

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 646

STROBE CAPACITOR CHARGER, HIGH VOLTAGE SUPPLY

LT3420

DESCRIPTION

Demonstration circuit 646 is a DC-DC flyback converter using the LT[®]3420EMS to rapidly charge an output capacitor to 300V for photoflash applications. It demonstrates a simple application circuit operating in high efficiency and shows appropriate layout techniques for the LT3420EMS. The circuit uses small surface mount components and has very small board space compared to conventional solutions.

This demonstration circuit is particularly useful for applications such as digital cameras and high voltage supplies that require high efficiency and small size.

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

LT is a trademark of Linear Technology Corporation.

QUICK START PROCEDURE

Demonstration circuit 646 is easy to set up to evaluate the performance of the LT3420EMS. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

NOTE: When measuring the input or output voltage ripple, care must be taken to avoid a long ground lead on the oscilloscope probe. Measure the input or output voltage ripple by touching the probe tip directly across the V_{IN} or V_{OUT} and GND terminals. See Figure 2 for proper scope probe technique.

NOTE: For safe operation, always shield the circuit when power is on, and always discharge the high voltage output capacitor after power is off.

Warning: Operate by high voltage trained personnel only

1. With power off, connect input power source V_{batt} to the V_{batt} and GND terminals. Input voltage is limited to between 1.8V to 6V.

2. Set JP1 to DISCONNECT position for separate input power operation. Connect input power source V_{cc} to the V_{cc} and GND terminals, and limit the input voltage from 2.3V to 6V.
3. Connect load (a 220uF, 350V photoflash capacitor) between the +Strobe Cap and –Strobe Cap terminals.
4. Set JP2 to ON position to enable Charge operation.
5. Slowly turn on power source V_{batt} and V_{cc} . Check for the proper output voltages. $V_{OUT} = 300V$.

NOTE: If there is no output, temporarily disconnect the load and make sure that JP2 is set to ON position.
6. For single source operation, set the input source selector Jumper JP1 to CONNECT position. Remove the connection of power source V_{cc} . Limit the input voltage from 2.3V to 6V. V_{cc} will be powered from V_{batt} .
7. To shut down the circuit, connect the JP2 to OFF position. The output capacitor charging is disabled.

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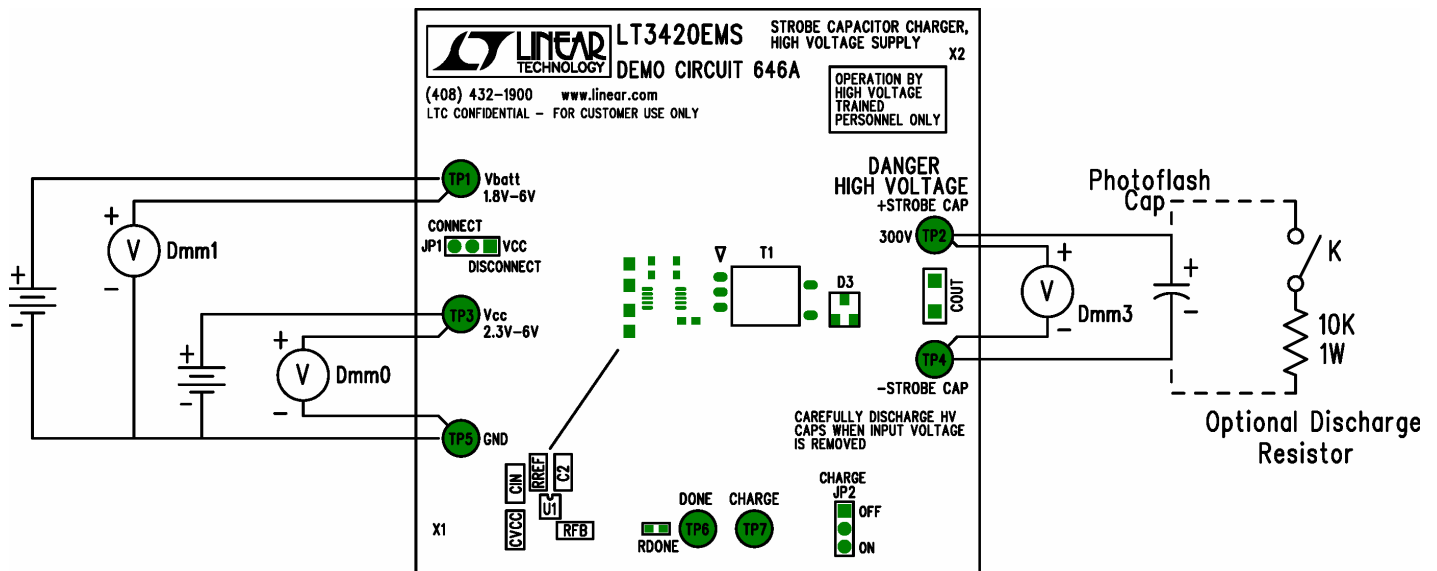


Figure 1. Proper Measurement Equipment Setup

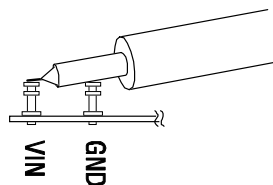


Figure 2. Measuring Input or Output Ripple

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