

## DC385 Introduction

### Description

Demonstration circuit DC385 is a high density synchronous step-down (buck) regulator using the LTC<sup>®</sup>1778 No R<sub>SENSE</sub><sup>™</sup> switching regulator controller. This controller uses a valley current control architecture to deliver very low duty cycles without requiring a sense resistor. It provides high efficiency operation at light loads by means of discontinuous mode operation. Noise and RF interference are reduced by means of a forced continuous control pin. The circuit uses a dual SyncFET<sup>™</sup> and has a very small footprint. With a wide operating range of V<sub>IN</sub> from 5V to 28V and a duty cycle of 2% to 90% at 200kHz, the circuit demonstrates that the LTC1778 is ideal for applications such as notebook and palmtop computers, PDAs, battery chargers and distributed power systems.

### Quick Start Guide

This demonstration board is easily set up to evaluate the performance of the LTC1778. Please follow the procedure outlined below for proper operation.

1. Connect input power to the V<sub>IN</sub> and GND terminals. Input voltage is limited to between 5V to 28V. Refer to Figure 1 for proper measurement equipment setup.
2. Connect the load between the V<sub>OUT</sub> and GND terminals.

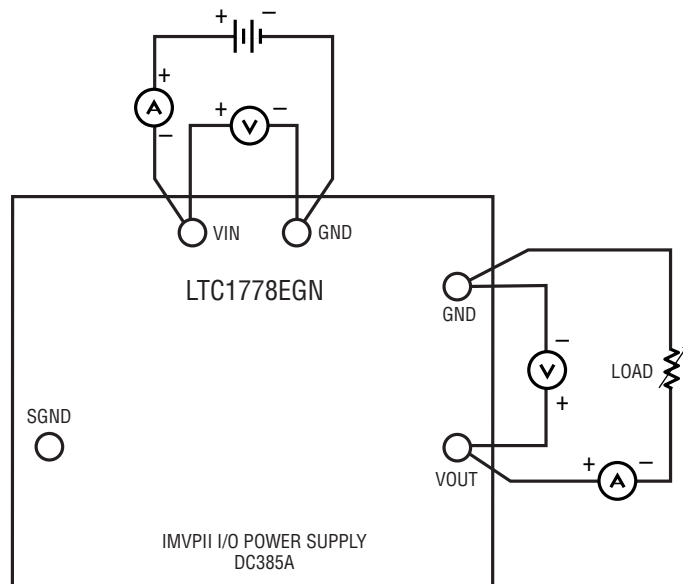
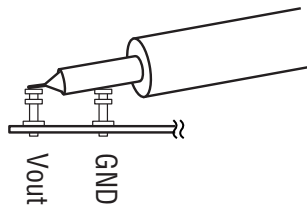


Figure 1. DC385 Test and Measurement Setup

3. Connect the FCB signal to the SGND terminal to force continuous synchronous operation at low loads; connect the FCB signal to the  $INTV_{CC}$  signal to enable discontinuous mode operation at low loads (see solder pads on bottom side of assembly).
4. To shut down the circuit, connect the RUN/SS signal to the SGND terminal. Disconnect the RUN/SS signal from the SGND terminal to enable normal operation.
5. When measuring input or output ripple, see Figure 2 for proper scope probe technique.



**Figure 2. Scope Probe Position for Ripple Measurement**