

## DESCRIPTION

Demonstration circuit 1121 is a bias and white LED power converter solution for small/medium-sized TFT-LCD panels. The circuit features the LTC3524 adjustable TFT bias supply with white LED driver. The LTC3524 can operate from a single Lithium-Ion/polymer battery or any voltage source between 2.5V and 6V, making it ideal solution for PDAs, GPS and handheld portable displays. A synchronous boost convert provides 5V with up to 25mA. Regulated, low ripple charge pump regulators provides 12.5V and -7.5V at 2mA. The output sequencing is internally controlled to insure proper initialization and rapid discharge of the LCD panel in shutdown. An-

other 1.5MHz boost converter powers two LED strings with 4 series elements each.

The LTC3524 datasheet gives a complete description of the part, operation and application information. The data-sheet must be read in conjunction with this quick start guide for Demo circuit 1121.

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

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### Performance Summary ( $T_A = 25^{\circ}\text{C}$ )

PARAMETER	CONDITION	VALUE
Minimum Input Voltage		2.5V
Maximum Input Voltage		4.6V
Output Voltage $V_{OUT}$		5V +/- 5%
Maximum Output Current at $V_{OUT}$		25mA
Current at LED1 or LED2	$R_{10}=100\text{k}\Omega$	20mA +/- 10%
Typical Switching Frequency		1.5MHz

## QUICK START PROCEDURE

Demonstration circuit 1121 is easy to set up to evaluate the performance of the LTC3524. 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 Vin or Vout and GND terminals. See Figure 2 for proper scope probe technique.

1. Place JP1, JP2 and JP3 on the ON position.
2. With power off, connect the input power supply to Vin and GND.

3. Turn on the power at the input. Observe all white LEDs light up. Warning! Do not look directly at lighting LED. This circuit produces light that can damage eyes.

4. Check for the proper output voltage.

**NOTE.** If there is no output, temporarily disconnect the load to make sure that the load is not set too high.

5. Once the proper output voltage is established, adjust the load within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

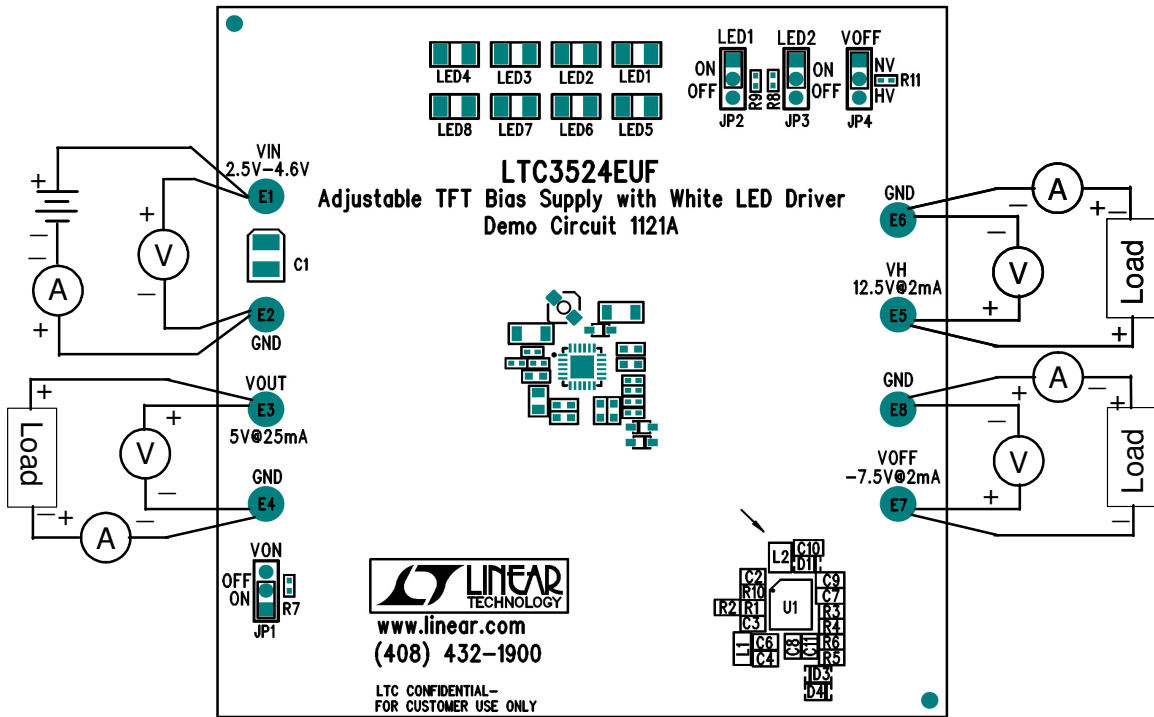


Figure 1. Proper Measurement Equipment Setup

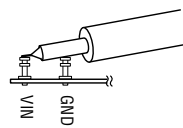
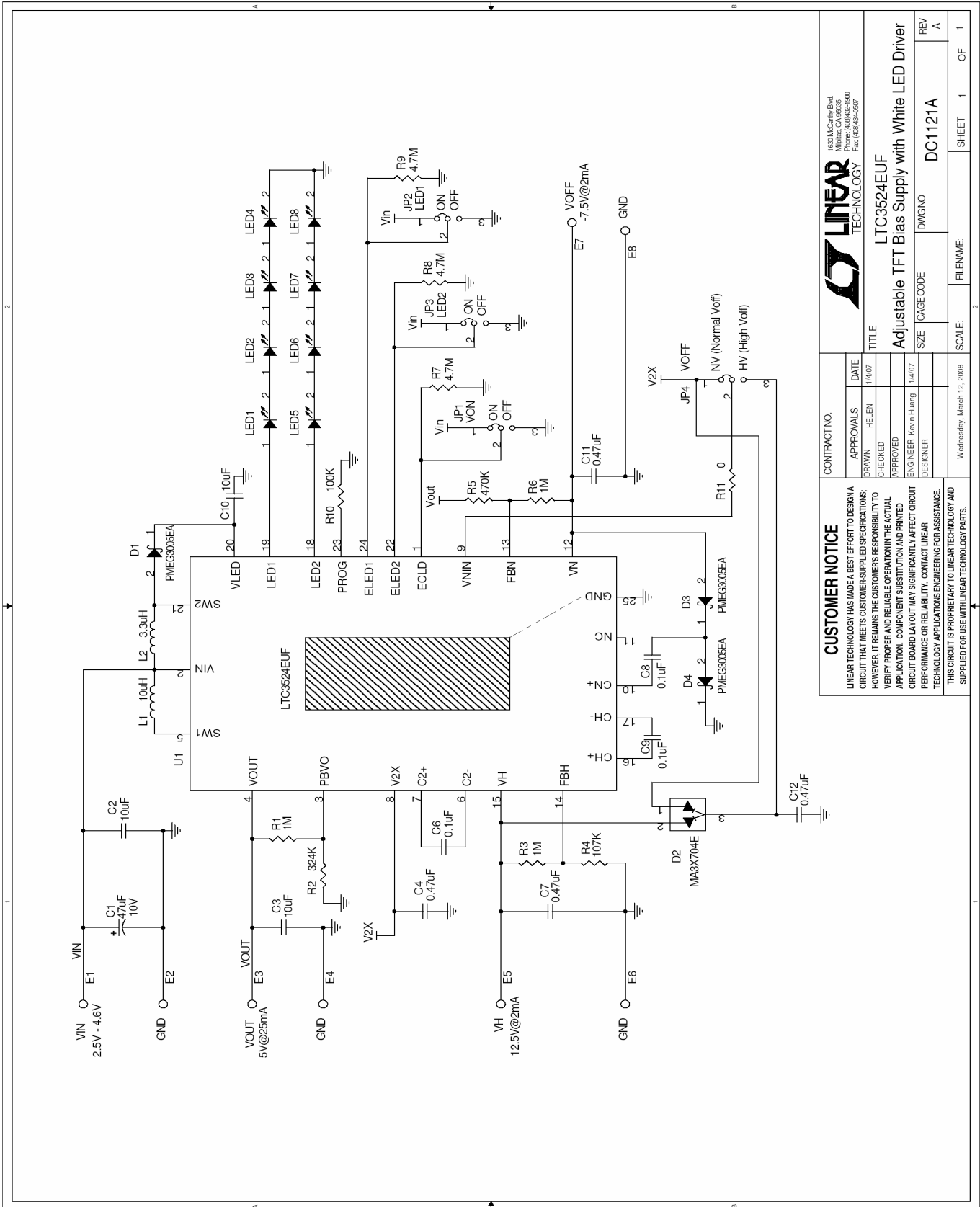


Figure 2. Measuring Input or Output Ripple



CONTRACT NO.		APPROVALS		DATE
		DRAWN	HELEN	1/4/07
		CHECKED		
		APPROVED		
		ENGINEER	Kevin Huang	1/4/07
		DESIGNER		

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LTC3524EUF		TITLE
Adjustable TFT Bias Supply with White LED Driver		SIZE (CAGE CODE)
DWGNO		DC1121A
REV	A	
SHEET	1	OF 1