

DC299 Introduction

Description

Demo board DC299 features the LTC1729 Li-Ion charge-termination IC in combination with the LT1769 battery charger IC. This board provides a complete solution for charging 1- or 2-cell Li-Ion batteries with a 2A charging current. These ICs have end-of-charge termination that can be configured to stop the charger when the charge current drops below 10% of its initial setting or when the internal timer counts to 3 hours. A safety termination feature disables charging if the temperature is below 0°C or above 50°C and resumes charging when the temperature returns to the 0°C to 50°C range. The solution extends battery life by trickle charging when the battery is depleted and by meeting the battery manufacturers' voltage requirement of 1% total accuracy. Finally, the board adds convenience by automatically detecting when a battery or supply is present.

This board is intended for designers who need the versatility of battery charger DC/DC converters. The small size and efficiency of this circuit allow it to function in portable applications as well as in wall operated chargers.

Quick Start Guide

It is simple to set up the DC299 demo board to charge a 1-cell or 2-cell Li-Ion battery. Follow the procedure outlined below for proper operation. **Note: Use the battery manufacturer's recommended safety procedures and protection circuits.**

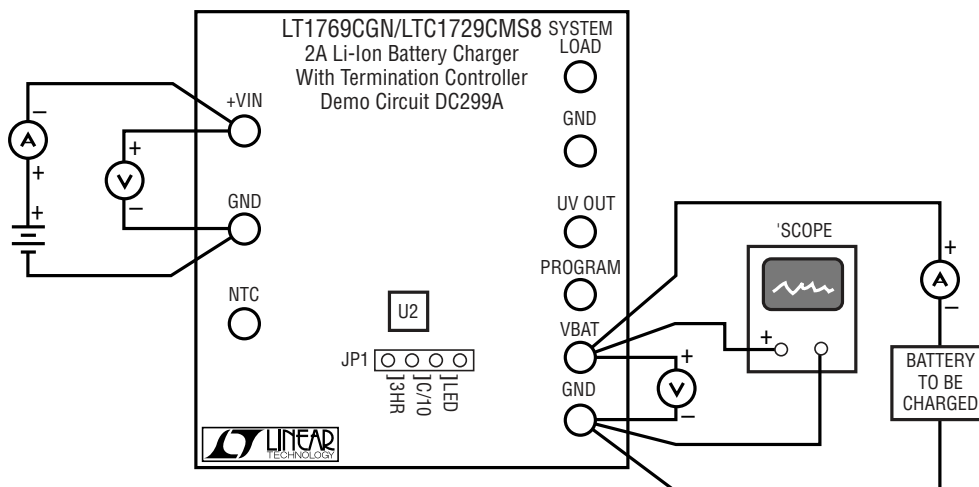


Figure 1. DC299 Connection Diagram

1. The demo board comes in four versions, each with a different output voltage. It is very important to determine the correct version for your battery. To verify the output voltage of the board, compare the marking on the top of U2 (refer to Figure 1) with Table 1.
2. Before turning on power, connect the input power supply, battery, oscilloscope and meters as shown in Figure 1. For best accuracy, it is important to connect voltmeters directly to the PCB terminals when measuring input and output voltages.
3. Select the end-of-charge termination method desired. If 3-hour termination is preferred, connect two jumpers on JP1, enabling LED and 3HR. To stop the charger after the current drops below 10% of 2A or 200mA, connect the jumper on JP1 to enable C/10.
4. The charger can be stopped if the temperature is not in the 0°C to 50°C range using the NTC terminal on the PCB board. An external 10k NTC thermistor, such as a Vishay NTHS12106N02, must be connected between the NTC terminal and ground and R14 must be removed from the PCB board.

| Table 1 | | |
|---------------------|----------------|-------------------------|
| Part Marking | Voltage | Assembly Version |
| LTLY | 4.1V | -A |
| LTJH | 4.2V | -B |
| LTLZ | 8.2V | -C |
| LTJG | 8.4V | -D |