

## DESCRIPTION

Demonstration circuit 925 features the LT3489EMS8E in a circuit specifically designed to drive large TFT/LCD displays. The demo circuit demonstrates small size and low component count in a Boost Circuit. It converts a 3.3V-6V input to 8V at 600mA, 23V at 10mA and -8V at 20mA. Since the maximum  $V_{in}$  of the LT3489 is 16V, this Demo circuit will work well at higher inputs. The only limitation is that the input has to be lower than the Boost converter output (8V) in order to stay in regulation.

This circuit is designed to demonstrate the capacitor programmable Soft-Start feature, advantages of the 2MHz constant switching frequency and the internal 2.5A, 40V switch. This circuit is intended for large TFT-LCD displays and other space-conscious applications such as Bias Supplies, GPS Receivers, DSL Modems and Local Power Supplies.

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

LT is a trademark of Linear Technology Corporation

**Table 1. Performance Summary ( $T_A = 25^\circ\text{C}$ )**

PARAMETERS FOR 15V BOOST CIRCUIT	CONDITION	VALUE
Minimum Input Voltage		3.3V
Output Voltage $V_{OUT}$	$V_{IN} = 3.3\text{V}$ , $I_{OUT} = 0\text{mA}$ to 600mA	8V $\pm 3\%$
Maximum Output Current for 8V Output	$V_{in} = 3.3\text{V}$ , 23V@10mA and -8V@20mA	600mA
Typical Output Ripple $V_{OUT}$ for 8V Output	$V_{IN} = 3.3\text{V}$ , $I_{OUT} = 600\text{mA}$	30mV <sub>P-P</sub>
Typical Efficiency All Outputs Loaded	$V_{IN} = 3.3\text{V}$ , $V_{out} = 8\text{V}@400\text{mA}$ , -8V@20mA, 23V@10mA	83%

## QUICK START PROCEDURE

Demonstration circuit 925 is easy to set up to evaluate the performance of the LT3489EMS8E. 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.

1. Place jumpers in the following positions:

**JP1**    On

2. With power off, connect the input power supply to  $V_{in}$  and GND.
3. Turn on the power at the input.
4. Check for the proper output voltages.

**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 voltages are established, adjust the loads within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 925

## TRIPLE OUTPUT TFT LCD BIAS SUPPLY

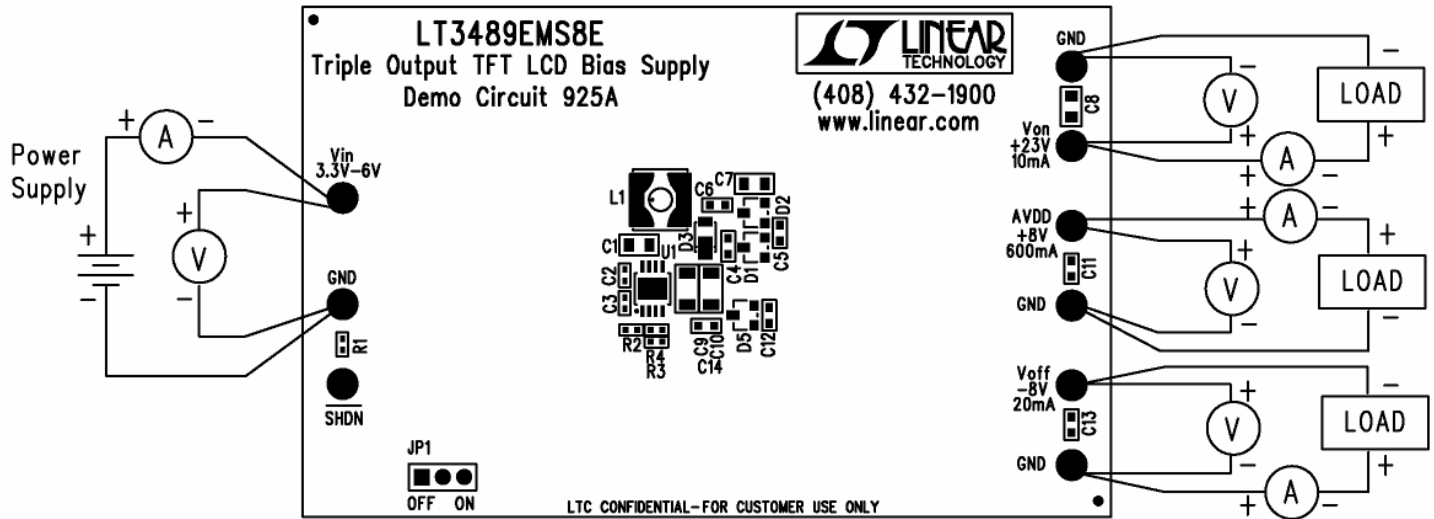


Figure 1. Proper Measurement Equipment Setup

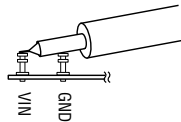
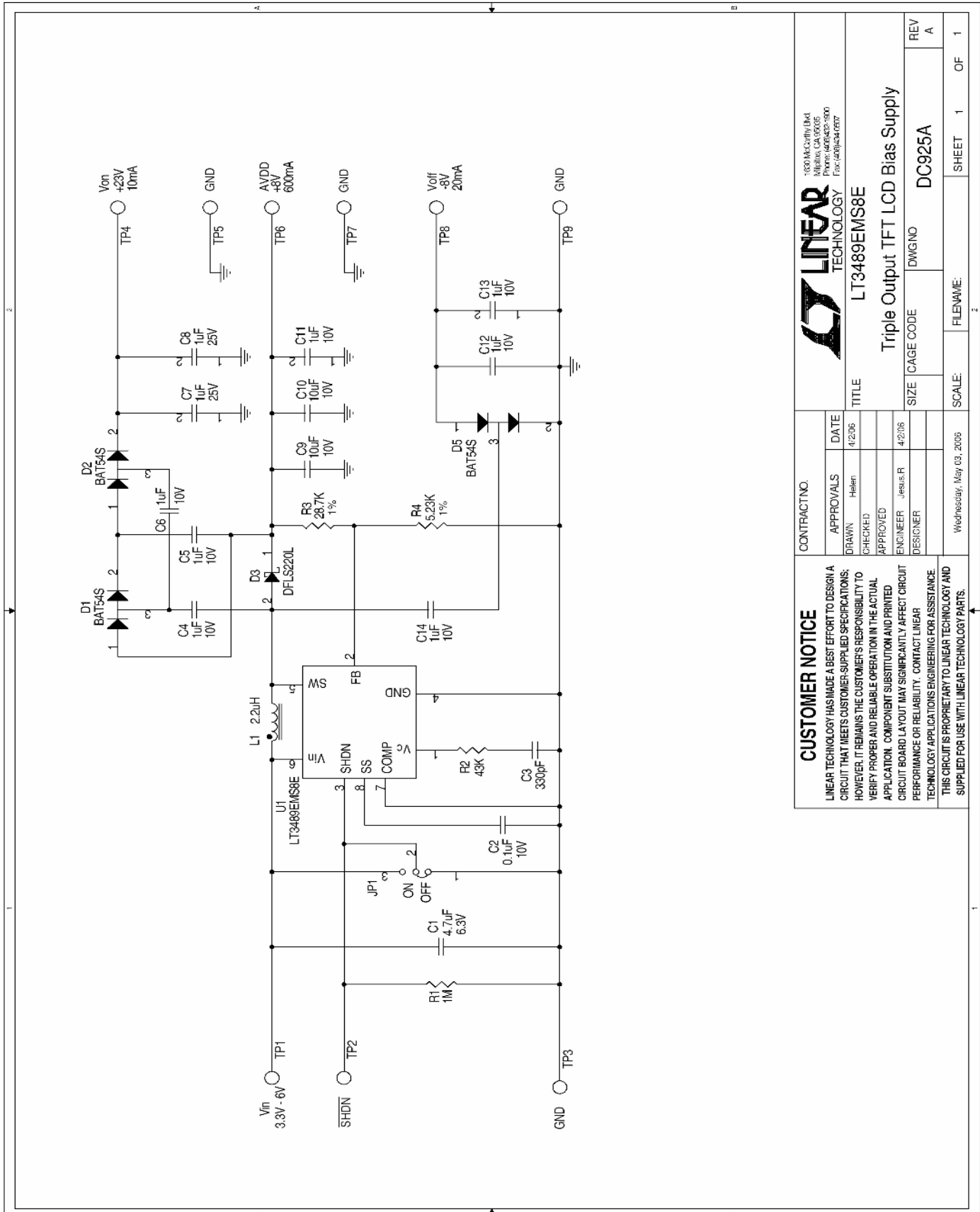


Figure 2. Measuring Input or Output Ripple

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 925

## TRIPLE OUTPUT TFT LCD BIAS SUPPLY



<b>CONTRACT NO.</b>		<b>APPROVALS</b>		<b>DATE</b>	
		DRAWN	HELEN	4/2/06	
		G-CHECKED			
		APPROVED			
		ENGINEER	JERIS R	4/2/06	
		DESIGNER			
<b>CUSTOMER NOTICE</b>		<p>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 TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.</p> <p>THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.</p>			
<b>LINEAR TECHNOLOGY</b>		<b>TITLE</b>		<b>REV</b>	
1000 McCarty Blvd Woburn, MA 01895 Phone: 781.932.3000 Fax: 781.932.4707		LT3489EMS8E		A	
		Triple Output TFT LCD Bias Supply		DC925A	
		SIZE	CAGE CODE	DWGNO	REV
					A
		SCALE:		FILENAME:	SHEET 1 OF 1
		Wednesday, May 03, 2006			