

LT3513EUHF

2MHz, High Current 5 Output Switching Regulator for TFT-LCD Panels

DESCRIPTION

Demonstration circuit 1028 is a highly integrated, 5 output regulator for TFT LCD panels featuring LT[®]3513, which comes in the 38-pin QFN package. The DC1028A has an input voltage range from 8 to 30V, and produce a 5V logic voltage. A lower voltage logic supply can be generated from this 5V by adding an external NPN driven by a linear regulator. The other three regulators provide the three voltages required by LCDs: a higher power boost regulator to generate AVDD, a lower power boost to generate VON and an inverting converter to provide VOFF. An internal high side PNP provides delayed turn on of the VON signal. The LT3513's wide input voltage range allows it to accept a variety of power sources, including automo-

tive batteries, distributed supplies and wall transformers.

All four switchers are synchronized to the internal 2MHz clock, allowing the use of low profile inductors and ceramic capacitors. They all have soft start to limit inrush current.

The LT3513 datasheet gives a complete description of the part, operation and application information. The datasheet must be read in conjunction with this quick start guide for demo circuit 1028A.

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

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Performance Summary (T_A = 25°C)

PARAMETER FOR BUCK REGULATOR	CONDITION	VALUE
Minimum Input Voltage		8V
Maximum Input Voltage		30V
Output Voltage V _{LOGIC}	V _{IN} =8V to 30V, I _{OUT} =0 to 500mA	5V +/- 4%
Maximum Output Current at V _{LOGIC}	V _{IN} =8V to 30V	500mA
Typical Switching frequency		2MHz

QUICK START PROCEDURE

Demonstration circuit 1028 is easy to set up to evaluate the performance of the LT3513. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. With Power off, connect the input power supply to Vin and GND. Insert jumper JP1 into the ON position.
2. Set the input between 8V to 30V. Turn on the power at the input.
3. Check for the proper output voltage. If there is no output, temporarily disconnect the load to make sure that the load is not set too high.
4. Once the proper output voltages are established, adjust the load within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

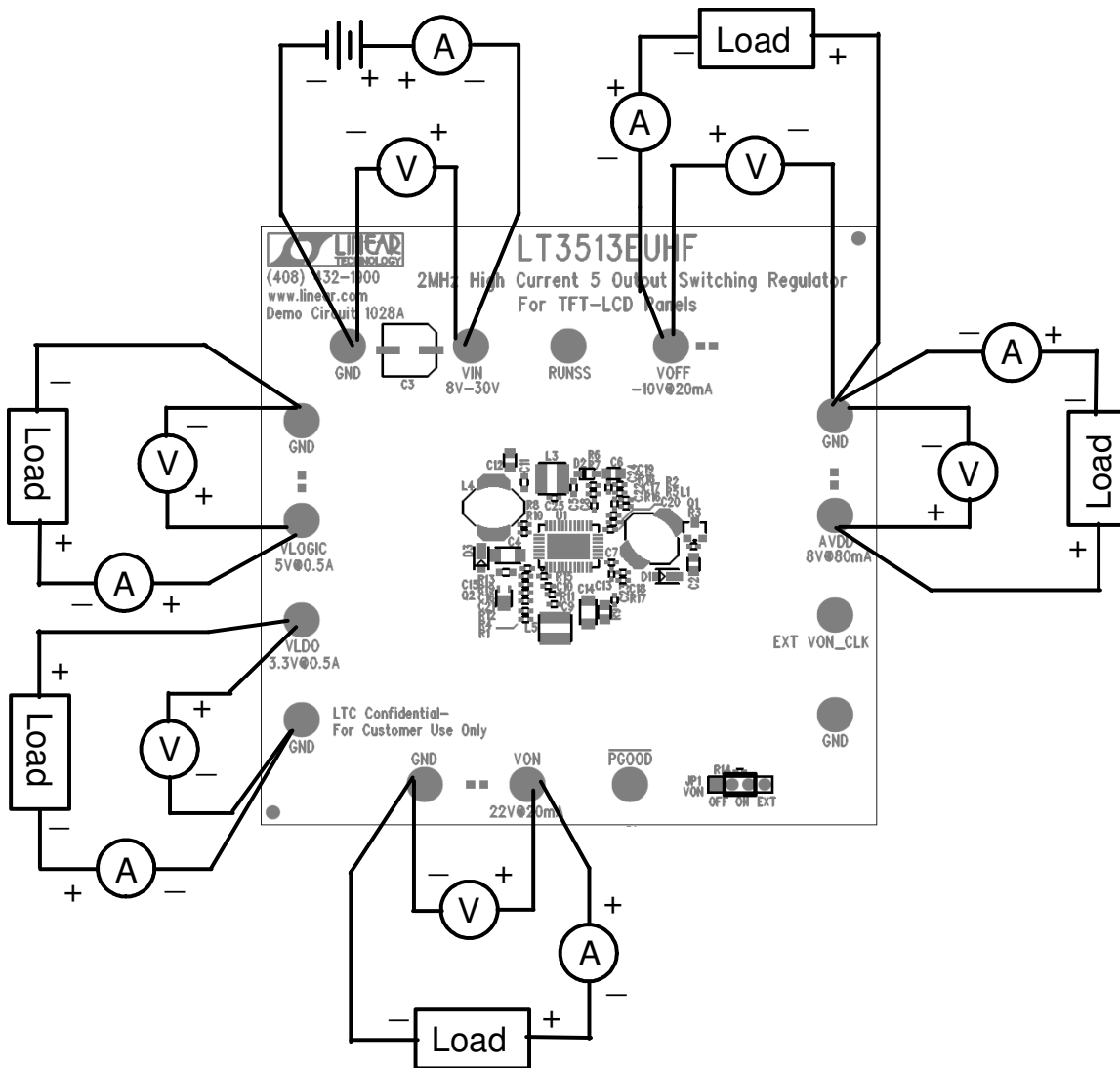


Figure 1. Proper Measurement Equipment Setup

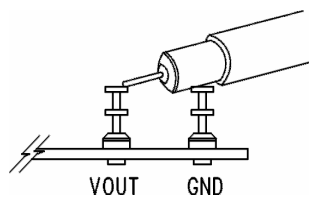
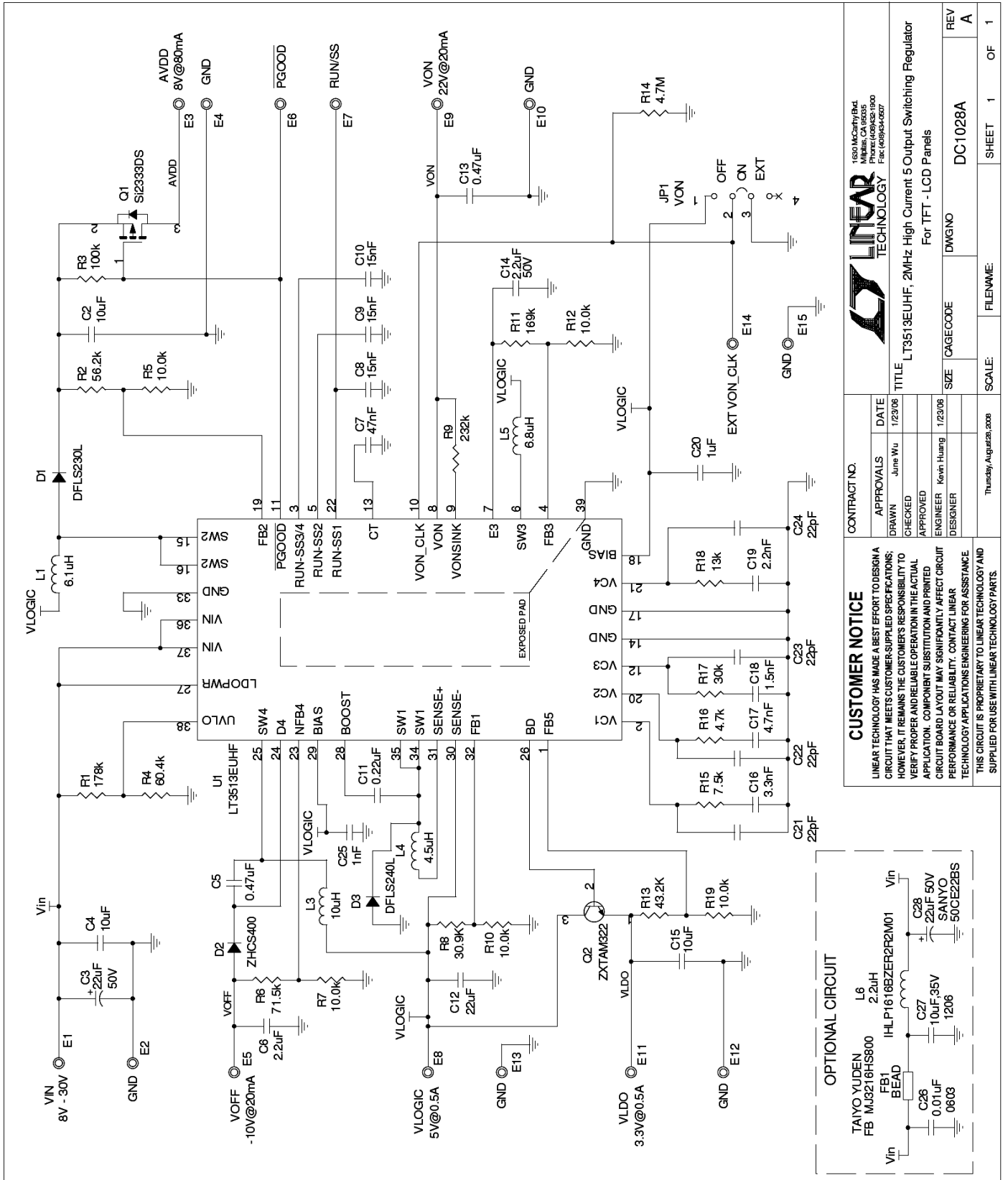


Figure 2. Measuring Input or Output Ripple



<p>CUSTOMER NOTICE 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>CONTRACT NO. APPROVALS DRAWN June Wu 1/23/06 CHECKED APPROVED ENGINEER Kevin Huang 1/23/06 DESIGNER</p>		<p>DATE 1/23/06</p>	
<p>OPTIONAL CIRCUIT TAIYO YUDEN L6 2.2uH FB MJ3216HS800 BEAD IHL P1616ZER2R2M01 C26 0.01uF C27 10uF-35V C28 1206 SANYO 50CE22B5</p>		<p>TITLE LT3513EUHF, 2MHz High Current 5 Output Switching Regulator For TFT - LCD Panels</p>		<p>REV A</p>	
<p>THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.</p>		<p>SCALE: Thursday, August 28, 2008</p>		<p>FILENAME:</p>	
<p>SIZE CAGECODE</p>		<p>DWGNO DC1028A</p>		<p>SHEET 1 OF 1</p>	