

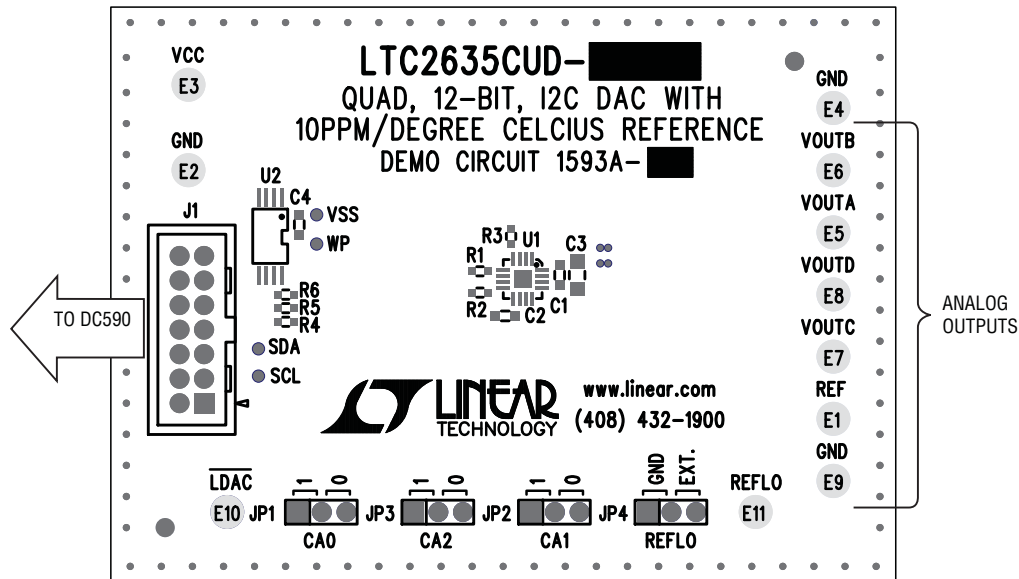
LTC2635: Quad 12-Bit I²C V_{OUT} DAC with Internal Reference

DESCRIPTION

Demonstration circuit DC1593A features the LTC2635 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 a simple I²C compatible interface.

Design files for this circuit board are available. Call the LTC factory.

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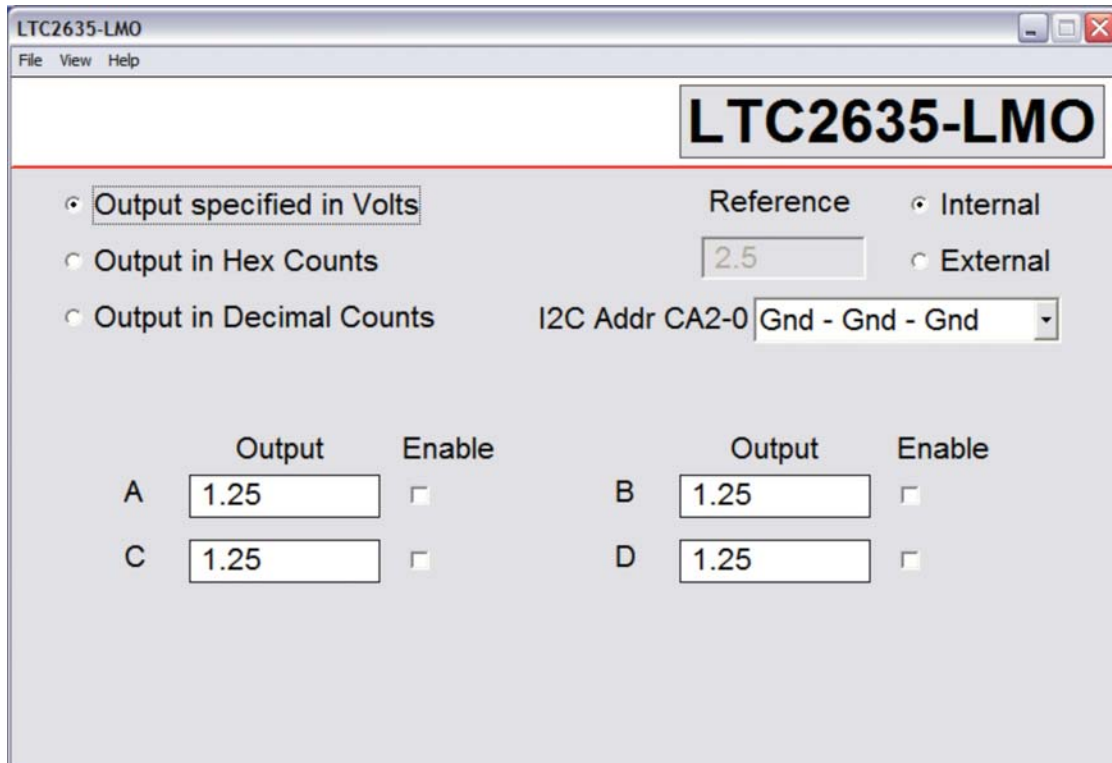


| DEMOBOARD TYPE | LTC2635 VARIATION | POWER-UP | FULL SCALE (INT. REFERENCE MODE) |
|----------------|-------------------|----------------|----------------------------------|
| A | LMI | Mid-Scale | 2.5V |
| B | LMO | High Impedance | 2.5V |
| C | LZ | Zero | 2.5V |
| D | HMI | Mid-Scale | 4.096V |
| E | HZ | Zero | 4.096V |

QUICK START PROCEDURE

Connect DC1593A 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. The correct control panel will be loaded automatically. Additional software documentation is available from the Help menu item, as features may be added periodically.



QUICK START PROCEDURE

HARDWARE SET-UP

Analog Connections

DAC outputs – The four DAC outputs from the LTC2635 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.

V_{REF} – The Ref turret is connected directly to the reference terminals of the LTC2635. 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, to external.

Grounding and Power Connections

Power (V_{CC}) – Normally DC1593A is powered by the DC590 controller. V_{CC} can be supplied to this turret, however the power supply on DC590 must be disabled! Refer to DC590 Quick Start Guide for more details on this mode of operation.

Grounding – Ground turrets as well as two grounding strips are provided.

DEMO MANUAL DC1593A

PARTS LIST

DC1593A

| ITEM | QUANTITY | REFERENCE-DESCRIPTION | DESCRIPTION | MANUFACTURER'S PART NUMBER |
|-------------------------------------|----------|-----------------------|-----------------------------------|-----------------------------|
| REQUIRED CIRCUIT COMPONENTS: | | | | |
| 1 | 3 | C1, C2, C4 | CAP., CHIP X7R 0.1 μ F 16V | AVX, 0603YC104MAT1A 0603 |
| 2 | 1 | C3 | CAP., CHIP X5R 10 μ F 6.3V | TDK., C2012X5R0J106M |
| 3 | 11 | E1 TO E11 | TURRET, TESTPOINT 0.064" | MILL-MAX, 2308-2 |
| 4 | 4 | JP1 TO JP4 | HEADER, 3Pin 1 Row 0.079CC | SAMTEC, TMM-103-02-L-S |
| 5 | 4 | FOR (JP1 TO JP4) | SHUNT, 0.079" CENTER | SAMTEC, 2SN-BK-G |
| 6 | 1 | J1 | HEADER, VERTICAL DUAL 2X7 0.079CC | MOLEX, 87831-1420 |
| 7 | 2 | R4, R5 | RES., CHIP 4.99K 1% | VISHAY, CRCW06034K99FNEA |
| 8 | 3 | R1, R2, R3 | RES., CHIP 10K 5% | VISHAY, CRCW060310K0JNEA |
| 9 | 1 | U2 | I.C., SERIAL EEPROM, TSSOP-8 | MICROCHIP, 24LC025-I/ST |
| 10 | 1 | (FOR INVENTORY ONLY) | CABLE ASSY., 8" STRIP | LINEAR RIBBON CABLE CA-2440 |
| 11 | 1 | | STENCIL | STENCIL 1593A |

DC1593A-A

| ITEM | QUANTITY | REFERENCE-DESCRIPTION | DESCRIPTION | MANUFACTURER'S PART NUMBER |
|------|----------|-----------------------|----------------------------|--------------------------------|
| 1 | 1 | DC1563A | GENERAL BOM | |
| 9 | 1 | U1 | I.C., QUAD 16-BIT, I2C DAC | LINEAR TECH., LTC2635CUD-LMI12 |
| 12 | 1 | | FAB, PRINTED CIRCUIT BOARD | DEMO CIRCUIT 1593A |

DC1593A-B

| ITEM | QUANTITY | REFERENCE-DESCRIPTION | DESCRIPTION | MANUFACTURER'S PART NUMBER |
|------|----------|-----------------------|----------------------------|--------------------------------|
| 1 | 1 | DC1563A | GENERAL BOM | |
| 2 | 1 | U1 | I.C., QUAD 16-BIT, I2C DAC | LINEAR TECH., LTC2635CUD-LMO12 |
| 3 | 1 | | FAB, PRINTED CIRCUIT BOARD | DEMO CIRCUIT 1593A |

DC1593A-C

| ITEM | QUANTITY | REFERENCE-DESCRIPTION | DESCRIPTION | MANUFACTURER'S PART NUMBER |
|------|----------|-----------------------|----------------------------|-------------------------------|
| 1 | 1 | DC1563A | GENERAL BOM | |
| 2 | 1 | U1 | I.C., QUAD 16-BIT, I2C DAC | LINEAR TECH., LTC2635CUD-LZ12 |
| 3 | 1 | | FAB, PRINTED CIRCUIT BOARD | DEMO CIRCUIT 1593A |

DC1593A-D

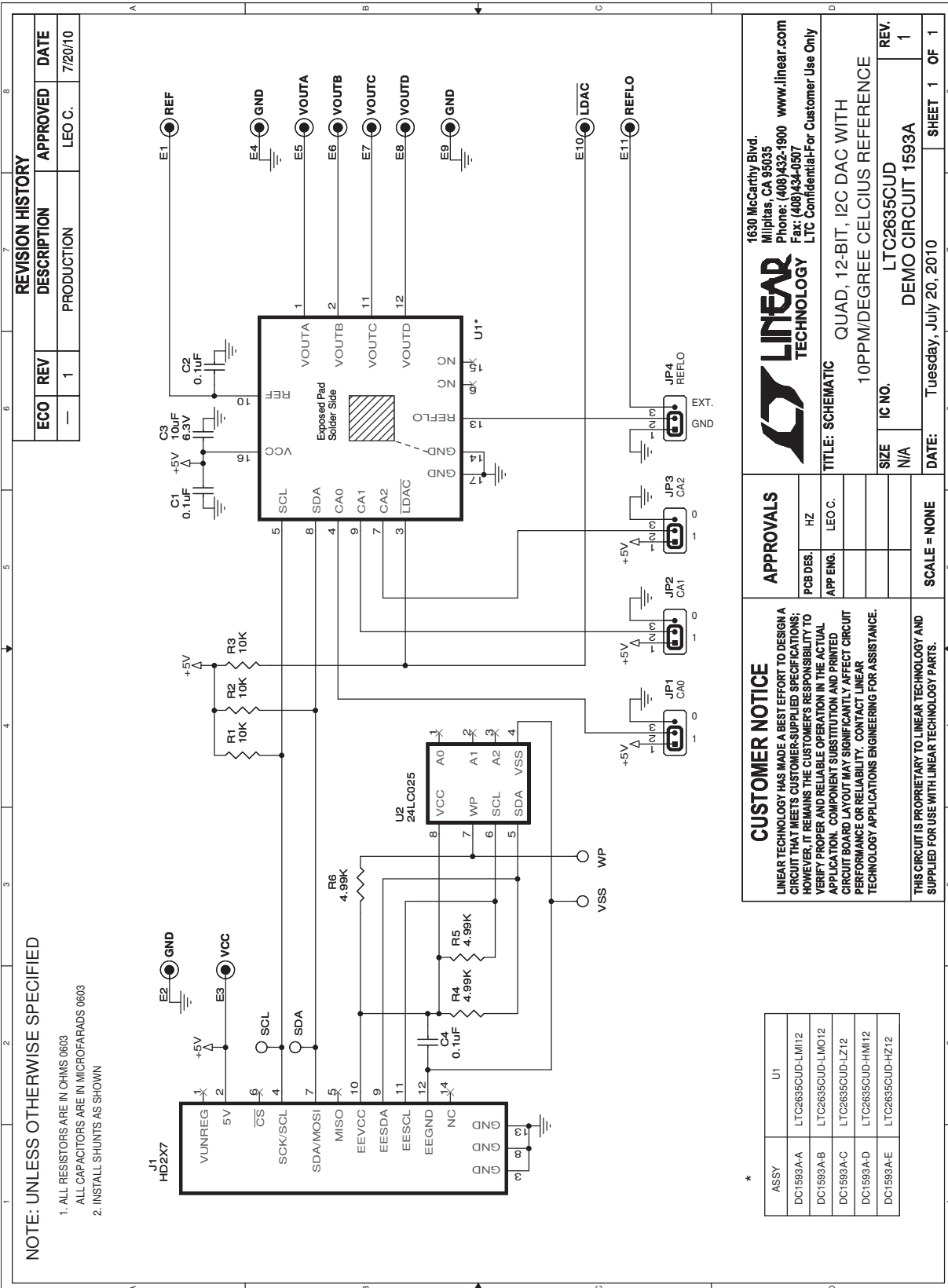
| ITEM | QUANTITY | REFERENCE-DESCRIPTION | DESCRIPTION | MANUFACTURER'S PART NUMBER |
|------|----------|-----------------------|----------------------------|--------------------------------|
| 1 | 1 | DC1563A | GENERAL BOM | |
| 2 | 1 | U1 | I.C., QUAD 16-BIT, I2C DAC | LINEAR TECH., LTC2635CUD-HMI12 |
| 3 | 1 | | FAB, PRINTED CIRCUIT BOARD | DEMO CIRCUIT 1593A |

DC1593A-E

| ITEM | QUANTITY | REFERENCE-DESCRIPTION | DESCRIPTION | MANUFACTURER'S PART NUMBER |
|------|----------|-----------------------|----------------------------|-------------------------------|
| 1 | 1 | DC1563A | GENERAL BOM | |
| 2 | 1 | U1 | I.C., QUAD 16-BIT, I2C DAC | LINEAR TECH., LTC2635CUD-HZ12 |
| 3 | 1 | | FAB, PRINTED CIRCUIT BOARD | DEMO CIRCUIT 1593A |

dc1593af

SCHEMATIC DIAGRAM



DEMO MANUAL DC1593A

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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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