

LTC1859

8-Channel, 16-Bit, 100ksps SoftSpan ADC

DESCRIPTION

Demonstration circuit 682A features the **LTC®1859** 8-channel, 16-bit SoftSpan™ ADC. The LTC1859 can be software programmed for 0V to 5V, 0V to 10V, ±5V, or ±10V input spans while operating from a single 5V supply. The 8-channel multiplexer can be programmed for single-ended inputs or differential pairs or a combination of both. Also, the inputs are fault protected to ±25V. A

fault condition on any channel will not affect readings on other channels.

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

LT, LTC, LTM, Linear Technology and the Linear logo are registered trademarks and SoftSpan and QuikEval are trademarks of Linear Technology Corporation. All other trademarks are the property of their respective owners.

BOARD PHOTO

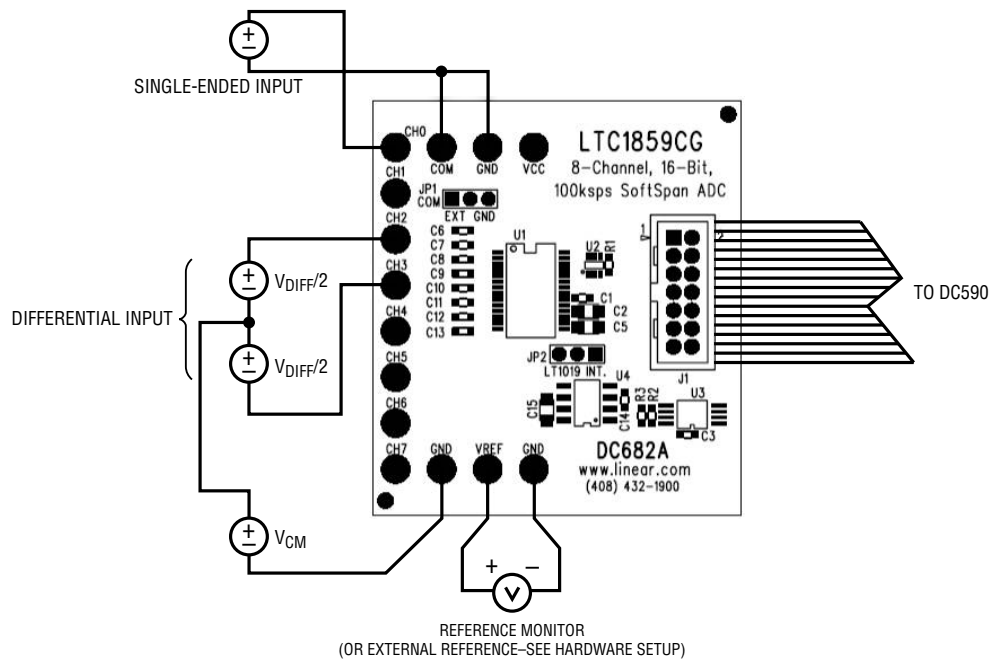


Figure 1. DC682A Connection Diagram

DEMO MANUAL DC682A

QUICK START PROCEDURE

Connect DC682A 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 QuikEval™ evaluation software supplied with DC590 or download it from www.linear.com/software. The correct control panel will be loaded automatically. Click the COLLECT button to begin reading the ADC.

Change the channel and range by right-clicking over the channel or range indicator in the display.

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

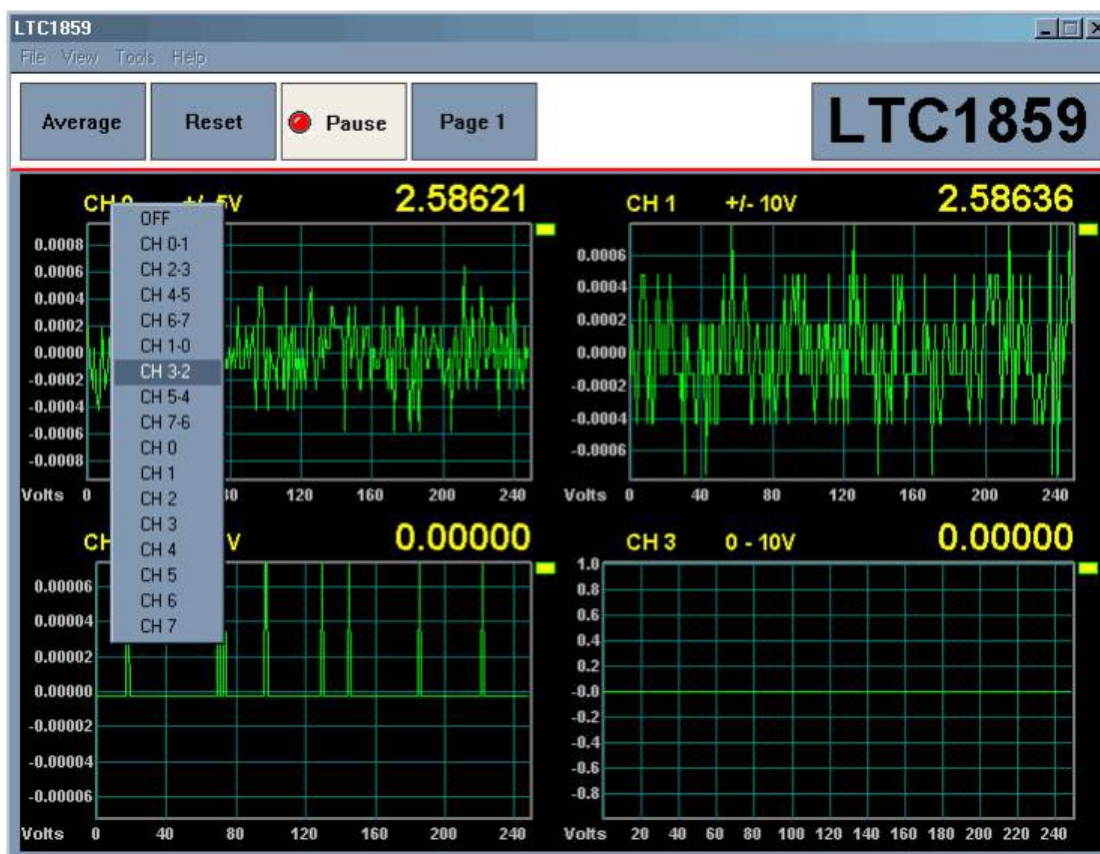


Figure 2. DC682A Software Screenshot

HARDWARE SETUP

Jumpers

JP1: Select connection for COM pin, either grounded or externally supplied through the COM turret.

JP2: Select reference, either internal or the onboard LT1019 reference.

Analog Connections (Turret Posts)

COM: LTC1859 COM pin. Make sure to select EXT on JP1 when supplying an external bias to this post.

CH0–CH7: Analog inputs to LTC1859. Each input is bypassed to ground with a 1000pF capacitor.

V_{REF}: Reference pin on LTC1859. When JP2 is set to INT, the LTC1859 uses its internal reference, or an external reference can be connected to this pin, overdriving the internal reference. When JP2 is set to LT1019, this turret should only be used for monitoring the reference voltage.

Grounding and Power Connections

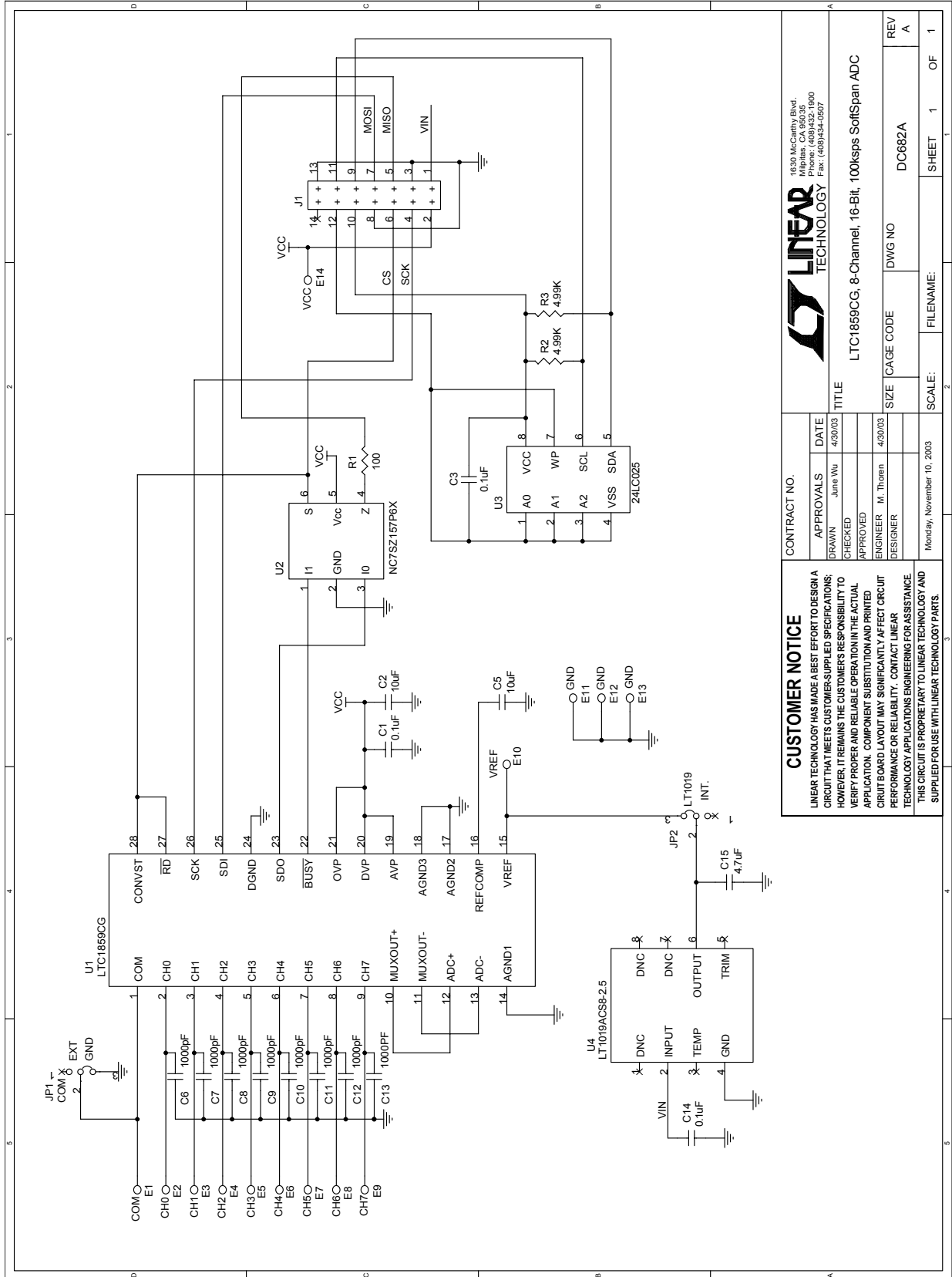
DC682A does not require any external power source when used with the DC590 USB controller board. However, an external 5V power source can be connected to the V_{CC} and ground turrets if the power supply on DC590 has been disabled. Refer to the DC590 demo manual for more information.

DEMO MANUAL DC682A

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
1	3	C1, C3, C14	CAP., X7R, 0.1µF, 10V, 20%, 0603	AVX, 0603ZC104MAT2A
2	2	C2, C5	CAP., X5R, 10µF, 6.3V, 20%, 0805	Taiyo Yuden, JMK212BJ106MG
3	8	C6-C13	CAP., COG, 1000pF, 50V, 5%, 0603	AVX, 06035A102JAT
4	1	C15	CAP., X5R, 4.7µF, 6.3V, 20%, 0805	Taiyo Yuden, JMK212BJ475MG
5	14	E1-E14	TURRET, TESTPOINT .064"	MILL-MAX, 2308-2
6	2	JP1, JP2	0.079 SINGLE ROW HEADER, 3-PIN	COMM CON, 2802S-03-G2
7	2	JP1, JP2	SHUNT,	COMM CON, CCIJ2MM-138G
8	1	J1	CONNECTOR, DUAL 2 × 7 .079CC	MOLEX, 87331-1420
9	1	R1	RES., CHIP, 100, 1/16W, 5% 0603	AAC, CR16-101JM
10	2	R2, R3	RES., CHIP, 4.99k, 1/16W, 1% 0603	AAC, CR16-4991FM
11	1	U1	I.C. LTC1859CG SSOP28G	LINEAR, LTC1859CG
12	1	U2	MULTIPLEXER, NC7SZ157P6X SC70	FAIRCHILD, NC7SZ157P6X
13	1	U3	I.C., Serial EEPROM TSSOP8	MICROCHIP, 24LC025
14	1	U4	I.C., LT1019ACS8-2.5 SO-8	LINEAR, LT1019ACS8-2.5

SCHEMATIC DIAGRAM



		1630 McCarthy Blvd. Wilmington, MA 01890 Phone: (408) 452-5000 Fax: (408) 454-0507	
CONTRACT NO.		TITLE	
APPROVALS DRAWN: June Wu CHECKED: _____ APPROVED: _____ DESIGNER: M. Thoren	DATE 4/30/03	LTC1859CG, 8-Channel, 16-Bit, 100kSPS SoftSpan ADC	
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.		SIZE (CAGE CODE) DWG NO DC682A	REV A
Monday, November 10, 2003		SCALE:	SHEET 1 OF 1

DEMO MANUAL DC682A

DEMONSTRATION BOARD IMPORTANT NOTICE

Linear Technology Corporation (LTC) provides the enclosed product(s) under the following **AS IS** conditions:

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.**

The user assumes all responsibility and liability for proper and safe handling of the goods. Further, the user releases LTC from all claims arising from the handling or use of the goods. Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge. Also be aware that the products herein may not be regulatory compliant or agency certified (FCC, UL, CE, etc.).

No License is granted under any patent right or other intellectual property whatsoever. **LTC assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or any other intellectual property rights of any kind.**

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.

Mailing Address:

Linear Technology
1630 McCarthy Blvd.
Milpitas, CA 95035

Copyright © 2004, Linear Technology Corporation

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Data Conversion IC Development Tools](#) category:

Click to view products by [Analog Devices](#) manufacturer:

Other Similar products are found below :

[EVAL-AD5063EBZ](#) [EVAL-AD5422LFEBZ](#) [EVAL-AD7265EDZ](#) [EVAL-AD7641EDZ](#) [EVAL-AD7674EDZ](#) [EVAL-AD7719EBZ](#) [EVAL-AD7767-1EDZ](#) [EVAL-AD7995EBZ](#) [AD9114-DPG2-EBZ](#) [AD9211-200EBZ](#) [AD9251-20EBZ](#) [AD9251-65EBZ](#) [AD9255-125EBZ](#) [AD9284-250EBZ](#) [AD9613-170EBZ](#) [AD9627-125EBZ](#) [AD9629-20EBZ](#) [AD9709-EBZ](#) [AD9716-DPG2-EBZ](#) [AD9737A-EBZ](#) [AD9787-DPG2-EBZ](#) [AD9993-EBZ](#) [DAC8555EVM](#) [ADS5482EVM](#) [ADS8372EVM](#) [EVAL-AD5061EBZ](#) [EVAL-AD5062EBZ](#) [EVAL-AD5443-DBRDZ](#) [EVAL-AD5570SDZ](#) [EVAL-AD7450ASDZ](#) [EVAL-AD7677EDZ](#) [EVAL-AD7992EBZ](#) [EVAL-AD7994EBZ](#) [AD9119-MIX-EBZ](#) [AD9148-M5375-EBZ](#) [AD9204-80EBZ](#) [AD9233-125EBZ](#) [AD9265-105EBZ](#) [AD9265-80EBZ](#) [AD9608-125EBZ](#) [AD9629-80EBZ](#) [AD9648-125EBZ](#) [AD9649-20EBZ](#) [AD9650-80EBZ](#) [AD9765-EBZ](#) [AD9767-EBZ](#) [AD9778A-DPG2-EBZ](#) [ADS8322EVM](#) [LM96080EB/NOPB](#) [EVAL-AD5445SDZ](#)