

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 493

## LOW VOLTAGE 8A DC/DC CONVERTER

### LTC3830-1

## DESCRIPTION

Demonstration circuit 493 is a low voltage, 8A DC/DC converter using LTC3830-1 high power, high efficiency step-down switching regulator controller optimized for low voltage applications. Typical applications include CPU power supplies, multiple logic supply generators and distributed power applications. The input voltage of the LTC3830-1 can range from 3V to 8V. The LTC3830-1 uses a synchronous switching architecture with N-channel MOSFETs. The fixed switching frequency is about 200kHz. The LTC3830-1 is a voltage mode feed-

back controller with a maximum duty cycle of >91% over temperature. A precision internal reference and feedback system provide  $\pm 1\%$  output regulation over temperature, load current and line voltage variations. The LTC3830-1 differs from the LTC3830 S8 version by replacing the shutdown function with a soft-start function. See Figure 2 for efficiency curves (1.8V output with optional D2).

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

## QUICK START PROCEDURE

Demonstration circuit 493 is easy to set up to evaluate the performance of the LTC3830-1. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. Connect a turned-off input power supply (3V–8V) to the Vin and GND terminals.
2. Connect the load between the Vout and GND terminals. The maximum load current is 8A. ( $R_{LOAD(MIN)} = 0.225\Omega$  for 1.8V output)
3. Once all of the connections are secure, turn on the input power supply. The output voltage should be approximately 1.8V. Be sure to measure the output voltage at the terminals.

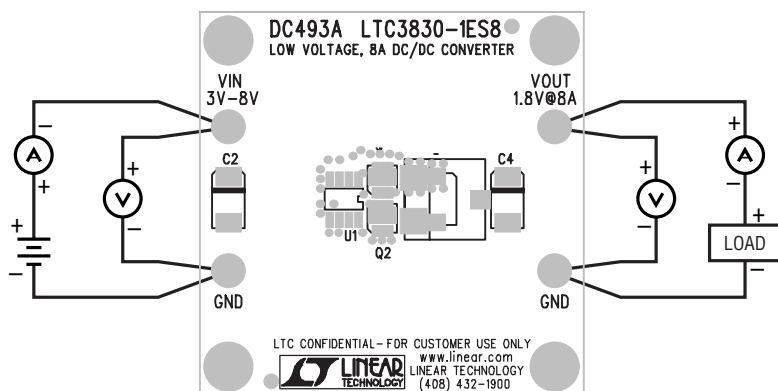


Figure 1. Proper Measurement Equipment Setup

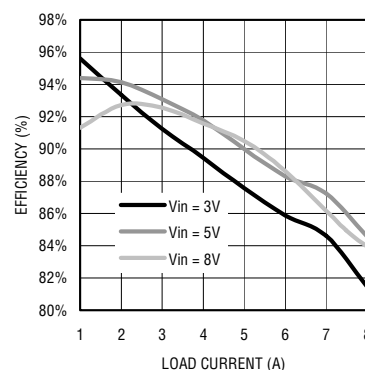
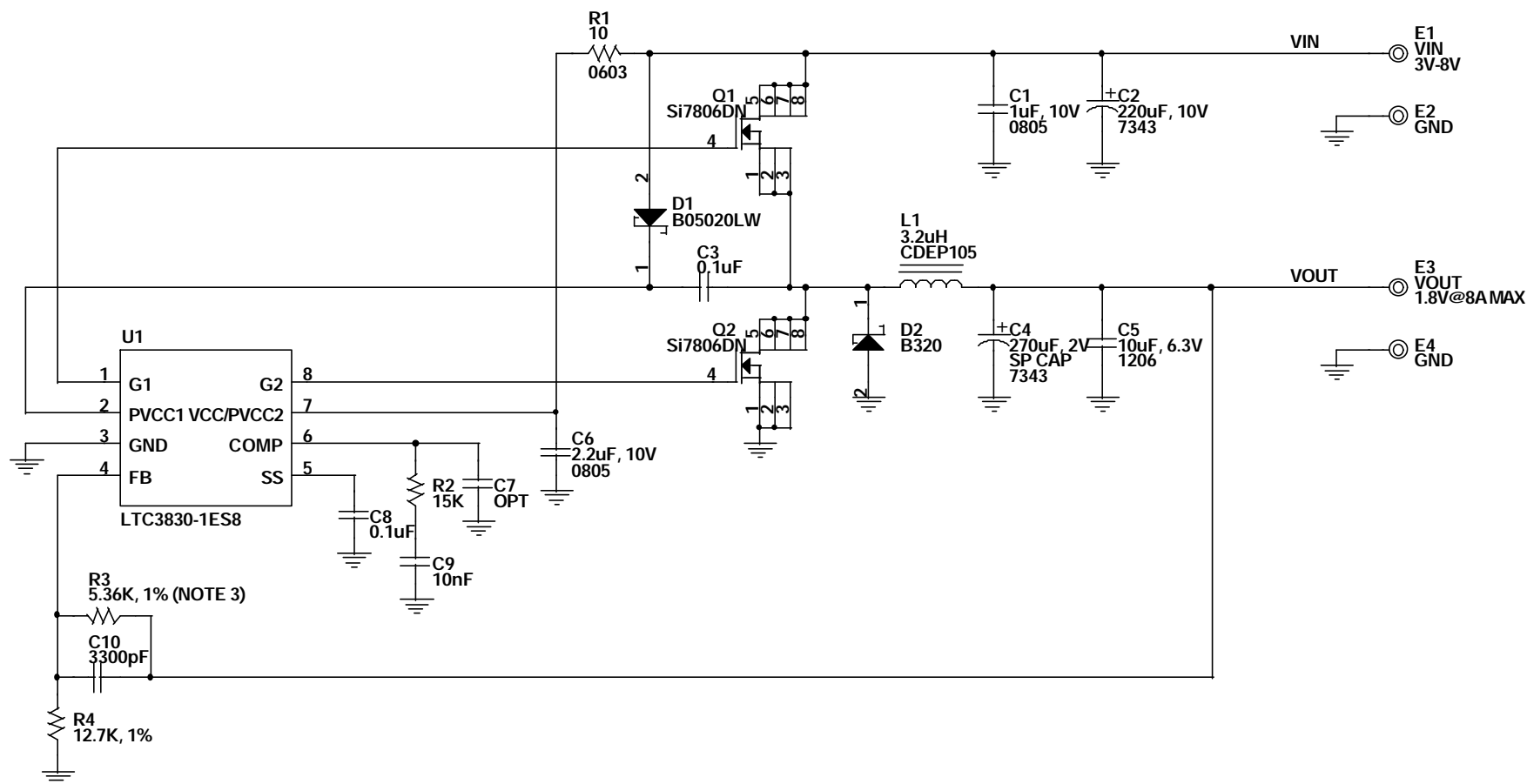


Figure 2. Efficiency



# NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE IN OHMS, 0402.
2. ALL CAPACITORS ARE IN MICROFARADS, 0402.
3. VALUES FOR R3 AS TABLE BELOW:

VOUT	1.5V	1.8V	2.0V
R3	2.43K 1%	5.36K 1%	7.32K 1%

CONTRACT NO.

APPROVALS

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CHECKED:

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LTC Confidential-For Customer Use Only

TITLE:

LOW VOLTAGE, 8A DC/DC CONVERTER

SIZE

A

DWG NO.

DC493A \* LTC3830-1ES8

REV

A

DATE: Monday, January 06, 2003

SHEET 1 OF 1