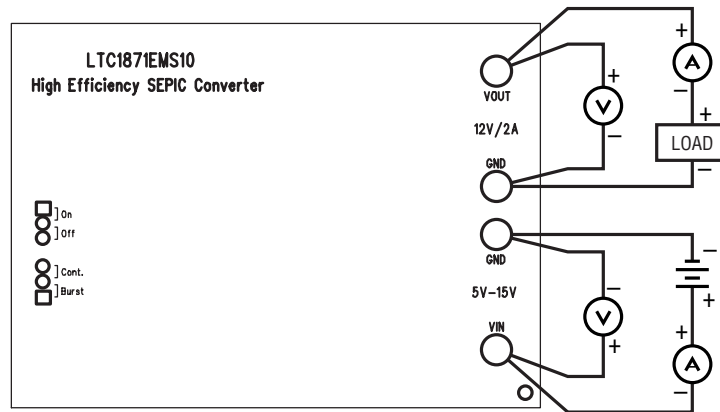


Figure 3. Proper Measurement Equipment Setup