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## DESCRIPTION

Demonstration circuit 1613A is a USB-based controller with generic Inter Integrated Circuit (I<sup>2</sup>C) ports as well as SMBUS/PMBUS capabilities. It is designed to mate with Linear Technology's family of LTpowerPlay™ demonstration boards. The demo board is fully isolated from the host PC's ground. The evaluation software automatically

detects which demo board is connected and loads the appropriate control screen.

The LTpowerPlay system provides a quick and easy way to evaluate the performance of a wide variety of Linear Technology's products

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## DEMONSTRATION CIRCUIT





## QUICK START PROCEDURE

For proper equipment setup, follow the procedure below:

1. Do NOT plug in the DC1613A to the PC, before running the installation program.
2. Download the LTpowerPlay installation program from <http://www.linear.com/software/>.
3. Run the LTpowerPlay installation program and follow the on-screen instructions.

The LTpowerPlay demo software requires a PC that is running Windows XP (or later), and has an available USB port.

4. Connect the demonstration circuit to be evaluated to the DC1613A using the supplied 12-conductor ribbon cable. The demo software detects the circuit and starts the appropriate control screen.

Each demonstration board also comes with a Quick Start guide similar to this one. For usage details relevant to a particular circuit refer to its Quick Start guide.

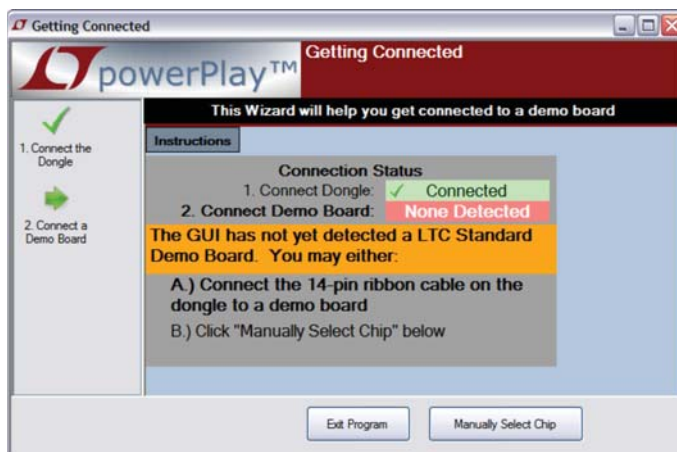
## SOFTWARE TOOLS

The LTpowerPlay demo software includes tools for automatic software updates and for quickly retrieving relevant documentation from the World Wide Web.

NOTE: Adobe Acrobat Reader is required to view the documents and is available at <http://www.adobe.com>.

To use the tools:

- Quit the demonstration circuit software or disconnect the USB cable so that the main control panel appears:



To update the software (requires internet connection):

- Choose Update from the Tools menu.

This automatically updates the main program and drivers for individual demo circuits.

## TROUBLESHOOTING GUIDE

**Problem:** DC1613A is plugged in, but LTpowerPlay screen still says “USB Serial Controller Not Connected.”

**Solution:** The most likely cause is improper installation of the USB drivers, which causes Windows to recognize the DC1613A as an “Unknown Device.” Open the Windows Control Panel, open “System” and click the “Device manager” tab. Open the “Other Devices” item and look for USB SERIAL CONTROLLER. Select this item and click the remove button. Unplug the DC1613A, reinstall the LTpowerPlay software and follow the on-screen instructions.

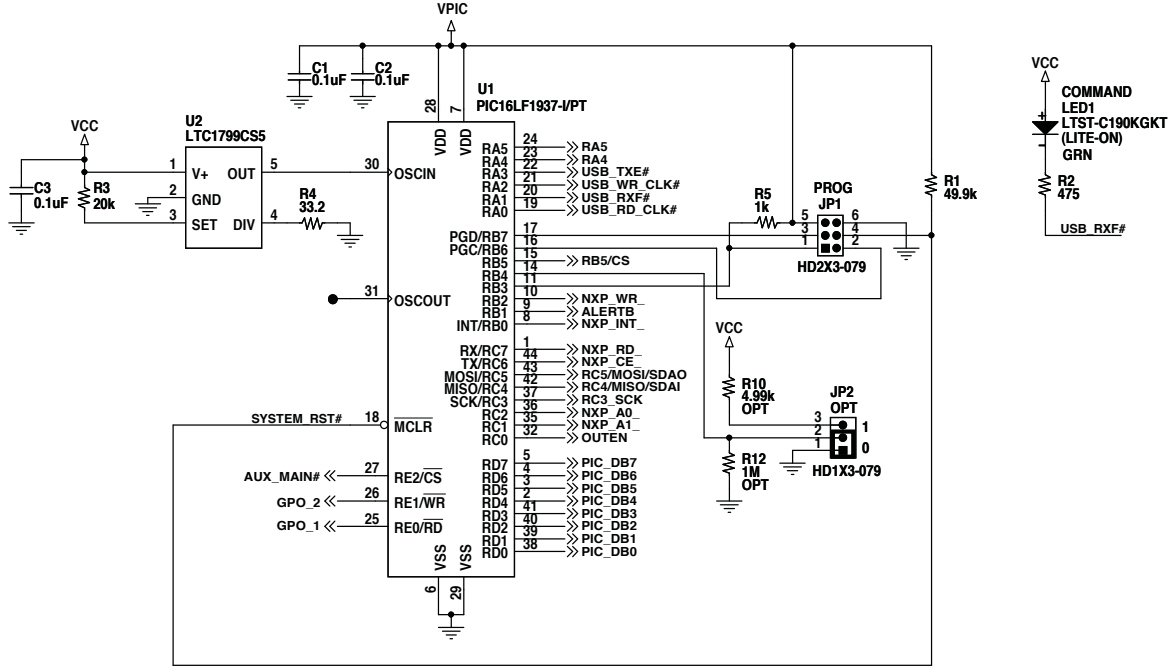
**Problem:** Demo board software loads properly, but will not run or gives “Device Not accessible” errors.

**Solution:** Verify that the demo board is properly powered up. This Quick Start guide lists the basic power connections to DC1613A. Some demo boards may have additional requirements; refer to the demo board’s Quick Start guide for details.

**Problem:** After connecting the demo board to DC1613A with the supplied 12-pin ribbon cable, LTpowerPlay software still displays “Evaluation Board is not Connected.”

**Solution:** Contact Linear Technology Applications Engineering.

REVISION HISTORY				
ECO	REV	DESCRIPTION	APPROVED	DATE
-	2	PRODUCTION	LEO C.	04-19-10



ASSY	R63	R64	R65	R66	R67	R68	Q6	Q7
-A	OPT	0	0	OPT	0	OPT	OPT	OPT
-B	0	OPT	OPT	1k	OPT	1k	2N7002	2N7002

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE IN OHMS, 0402.  
ALL CAPACITORS ARE IN MICROFARADS, 0402.
2. INSTALL SHUNTS ON JUMPERS AS SHOWN.

CUSTOMER NOTICE

LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.

THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.

APPROVALS

PCB DES.	KT
APP ENG.	LEO C.
SCALE = NONE	

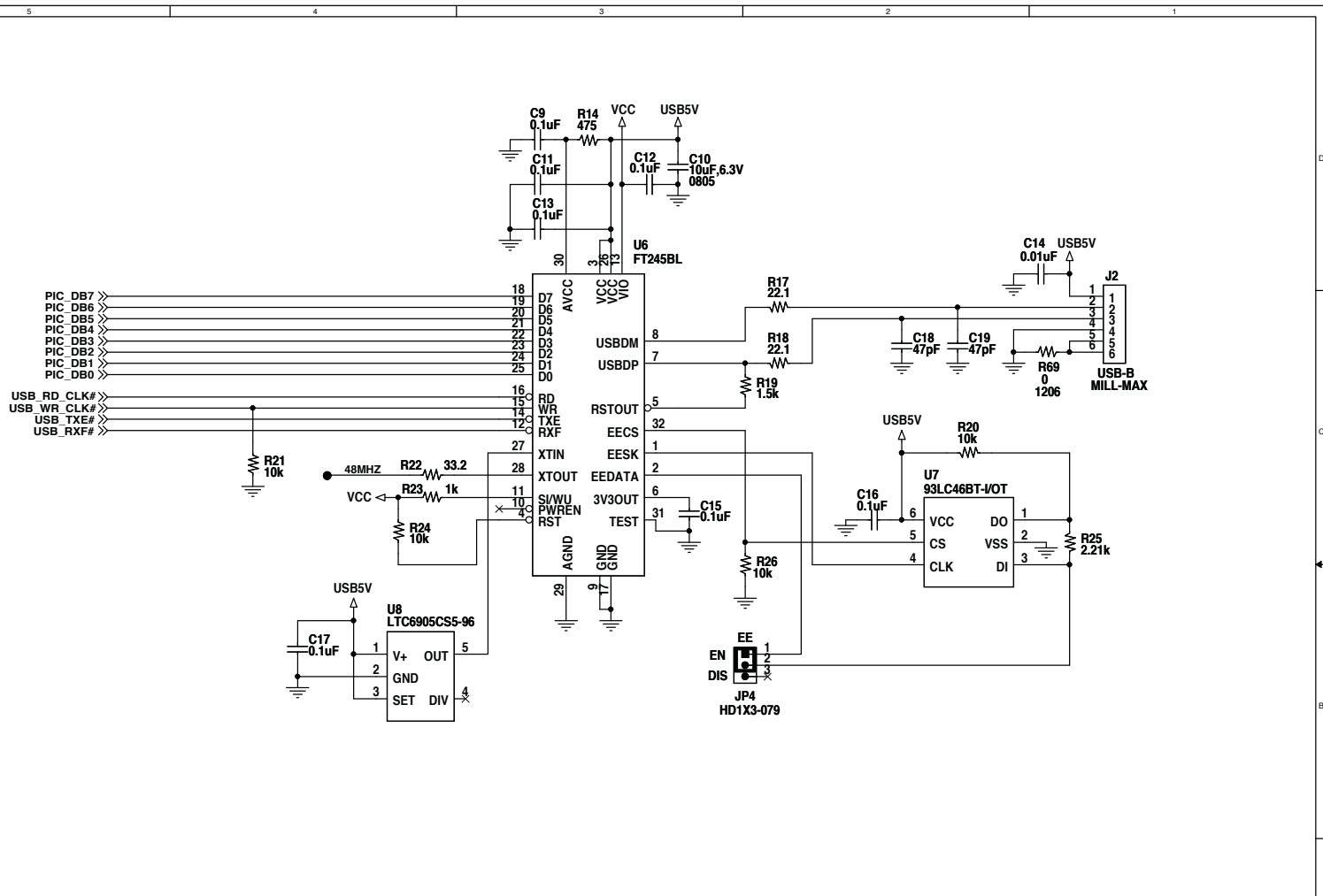


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TITLE: SCHEMATIC  
**I2C / SMBUS / PMBUS CONTROLLER**

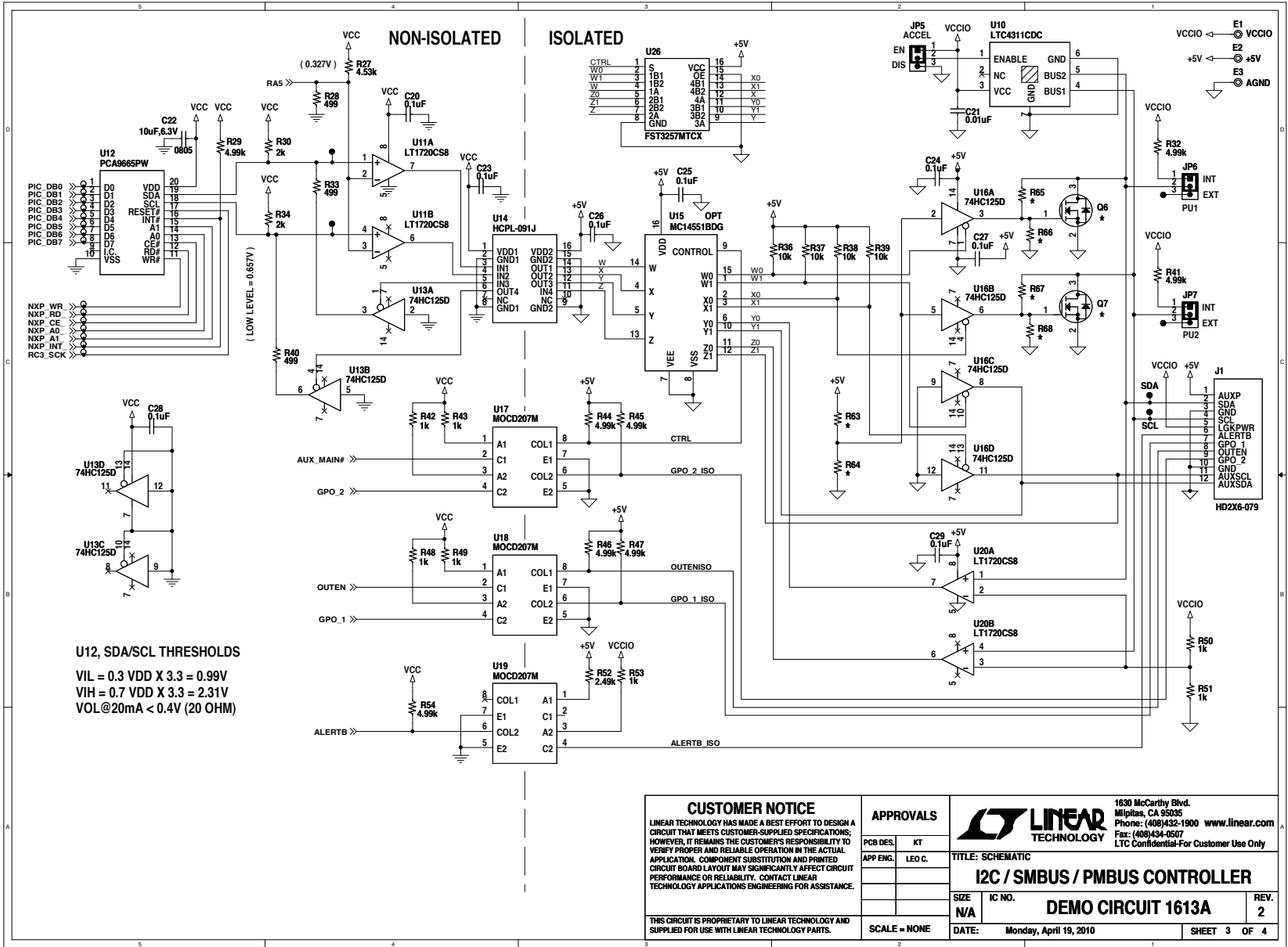
SIZE N/A IC NO. DEMO CIRCUIT 1613A REV. 2

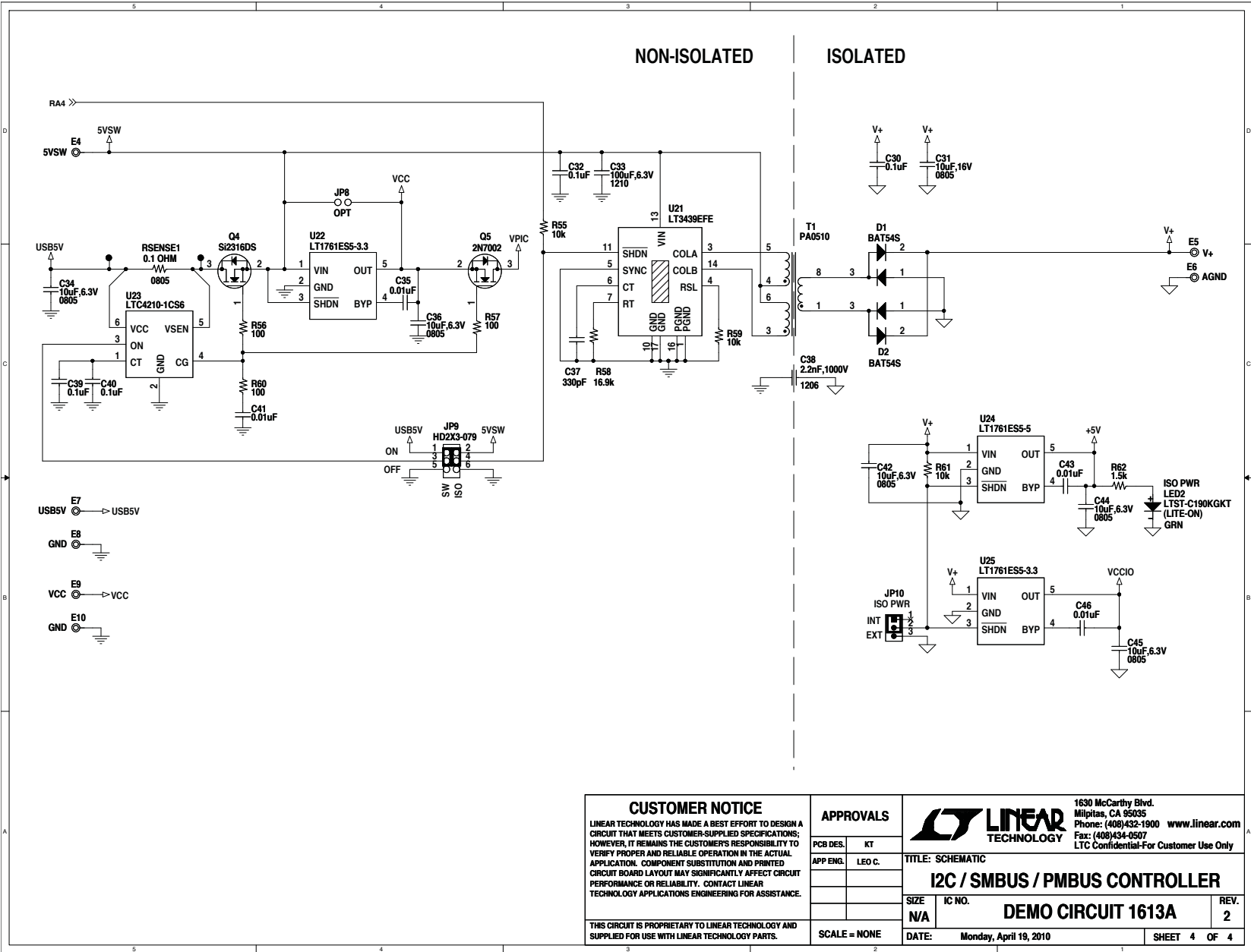
DATE: Monday, April 19, 2010 SHEET 1 OF 4



<p align="center"><b>CUSTOMER NOTICE</b></p> <p>LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.</p> <p>THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.</p>	<b>APPROVALS</b>				1630 McCarthy Blvd. Milpitas, CA 95035 Phone: (408)432-1900 www.linear.com Fax: (408)434-0507 LTC Confidential-For Customer Use Only
	PCB DES.	KT	TITLE: SCHEMATIC		
	APP ENG.	LEO C.	<b>I2C / SMBUS / PMBUS CONTROLLER</b>		
			SIZE	IC NO.	REV.
		N/A	<b>DEMO CIRCUIT 1613A</b>	<b>2</b>	
SCALE = NONE	DATE:	Monday, April 19, 2010		SHEET 2 OF 4	

SCHEMATIC DIAGRAM  
DEMO MANUAL DC1613A





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		<p>TITLE: SCHEMATIC</p> <p><b>I2C / SMBUS / PMBUS CONTROLLER</b></p>			
		<p>SIZE N/A</p> <p>IC NO. <b>DEMO CIRCUIT 1613A</b></p>		<p>REV. 2</p>	
<p>SCALE = NONE</p>		<p>DATE: Monday, April 19, 2010</p>		<p>SHEET 4 OF 4</p>	



# DEMO MANUAL DC1613A

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This demonstration board (DEMO BOARD) kit being sold or provided by Linear Technology is intended for use for **ENGINEERING DEVELOPMENT OR EVALUATION PURPOSES ONLY** and is not provided by LTC for commercial use. As such, the DEMO BOARD herein may not be complete in terms of required design-, marketing-, and/or manufacturing-related protective considerations, including but not limited to product safety measures typically found in finished commercial goods. As a prototype, this product does not fall within the scope of the European Union directive on electromagnetic compatibility and therefore may or may not meet the technical requirements of the directive, or other regulations.

If this evaluation kit does not meet the specifications recited in the DEMO BOARD manual the kit may be returned within 30 days from the date of delivery for a full refund. **THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY MADE BY THE SELLER TO BUYER AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. EXCEPT TO THE EXTENT OF THIS INDEMNITY, NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.**

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LTC currently services a variety of customers for products around the world, and therefore this transaction **is not exclusive**.

**Please read the DEMO BOARD manual prior to handling the product.** Persons handling this product must have electronics training and observe good laboratory practice standards. **Common sense is encouraged.**

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

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