

# LTC2634

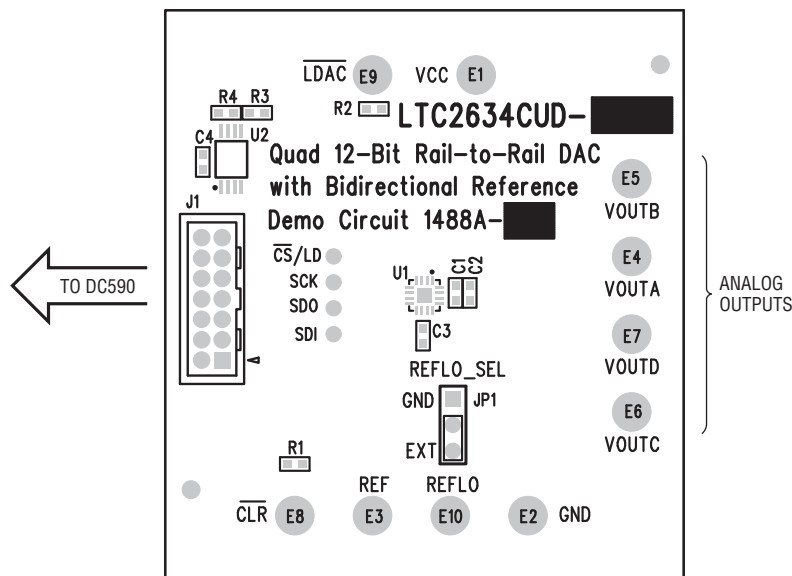
## Quad 12-Bit SPI V<sub>OUT</sub> DAC with Internal Reference

### DESCRIPTION

Demonstration circuit 1488A features the LTC®2634 quad 12-bit DAC. This device has an integrated, high accuracy, low drift reference. It has a rail-to-rail output buffer and is guaranteed monotonic. This DAC communicates through the simple SPI/MICROWIRE compatible interface.

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

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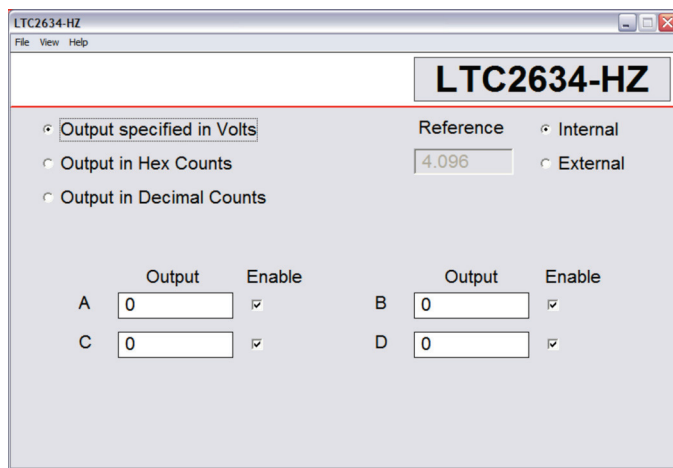
| DEMOBOARD TYPE | LTC2634 VARIATION | POWER UP  | FULL SCALE |
|----------------|-------------------|-----------|------------|
| DC1488A-A      | LZ                | Zero      | 2.5V       |
| DC1488A-B      | LMI               | Mid-Scale | 2.5V       |
| DC1488A-C      | HZ                | Zero      | 4.096V     |
| DC1488A-D      | HMI               | Mid-Scale | 4.096V     |

# DEMO MANUAL DC1488A

## QUICK START PROCEDURE

Connect DC1488A to a DC590 USB serial controller using the supplied 14 conductor ribbon cable. Connect DC590 to a host PC with a standard USB A/B cable. Run the evaluation software supplied with DC590 or download it from [www.linear.com](http://www.linear.com). The correct control panel will be loaded automatically. To update DAC values, enter new value in corresponding output text box and press enter. Be sure the DAC is enabled.

Complete software documentation is available from the Help menu item, as features may be added periodically.



## HARDWARE SETUP

### Analog Connections

**DAC Outputs:** The four DAC outputs from the LTC2634 are brought out to turrets labeled  $V_{OUTA}$  through  $V_{OUTD}$ . These may be connected to external instruments or other circuitry.

**NOTE:** DAC outputs are not in alphabetical order on the circuit board.

**VREF:** The REF turret is connected directly to the reference terminals of the LTC2634. When the integrated reference is being used, the reference voltage may be monitored at this point. An external reference may also be applied to this turret after changing the setting in the QuikEval™ software.

### Grounding And Power Connections

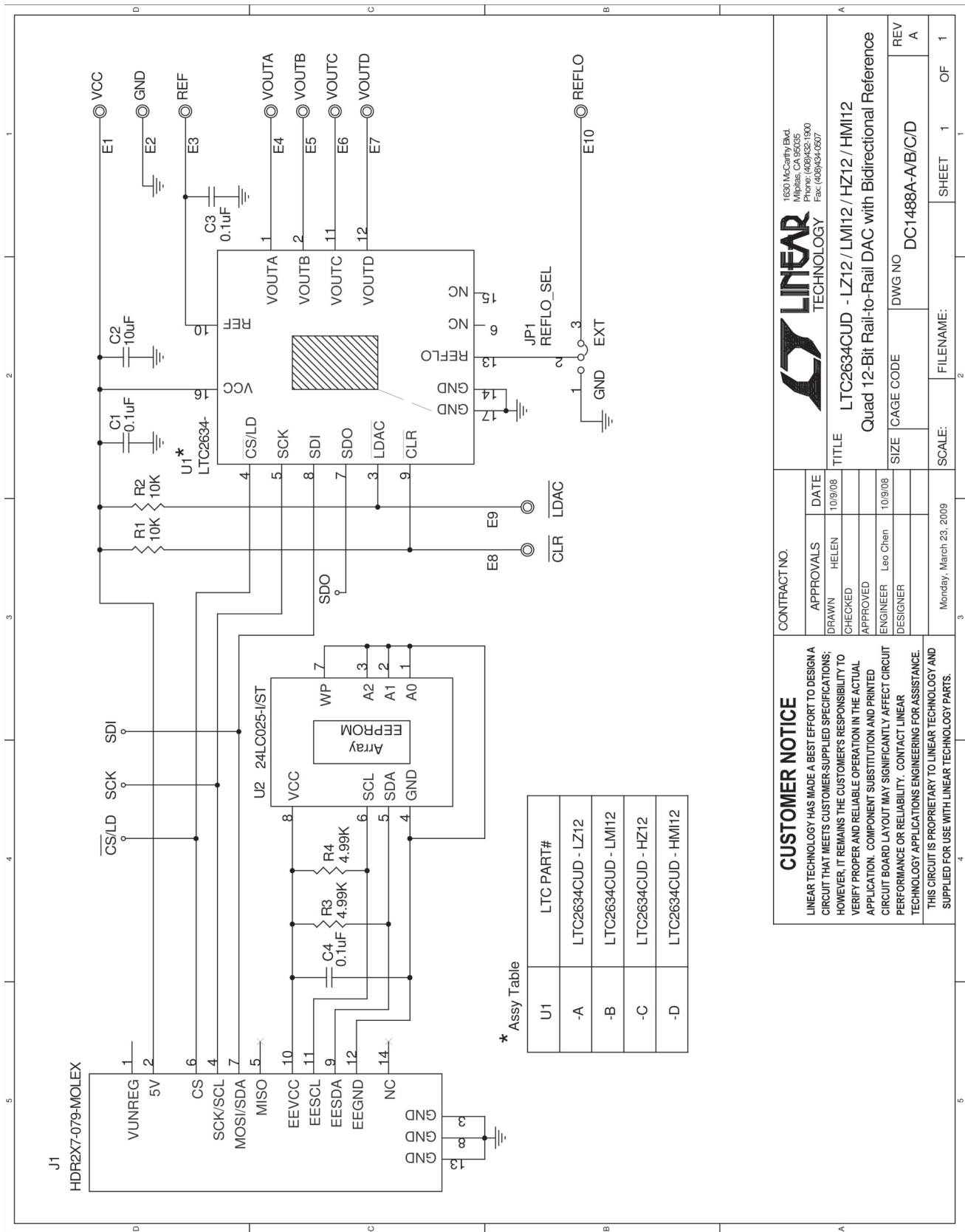
**Power (VCC):** Normally DC1488A is powered by the DC590 controller. VCC can be supplied to this turret, however the power supply on DC590 must be disabled! Refer to the DC590 Quick Start Guide for more details on this mode of operation.

**Grounding:** Ground turrets as well as 2 grounding strips are provided.

## PARTS LIST

| ITEM | QTY | REFERENCE  | PART DESCRIPTION                      | MANUFACTURER/PART NUMBER          |
|------|-----|------------|---------------------------------------|-----------------------------------|
| 1    | 3   | C1, C3, C4 | CAP, X7R, 0.1 $\mu$ F, 16V, 10%, 0603 | AVX, 0603YC104KAT                 |
| 2    | 1   | C2         | CAP, X5R, 10 $\mu$ F, 6.3V, 20%, 0603 | AVX, 06036D106MAT                 |
| 3    | 10  | E1-E10     | TESTPOINT, TURRET, 0.095"             | MILL-MAX, 2501-2-00-80-00-00-07-0 |
| 4    | 1   | JP1        | 0.1" SINGLE ROW HEADER, 3-PIN         | SAMTEC, TSW-103-07-L-S            |
| 5    | 1   | JP1        | SHUNT, 0.1" BLK                       | SAMTEC, SNT-100-BK-G              |
| 6    | 1   | J1         | HEADER, 2X7PIN, 0.079CC               | MOLEX, 87831-1420                 |
| 7    | 2   | R1, R2     | RES., CHIP, 10k, 1/16W, 1%, 0603      | VISHAY, CRCW060310K0FKEA          |
| 8    | 2   | R3, R4     | RES., CHIP, 4.99k, 1/16W, 1%, 0603    | VISHAY, CRCW06034K99FKEA          |
| 9    | 1   | U2         | IC, 24LC025-I/ST, TSSOP               | MICROCHIP, 24LC025-I/ST           |

# SCHEMATIC DIAGRAM



## CUSTOMER NOTICE

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## CONTRACT NO.

| APPROVALS          | DATE    |
|--------------------|---------|
| DRAWN: HELEN       | 10/9/08 |
| CHECKED:           |         |
| APPROVED:          |         |
| ENGINEER: Leo Chen | 10/9/08 |
| DESIGNER:          |         |



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|                                                           |           |                                          |     |
|-----------------------------------------------------------|-----------|------------------------------------------|-----|
| TITLE                                                     |           | LTC2634CUD - LZ12 / LMI12 / HZ12 / HMI12 |     |
| Quad 12-Bit Rail-to-Rail DAC with Bidirectional Reference |           |                                          |     |
| SIZE                                                      | CAGE CODE | DWG NO                                   | REV |
|                                                           |           | DC1488A-A/B/C/D                          | A   |
| SCALE:                                                    | FILENAME: | SHEET                                    | OF  |
|                                                           |           | 1                                        | 1   |

# DEMO MANUAL DC1488A

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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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