

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 873

OCTAL 16-BIT 175KSPS ADC

LTC1867L

DESCRIPTION

Demonstration circuit 873 features the LTC1867L Octal 16-bit ADC. The LTC1867L can be software programmed for a unipolar 0 to 2.5V or bipolar $\pm 1.25\text{V}$ input range. The 8 channel multiplexer can be programmed for 8 single-ended inputs with respect to ground, 7 single-ended inputs with respect to the COM/CH7 pin, 4 differential inputs, or any combination of these.

The LTC1867L's DC performance is outstanding with a $\pm 3\text{LSB}$ INL specification and no missing codes over temperature. The signal-to-noise ratio (SNR) for the LTC1867 is typically 83.3dB. Housed in a compact, narrow 16-pin SSOP package, the LTC1867L is ideal for space-sensitive and low-power applications.

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

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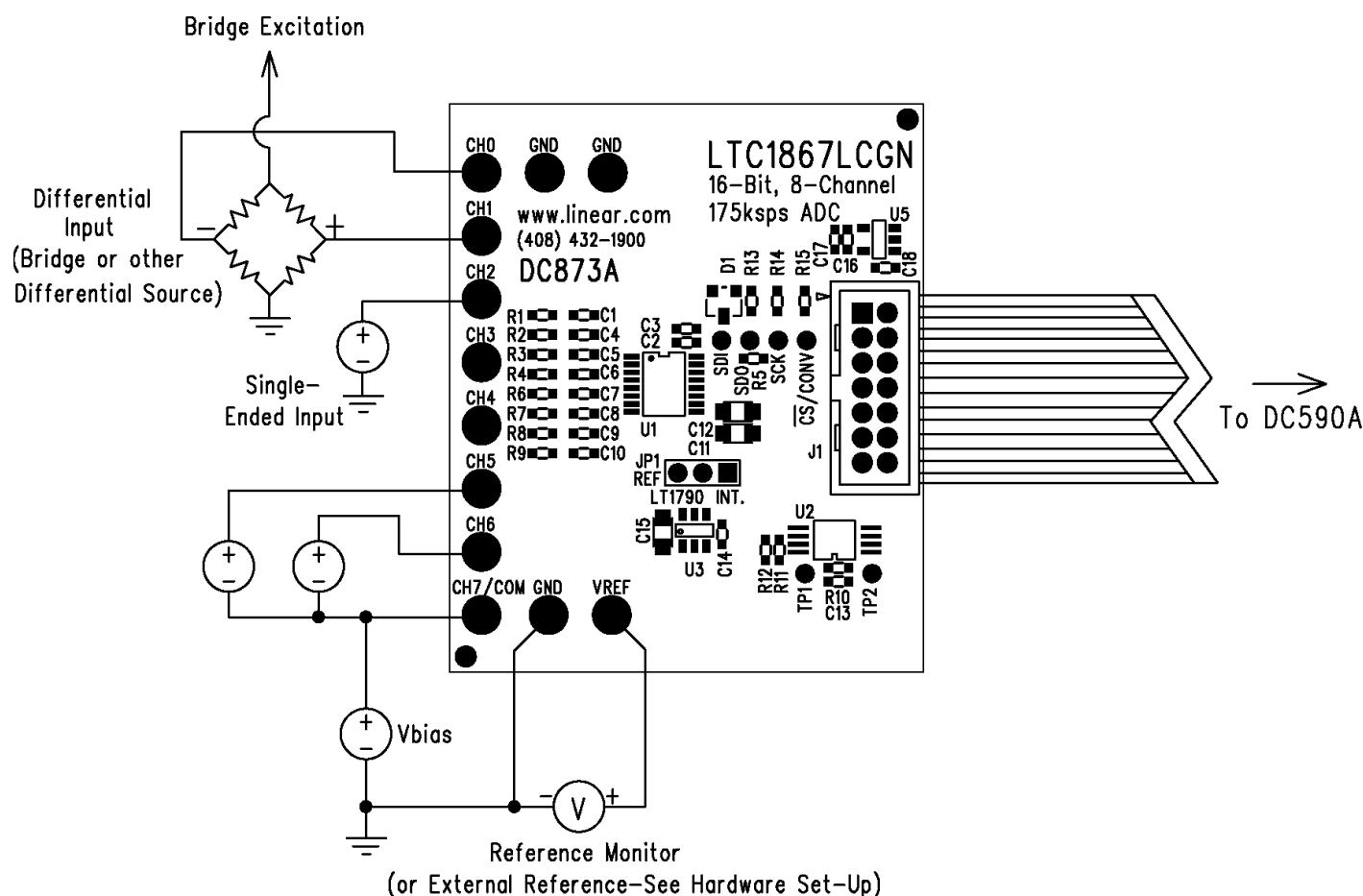


Figure 1. Connection Diagram

QUICK START PROCEDURE

Connect DC873 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. 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. Software Screenshot



HARDWARE SET-UP

JUMPERS

JP1 – Select reference, either internal or the on-board LT1790-1.25 reference.

ANALOG CONNECTIONS (TURRET POSTS)

GND (3X) – Ground plane connections. DC873 can also be grounded to an application circuit by the exposed ground planes at the edges of the board.

CH0 – CH7/COM – Analog inputs to LTC1867L. Each input has a 50 Ohm / 1000pF filter to reduce wideband noise pickup.

VREF – Reference pin on LTC1867L. When JP1 is set to INT, the LTC1867L uses its internal reference, or an external reference can be connected to this

pin, overdriving the internal reference. When JP1 is set to LT1790, this turret should only be used for monitoring the reference voltage.

POWER / DIGITAL CONNECTIONS

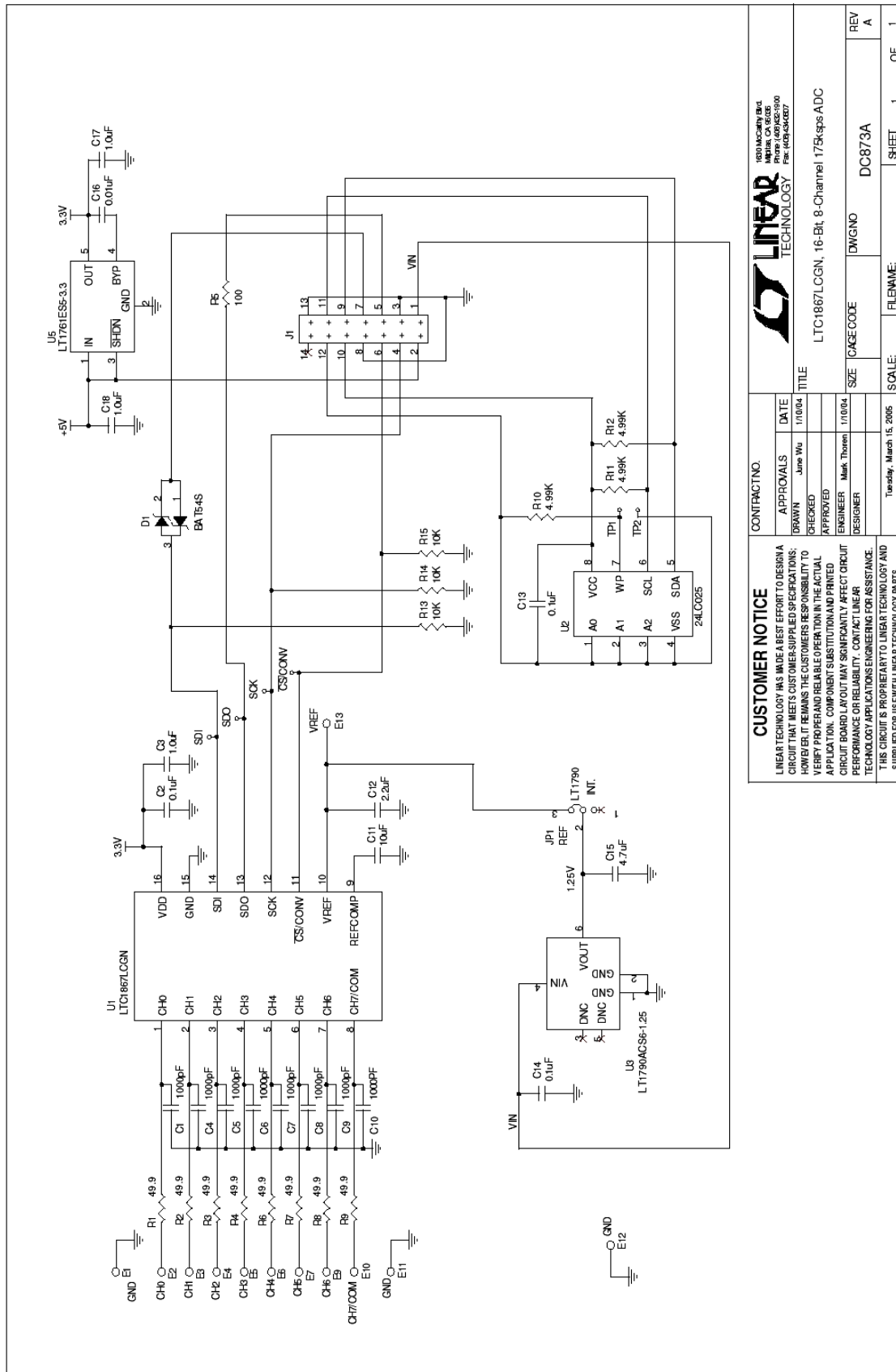
DC873 does not require any external power source when used with the DC590 USB controller board.

D1 on the SDI line is for compatibility with the DC590 logic levels. It is not required for normal use, but will not affect operation when 3.3V logic is used through J1.

The onboard 3.3V regulator has reverse current protection, so 3.3V may be applied to the Vcc turret when not using a DC590 controller provided that no power is applied to pin 2 of J1.

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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.		CONTRACT NO. APPROVALS DRAWN: June Wu CHECKED: [] APPROVED: [] ENGINEER: Mark Thomas DESIGNER: []		DATE: 1/10/04 TITLE: LTC1867L CGN, 16-Bit, 8-Channel 175KSPS ADC	
SIZE: [] CASE CODE: [] SCALE: []		DWG NO: DC873A SHEET: 1 OF 1		REV: A	