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LTC2635: Quad 12-Bit I²C VOUT 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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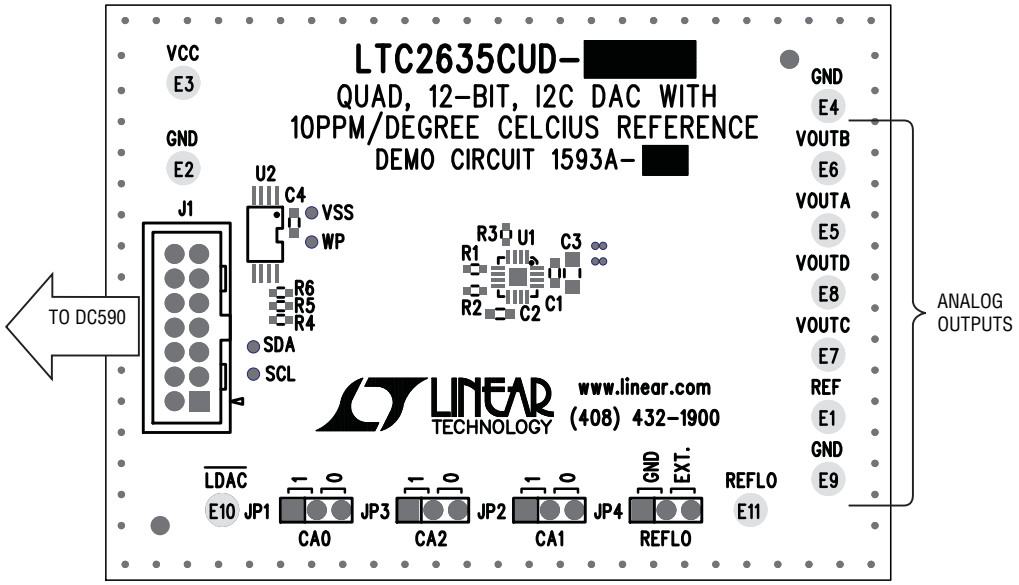
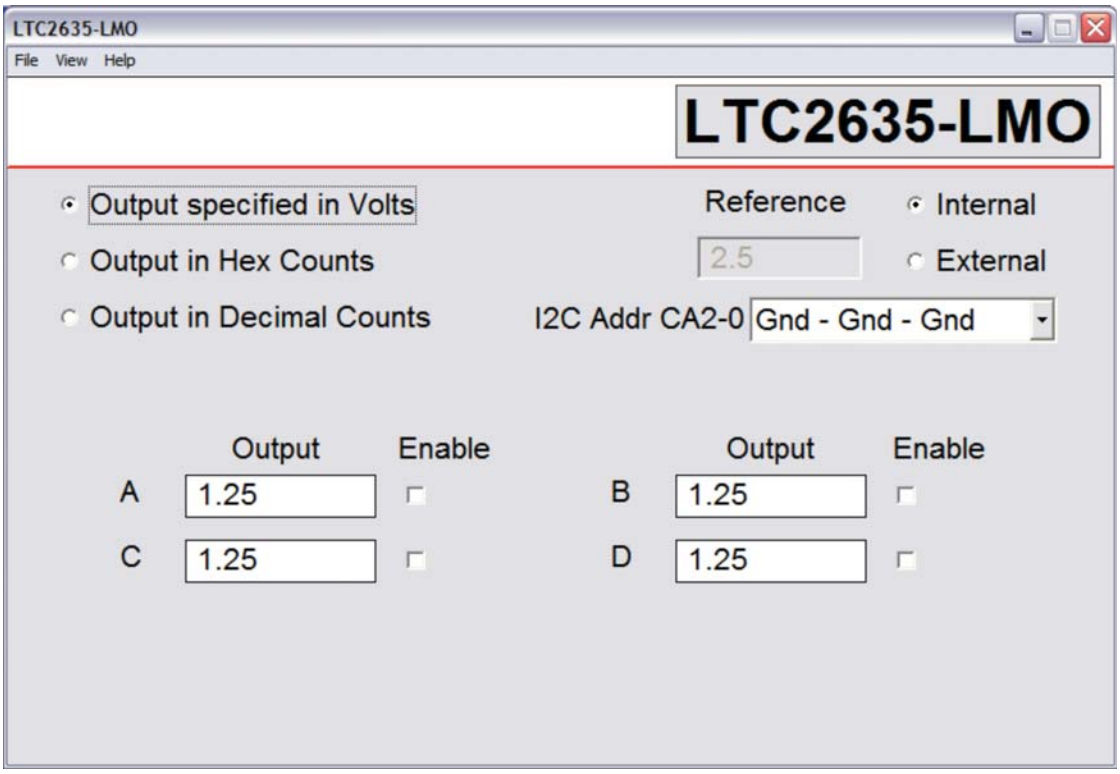


DEMOBOARD TYPE	LTC2635 VARIATION	POWER-UP	FULL SCALE (INT. REFERENCE MODE)
A	LMI	Mid-Scale	2.5V
B	LMO	High Impedance	2.5V
C	LZ	Zero	2.5V
D	HMI	Mid-Scale	4.096V
E	HZ	Zero	4.096V

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.

PARTS LIST

DC1593A

ITEM	QUANTITY	REFERENCE-DESCRIPTION	DESCRIPTION	MANUFACTURER'S PART NUMBER
			REQUIRED CIRCUIT COMPONENTS:	
1	3	C1, C2, C4	CAP., CHIP X7R 0.1µF 16V	AVX, 0603YC104MAT1A 0603
2	1	C3	CAP., CHIP X5R 10µF 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

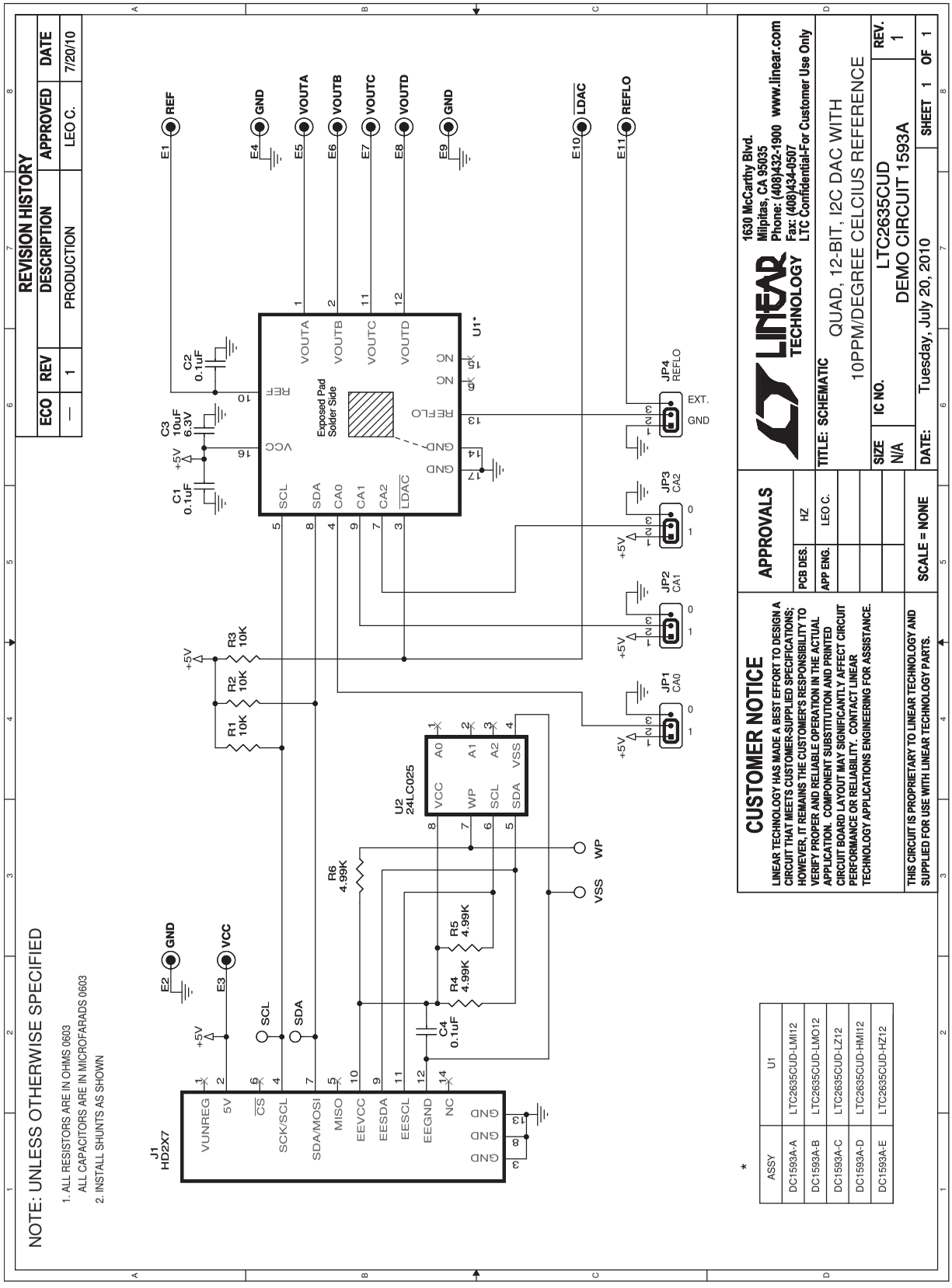
DC1593A-D

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

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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