DC222 INTRODUCTION

DESCRIPTION

Demo board DC222 features the LTC1735CS providing a jumper-selectable, logic-level output voltage with 10A current capability. Output voltages of 1.6V, 2.5V, 3.3V and 5V can be selected or voltages from 0.8V to 6V can be user programmed, so DC222 will meet past, present and future CPU core-voltage requirements. The board operates over the input voltage range of 5.5V to 28V and offers frequency synchronization to an external clock.

DC222 is intended to meet the single-output power supply needs of the computer industry, including mobile, desktop and industrial applications. It will be particularly useful for the designers of CPU core-voltage supplies that require low voltage applications requiring 5A to 10A load currents. By changing components, load currents of 15A are possible.

QUICK START GUIDE

It is easy to set up DC222 to evaluate the LTC1735 under different load and line conditions. Follow the procedure outlined below for proper operation.

1. Before turning on power, connect the input power supply, output loads, oscilloscope and meters as shown in Figure 1. For best accuracy, it is important to connect true-RMS reading voltmeters directly to the PCB terminals where the input and output voltages are connected. True-RMS reading ammeters should be used for current measurements.

2. Turn on the input power supply and adjust the voltage as required. If the output voltage doesn't regulate at the correct value when using an electronic load, decrease the load current setting at startup. There can be a conflict between the foldback current limit inside the LTC1735 and the full current demand from the electronic load. The foldback current feature limits the available current when the output voltage is less than 70% of the regulated value. The full 10A current load will be available after the soft-start capacitor has been fully charged and the output voltage reaches 70% of nominal. Foldback current limiting does not interfere with startup when a resistive load or normal circuitry is powered by the LTC1735.

3. To evaluate frequency synchronization, remove jumper J1 and connect a pulse generator, as shown in Figure 1. Set the frequency to 200kHz and the pulse amplitude to about 3V. Caution: ensure that the FCB pin is not forced negative under any conditions. As the pulse generator frequency is changed from 190kHz to 270kHz, the output voltage ripple frequency will correspond to the pulse generator frequency.