DESCRIPTION

Demonstration circuit 882 is a small size, low profile, low cost and high efficiency synchronous step-down DC/DC converter featuring the LTC3809EDD-1 controller. The demo board is capable of providing 2A output current with 2.75V to 9.8V input range. Burst mode/Pulse skipping/Forced continuous operation is selectable. The constant frequency current mode architecture with MOSFET $V_{DS}$ sensing eliminates the need for a sense resistor and improves efficiency. The maximum peak current sense threshold can be easily selected with IPRG pin. Switching frequency is internally set at 550kHz.

The demo board has optional power component footprints to deliver higher output current and a tracking function, allowing Vout to track an external voltage signal at the TRACK terminal (JP4: Track).

**Design files for this circuit board are available. Call the LTC factory.**

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<td><strong>PARAMETER</strong></td>
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QUICK START PROCEDURE

Demonstration circuit 882 is easy to set up to evaluate the performance of the LTC3809-1. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below: (Initial jumper positions: JP1 selected; JP4: Soft Start)

**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. With power off, connect the input power supply to Vin (2.75V-9.8V) and GND (input return).
2. Connect the 1.8V load between Vout and GND (Initial load: 0 A).
3. Connect the DVMs to the input and output.
4. Turn on the input power supply and check for the proper output voltage. Vout should be 1.8V$\pm$2.5%.
5. Once the proper output voltage is established, adjust the load within the operating range and observe the output voltage regulation, ripple voltage and other parameters.
Figure 1. Proper Measurement Equipment Setup

Figure 2. Measuring Input or Output Ripple
Figure 3. Efficiency and Loss vs Load Current (Burst Mode)
QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 882
SYNCHRONOUS STEP-DOWN CONVERTER WITH OUTPUT TRACKING

NOTES: UNLESS OTHERWISE SPECIFIED,

2. WHEN USING LTC3809EED WITH SPREAD SPECTRUM MODE, SELECT *SOFT START*, R3=330k, JP1, JP2 AND JP3 ARE OPEN; C12=2200pF, R5=0, C16=1000pF.