LTC2936
Programming Board for Programmable Hex Voltage Supervisor with EEPROM

DESCRIPTION

The DC2450A programming board contains the circuitry needed to program and verify the EEPROM of the LTC®2936. This is its sole purpose. The LTC2936 comes in either a 24-pin SSOP or a 24-pin QFN package. The DC2450A-A supports the QFN and the DC2450A-B supports the SSOP package.

The LTpowerPlay™ GUI stores configuration settings into the LTC2936 EEPROM. Download and install the software from this location:

http://www.linear.com/ltpowerplay/

The DC2450A communicates with LTpowerPlay through a Linear Technology® DC1613 USB to I²C/SMBus/PMBus Controller.

What Can You Do with the DC2450A

1. Compare the contents of the device's EEPROM against any Project File. (Verify)
2. Reprogram the contents of the device's EEPROM using any Project File. (Program and Verify)

Demo System Required Hardware

- Windows PC
- USB-to-I²C/SMBus/PMBus Controller (DC1613)
- DC2450A-A or DC2450A-B
  (LTC2936 component must be ordered separately.)

Demo System Required Software

- LTpowerPlay

LTC2936 Features

- Supervise 6 Power Supplies
- I²C Adjustable UV and OV Trip Points
- Guaranteed Threshold Accuracy: ±1% (Maximum)
- I²C/SMBus Interface
- Internal EEPROM
- Six Comparator Outputs
- Fast Comparator Response Time: 7.5µs
- 256 Programmable Thresholds per Channel
- Three Range Settings per Channel
- Two General Purpose Inputs
- Three General Purpose Inputs/Outputs
- Programmable Output Delays
- Can Be Powered from 3.3V, or 3.4V to 13.9V
- 24-Pin 4mm x 5mm QFN and SSOP Packages

Design files for this circuit board are available at http://www.linear.com/demo/DC2450A

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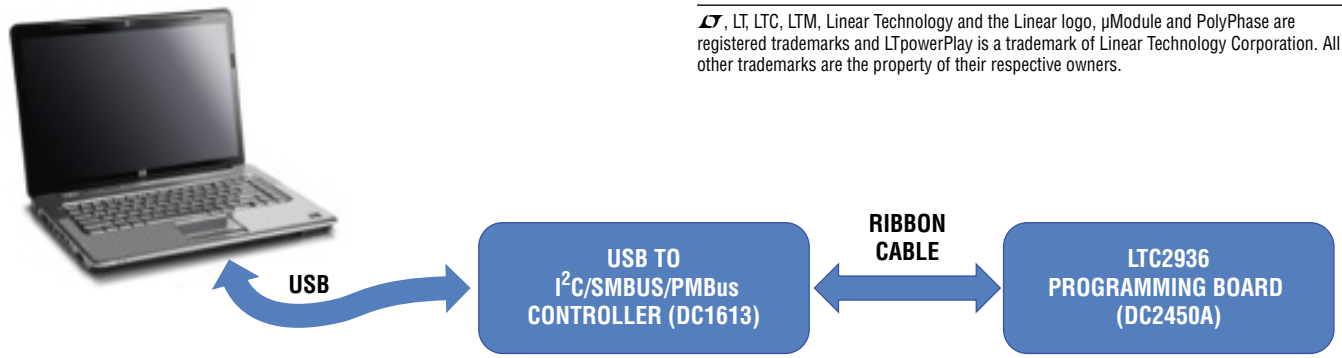


Figure 1. LTC2936 Programming Setup Using DC2450A

BOARD PHOTO

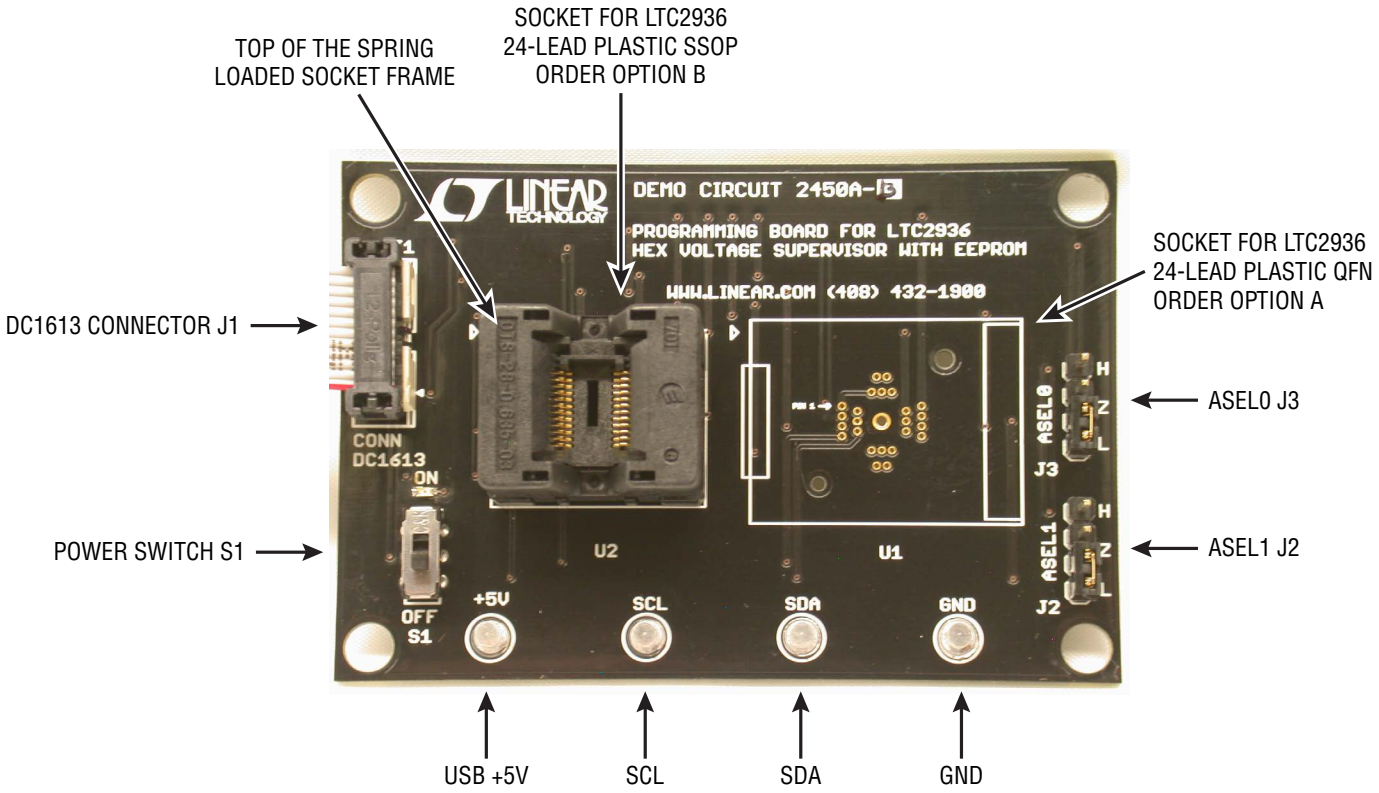


Figure 2. DC2450A Top Side Details (DC2450A-B Shown)

ORDER INFORMATION

There are two versions of the DC2450A. Each version of the programming board comes with only one socket. See table below.

ORDER NUMBER	SUPPORTED DEVICES
DC2450A-A	LTC2936 24-Pin (5mm × 4mm) Plastic QFN
DC2450A-B	LTC2936 24-Lead Plastic SSOP

LTpowerPlay GUI SOFTWARE

LTpowerPlay is a powerful Windows-based development environment that supports Linear Technology Power System Management ICs with EEPROM, including the LTC2936 Programmable Hex Voltage Supervisor. The software supports a variety of different tasks. You can use LTpowerPlay to evaluate Linear Technology ICs by connecting to a demo board system. LTpowerPlay features an offline mode to build a multi-chip configuration file for later use with hardware. LTpowerPlay provides unprecedented system level diagnostic and debug features. It becomes a valuable diagnostic tool during board bring-up to program or tweak the power management scheme in a system or to diagnose power issues when bringing up rails. LTpowerPlay utilizes the DC1613 I^{2}C/SMBus/PMBus Controller to communicate with one of many potential targets, including the DC2450A demo system or a customer board. The software also provides an automatic update feature to keep the software current with the latest set of device drivers and documentation. Download the software from:

http://www.linear.com/ltpowerplay

Select "Help, View Online Help" from the LTpowerPlay menu to access technical documents.

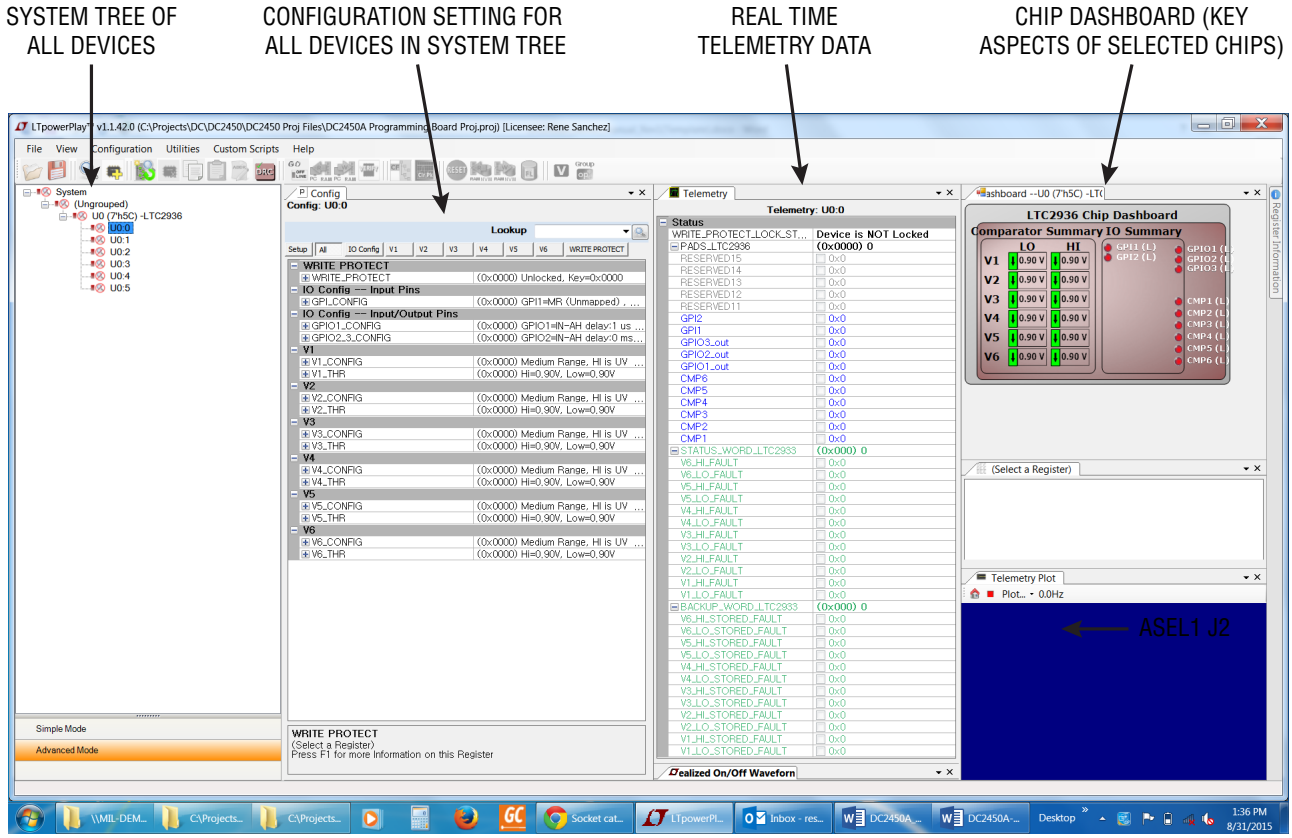


Figure 3. Screenshot of the LTpowerPlay GUI

QUICK START PROCEDURE

The DC2450A programming board makes it easy to program and verify the LTC2936 EEPROM contents.

1. Place jumpers and switches in the following default positions:

   ASEL1: L
   ASEL0: L
   S1: OFF

   NOTE: By default, the ASEL jumpers are both set to low. If you wish to program a device with an address other than 0x50, adjust the ASEL jumpers appropriately. Consult device data sheet for details.

2. Connect the DC1613 USB controller to your PC. Plug the ribbon cable into connector J1 of the DC2450A programming board. See Figure 4.

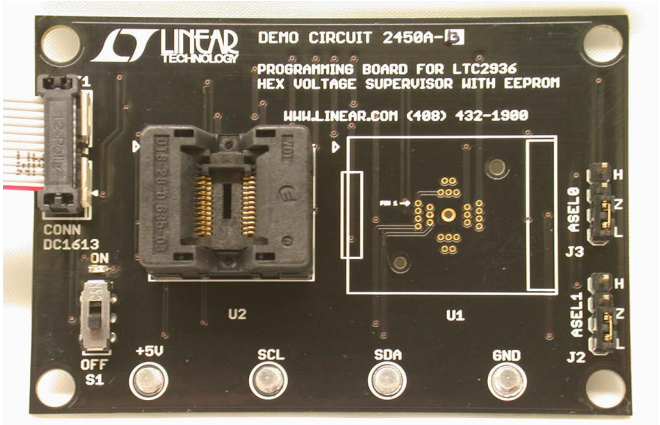


Figure 4. DC2450A-B with Open Socket

NOTE: Removal and insertion of the IC should be done with either tweezers or a vacuum device, and also with the power switch S1 set to OFF.

3. If using DC2450A-B, open the pinch contacts of the socket by pressing down and holding the top of the spring loaded socket frame. Place the IC inside the socket with pin 1 located in the upper left corner. Slowly release the top of socket frame, allowing contacts to pinch together and grip IC leads. See Figure 5.

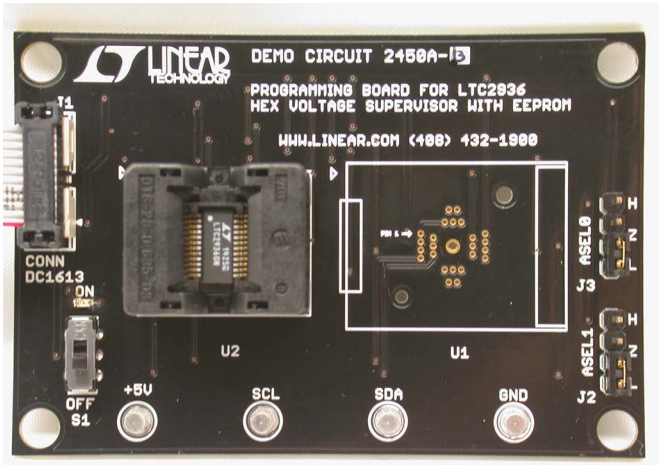


Figure 5. DC2450A-B and IC Installed

QUICK START PROCEDURE

4. If using DC2450A-A, flip open the socket lid and place the IC inside with pin 1 located in the upper left corner. See Figure 6.

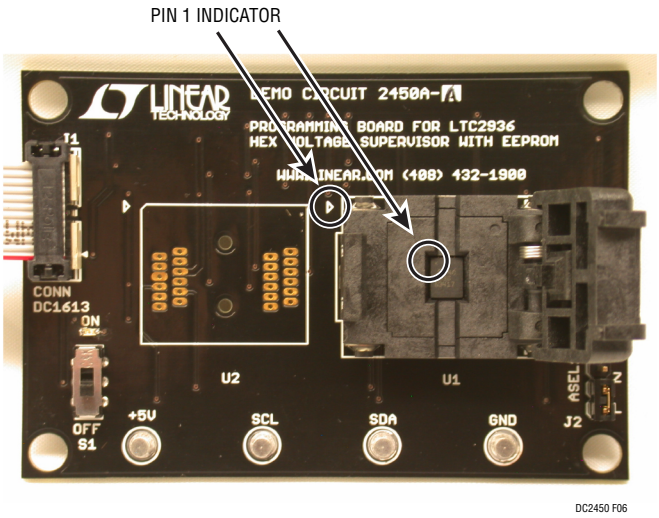


Figure 6. DC2450A-A and IC Installed

Close the lid. It will snap into place. See Figure 7.

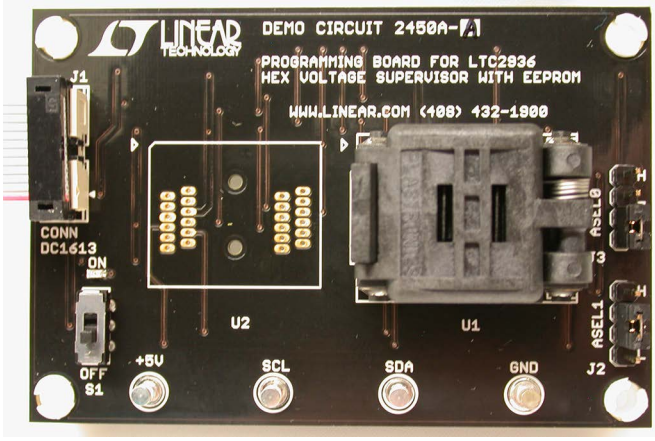


Figure 7. DC2450A-A and IC Installed

5. Set the power switch S1 to the ON position. The VDD33 LED will illuminate, indicating the on-chip regulator is providing internal power.
6. Launch the LTpowerPlay software from your PC. The device programming utility shown in Figure 8 should pop up automatically. If it does not then select the Utilities>Programming Utility from the menu shown in Figure 9.
7. Click "…" next to the selection box and select a .proj file from your system to program the device. See Figure 8.

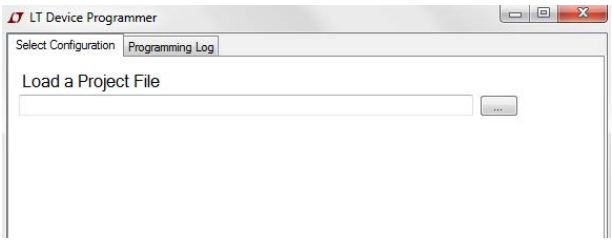


Figure 8. Selecting a .proj File to Program

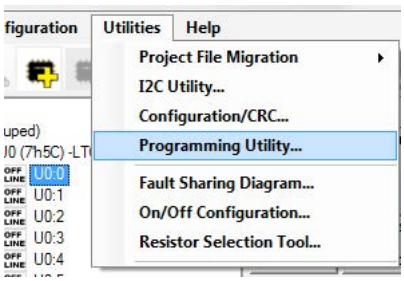


Figure 9. Utilities > Programming Utility from the Menu

QUICK START PROCEDURE

8. Click the “Program and Verify” button (see Figure 10) and wait for the process to complete. After the process is complete, you will see “Successfully Programmed and Verified Device”, in the status bar at the bottom. See Figure 11.

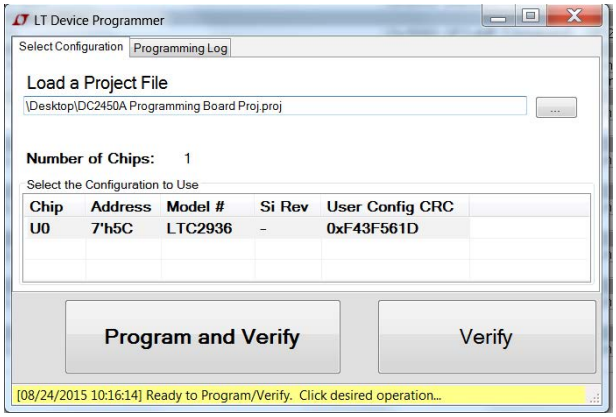


Figure 10. Device Programming Utility.

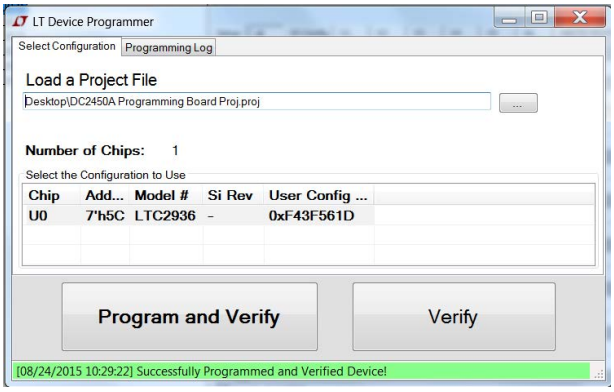
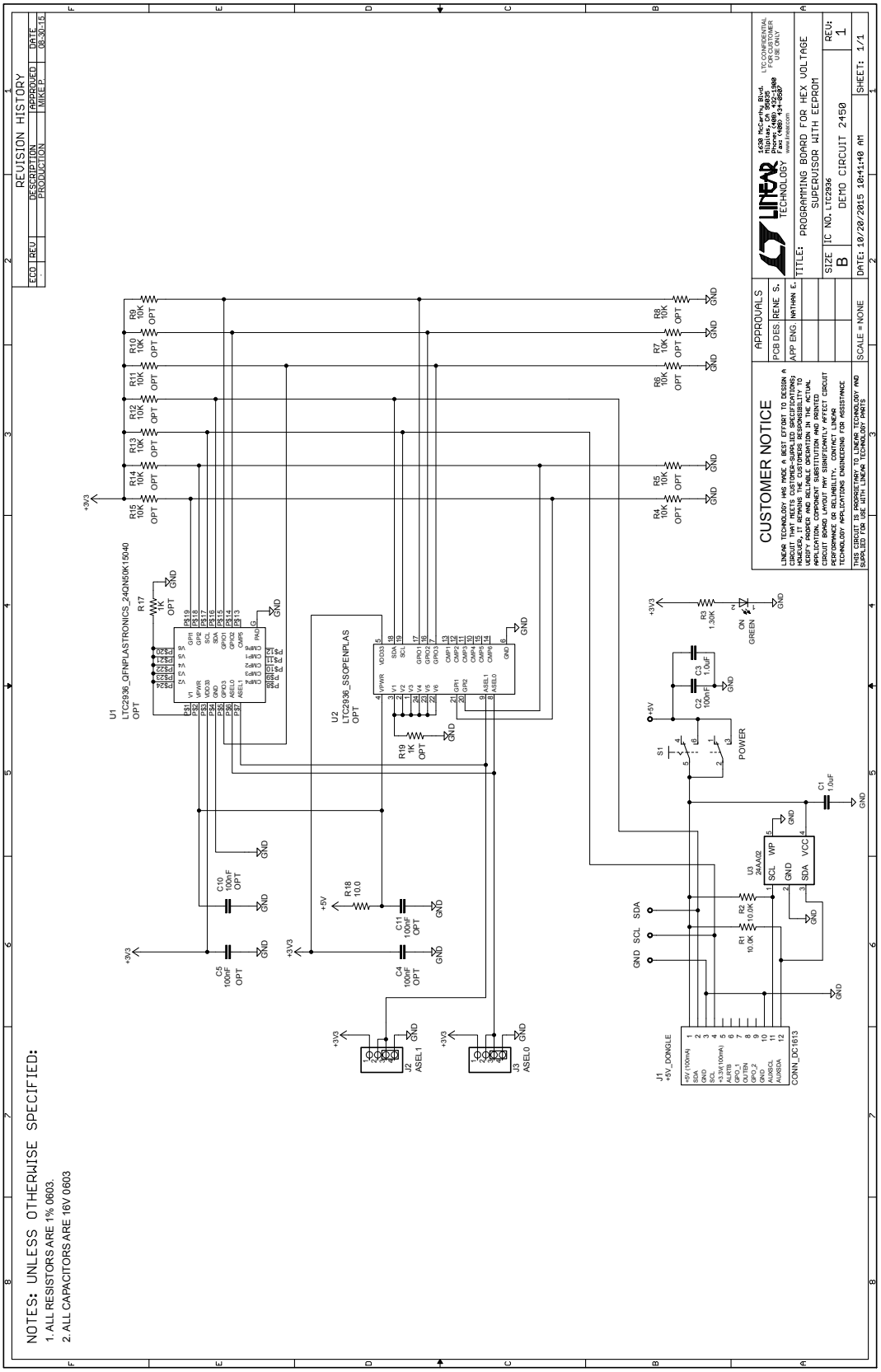


Figure 11. Programmed and Verified Device

9. Set the power switch S1 to the OFF position prior to removing the device.

   Repeat steps above to program additional devices. LTpowerPlay’s Programming Utility does not need to be closed. The ribbon cable may remain connected to the programming board.

SCHEMATIC DIAGRAM



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This notice contains important safety information about temperatures and voltages. For further safety concerns, please contact a LTC application engineer.

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