DESCRIPTION

Demonstration circuit 842 features the LT®3474 constant frequency step-down converter in a compact 16-lead TSSOP thermally enhanced package. The demonstration circuit is designed to drive a single Lumileds Luxeon III star LED from a wide input voltage range. The high switching frequency scheme permits the use of small inductors and ceramic capacitors to save space and cost. The current mode PWM scheme provides fast transient response and cycle-by-cycle current limiting. Frequency foldback and thermal shutdown provide additional protection. The DC842 is specifically designed for white LED applications such as automotive and avionic lighting, architectural detail lighting and display backlighting. The LT3474 offers numerous LED-dimming circuit options. See the datasheet for more detailed information on LED brightness and dimming control. The PWM terminal can be used to dim the LED only if a trace between the drain and source of the unstuffed MOSFET (SO8 or SOT23) is cut and a proper MOSFET is soldered onto the demonstration circuit.

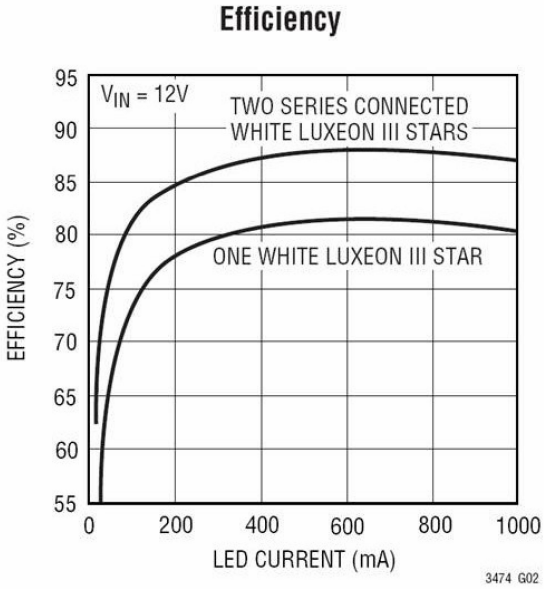
Design files for this circuit board are available. Call the LTC factory.

LT is a registered trademark of Linear Technology Corporation

QUICK START PROCEDURE

DC842 is easily set up for evaluating the LT3474 constant-current step-down LED driver circuit. Follow the test procedure outlined below and see Figure1.

1. Connect a bench supply to the Vin and Gnd terminals.
2. Turn on the input power supply and set the voltage above 6V and below 36V.
3. Turn on the LT3474 LED driver circuit by pressing the LED ON button. See the datasheet for detailed information on LED current and minimum input voltage.



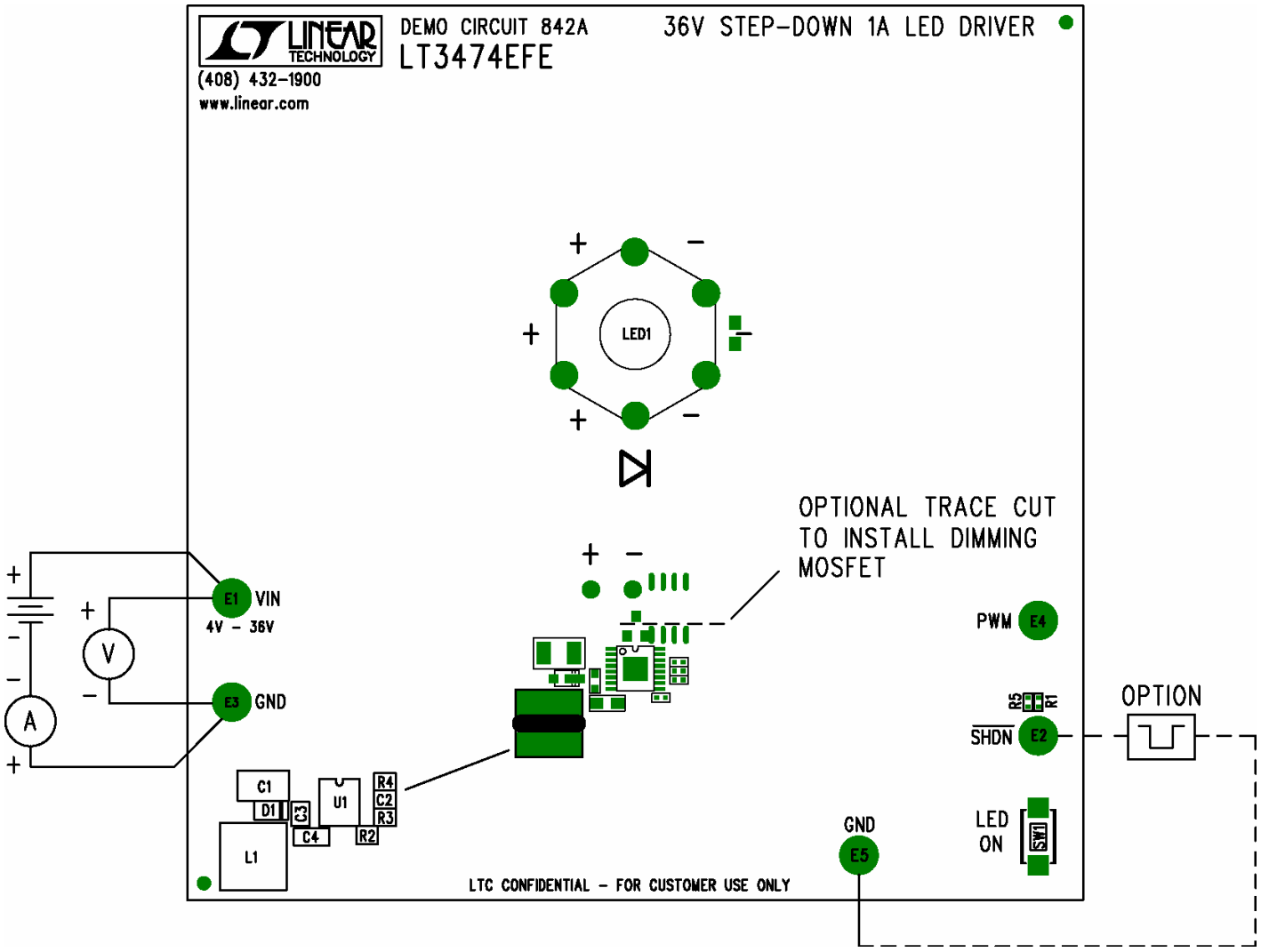
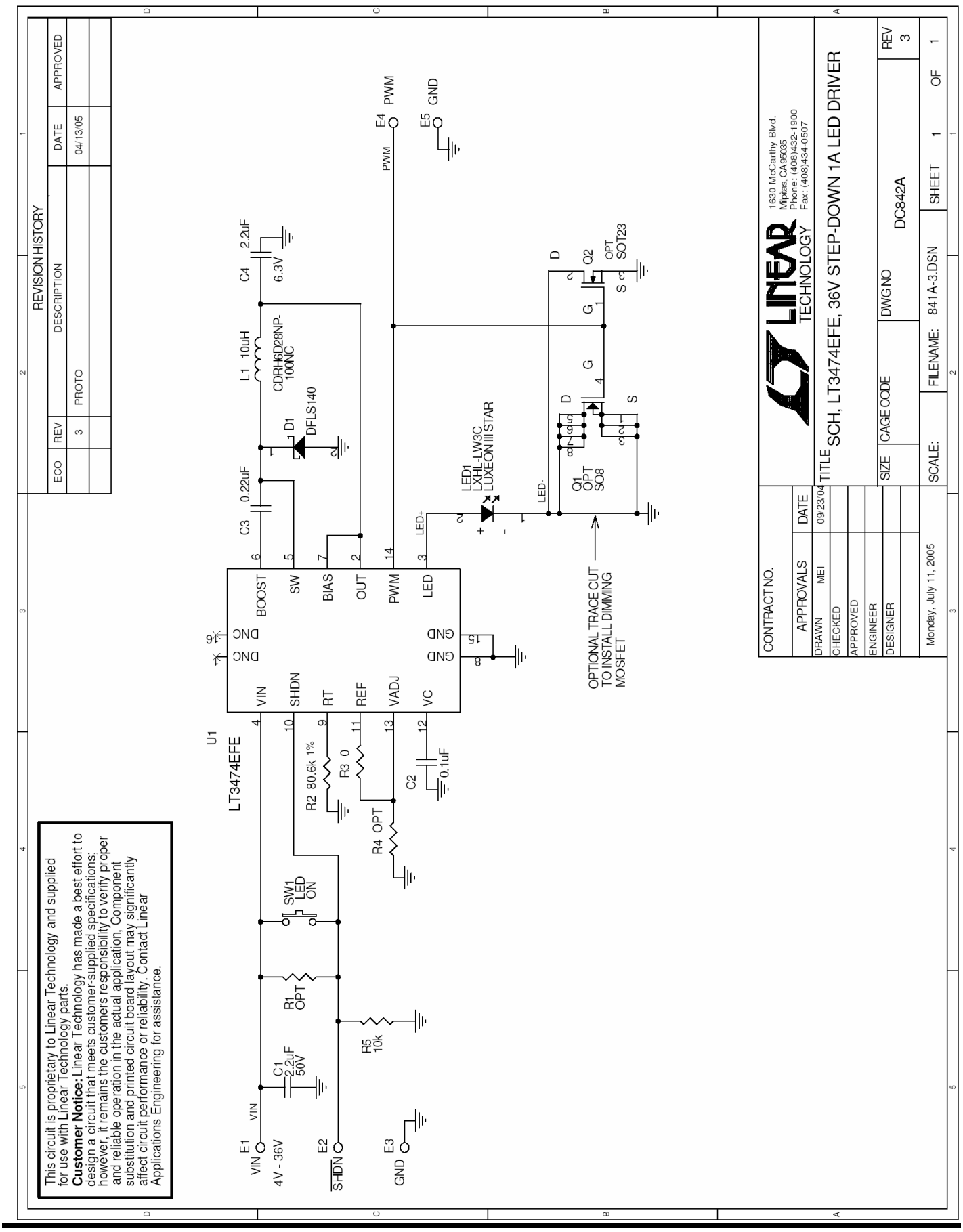


Figure 1. Proper Measurement Equipment Setup


REVISION HISTORY
ECO
REV
DESCRIPTION
DATE
APPROVED
3
PROTO
04/13/05
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 customers 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.
U1
LT3474EFE
VIN
SHDN
RT
REF
VADJ
VC
GND
BOOST
SW
BIAS
OUT
PWM
LED
E1 VIN
4V - 36V
E2 SHDN
E3 GND
E4 PWM
E5 GND
C1 2.2uF 50V
C2 0.1uF
C3 0.22uF
C4 2.2uF 6.3V
R1 OPT
R2 80.6k 1%
R3 0
R4 OPT
R5 10k
SW1 LED ON
L1 10uH CDRH6D28NP-100NC
D1 DFLS140
LED1 LXHL-LW3C LUXEON III STAR
LED+
LED-
Q1 OPT SO8
Q2 OPT SOT23
OPTIONAL TRACE CUT TO INSTALL DIMMING MOSFET
CONTRACT NO.
APPROVALS
DATE
DRAWN MEI 09/23/04
CHECKED
APPROVED
ENGINEER
DESIGNER
Monday, July 11, 2005
LINEAR TECHNOLOGY
1630 McCarthy Blvd.
Milpitas, CA 95035
Phone: (408)432-1900
Fax: (408)434-0507
TITLE SCH, LT3474EFE, 36V STEP-DOWN 1A LED DRIVER
SIZE
CAGE CODE
DWG NO
DC842A
REV 3
SCALE:
FILENAME: 841A-3.DSN
SHEET 1 OF 1