

## DESCRIPTION

Demonstration circuit 762 is a 350mA, 1W white LED driver featuring the LTC<sup>®</sup>3490 and a Lumileds Luxeon LED and lens. The board comes with two AA alkaline battery cells to be stuffed in the battery pack on the back of the PCB. The dual (or single) cell battery input voltage range, high LED constant current, low battery detect output, low quiescent current, dimming control, internal MOSFET switches, tiny and low profile inductor, minimal external components, and simple design make the LTC3490 the top solution for space-constrained 1W 350mA flashlight or portable LED driver solutions.

DC762A is assembled with two AA alkaline battery cells in series in a battery pack on the back of the PCB. The LED is turned on and off by simply pressing and releasing the LED ON button. The low battery output detect terminal indicates when the 2-cell voltage has dropped below 1V/cell or 2V. Simple alterations provide a single cell solution. When the CELLS pin is disconnected from VIN and tied to GND, the low battery output detect terminal indicates when the

single cell voltage has dropped below 1V. When the LED is not on, the quiescent current is <50 $\mu$ A, prolonging battery life. The high-efficiency solution extends battery life when the LED is both off and when the LED is on.

The LTC3490 datasheet gives a complete description of the part, operation and applications information. The datasheet must be read in conjunction with this Quick Start Guide for demonstration circuit 762. In addition, the datasheets for the LED must be read in order to understand the thermal and light output specifications of the LED. The LTC3490 is assembled in a small low profile DFN package. Proper board layout is essential for maximum thermal performance. See the datasheet section 'Layout Considerations'.

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

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## QUICK START PROCEDURE

Demonstration circuit 762 is easy to set up to evaluate the performance of the LTC3490. Follow the procedure below:

**NOTE:** Make sure that the input voltage does not exceed 3.5V if a source other than the two AA batteries is used.

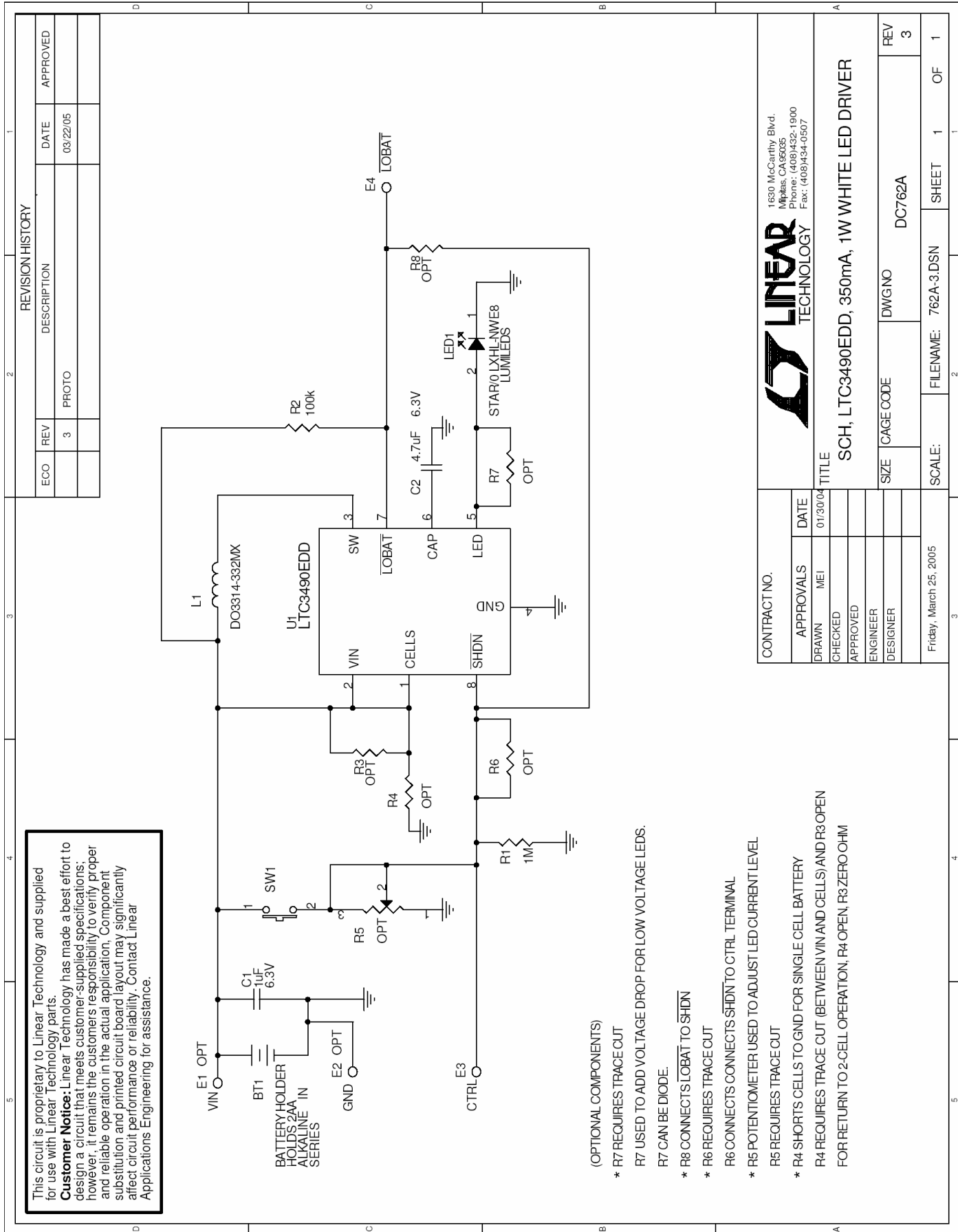
**NOTE:** If batteries are not used, do not hot-plug the input voltage terminals VIN (+) and GND (-). The absolute maximum voltage on VIN is 6V and hot-plugging a power supply through wire leads to the

demonstration circuit can cause the voltage on the extremely low-ESR ceramic input capacitor to ring to twice its DC value. *See Application Note 88 for more details.*

1. Insert two AA alkaline battery cells in the battery pack or 1.8V to 3V input power supply to the VIN and GND terminals on the PCB.
2. Press and release the LED ON pushbutton to turn the LED on and off.

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 762

## 350mA, 1W WHITE LED DRIVER



This circuit is proprietary to Linear Technology and supplied for use with Linear Technology parts.  
**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 Applications Engineering for assistance.

- (OPTIONAL COMPONENTS)
- \* R7 REQUIRES TRACE CUT
  - R7 USED TO ADD VOLTAGE DROP FOR LOW VOLTAGE LEADS.
  - R7 CAN BE DIODE.
  - \* R8 CONNECTS LOBAT TO SHDN
  - \* R6 REQUIRES TRACE CUT
  - R6 CONNECTS SHDN TO CTRL TERMINAL
  - \* R5 POTENTIOMETER USED TO ADJUST LED CURRENT LEVEL
  - R5 REQUIRES TRACE CUT
  - \* R4 SHORTS CELLS TO GND FOR SINGLE CELL BATTERY
  - R4 REQUIRES TRACE CUT (BETWEEN VIN AND CELLS) AND R3 OPEN FOR RETURN TO 2-CELL OPERATION; R4 OPEN, R3 ZERO OHM

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APPROVALS	DATE	TITLE	
DRAWN MEI	01/30/04	SCH, LTC3490EDD, 350mA, 1W WHITE LED DRIVER	
CHECKED		SIZE	CAGE CODE
APPROVED		DWGNO	DC762A
DESIGNER		SCALE:	FILENAME: 762A-3.DSN
Friday, March 25, 2005		SHEET	1 OF 1

