

DESCRIPTION

Demonstration circuit DC645 is a constant-frequency step-down converter, using the LTC3408EDD monolithic synchronous buck regulator. It is specifically designed for WCDMA power amplifier applications. The output voltage can be dynamically controlled from 0.3V to 3.5V. An 80m Ω internal bypass P-channel MOSFET connects the VOUT to VIN reducing the power loss through the buck regulator. For an input voltage range of 2.7V to 5.5V, DC645 is capable of delivering up to 600mA of output current. The efficiency of the DC645 is very high: up to 96%.

The LTC3408EDD is available in a small 8-Pin DFN package and has an operating frequency of 1.5MHz (allowing the exclusive use of low profile surface mount components).

These and other features make the demonstration circuit ideal for single-cell Li-ion-powered hand-held applications.

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

PowerPath is a trademark of Linear Technology Corporation

QUICK START PROCEDURE

Demonstration circuit DC645 is easy to set up to evaluate the performance of the LTC3408EDD. 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 jumper JP1 in the ON position.
2. With power off, connect the input power supply VIN to VIN and GND.
3. Connect input power supply VREF to REF and GND.
4. Turn on the power at VIN.

NOTE: Make sure that the input voltage VIN does not exceed 5.5V.

5. Turn on the VREF power supply.

NOTE: Make sure that the input voltage VREF does not exceed VIN

6. For $V_{REF} \leq 1.2V$, Check for the output voltages $V_{OUT} = 3 V_{REF}$
7. For $V_{REF} > 1.2V$, VOUT is directly connected to VIN. $V_{OUT} \cong V_{IN}$.

If there is no output, temporarily disconnect the load to make sure that the load is not set too high.

8. Once the proper output voltages are established, adjust the loads within 600mA range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT DC645

LTC3408EDD, WCDMA CELLULAR PHONE BUCK REGULATOR

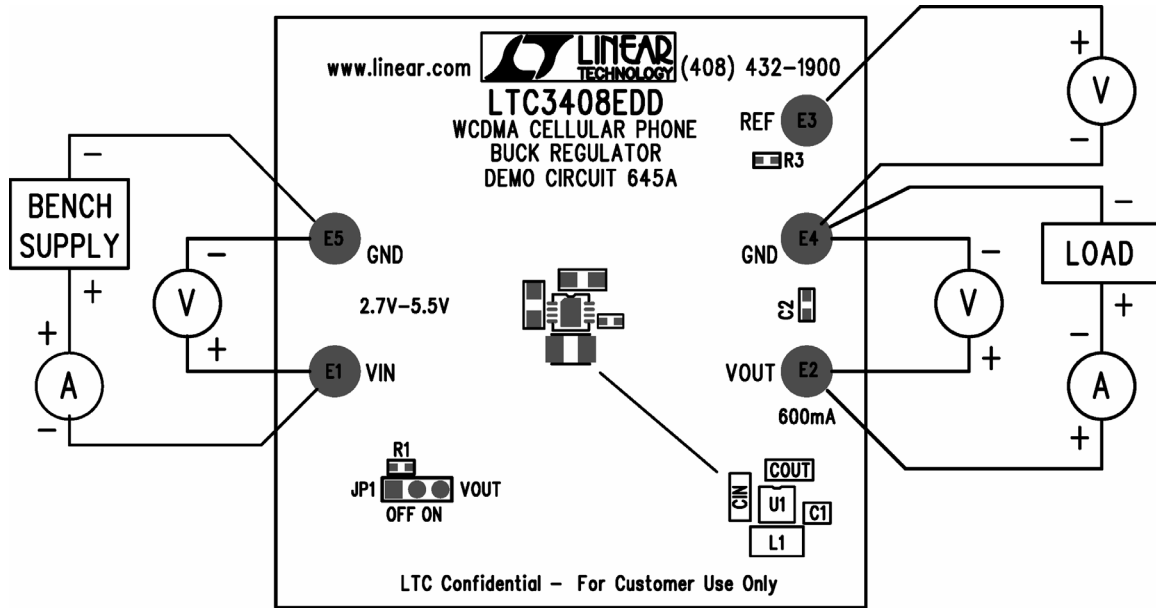


Figure 1. Proper Measurement Equipment Setup

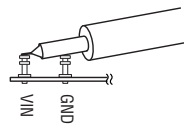


Figure 2. Measuring Input or Output Ripple

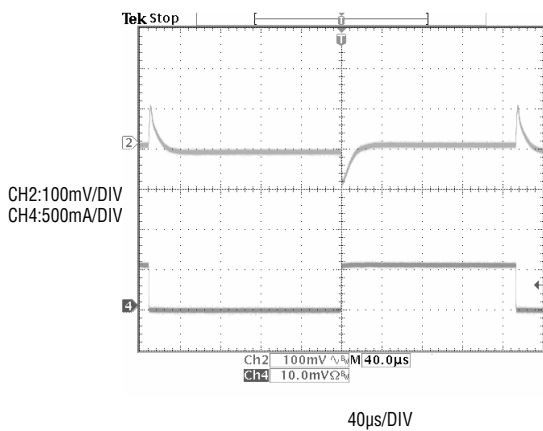


Figure 3. V_{OUT} (100mV / Div) Transient Response for 0 to 600mA load Step. ($V_{IN} = 3.3V$, $V_{OUT} = 1.2V$)

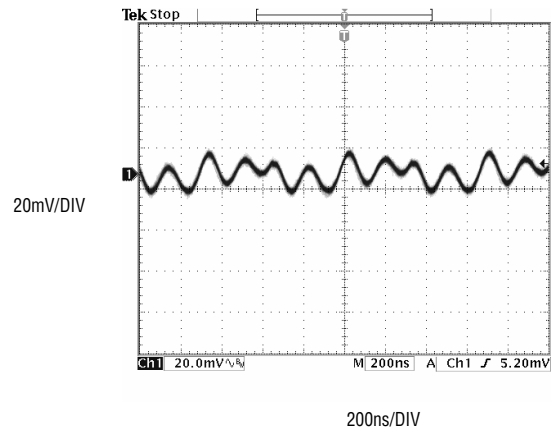


Figure 4. Typical Output Ripple ($V_{IN} = 3.3V$, $V_{OUT} = 1.5V$, $I_{OUT} = 600mA$)

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