

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

## DESCRIPTION

Demonstration circuit 1028 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 generated 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 data-sheet 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 ( $T_A = 25^{\circ}\text{C}$ )

PARAMETER FOR BUCK REGULATOR	CONDITION	VALUE
Minimum Input Voltage		8V
Maximum Input Voltage		30V
Output Voltage $V_{\text{LOGIC}}$	$V_{\text{IN}}=8\text{V to }30\text{V}$ , $I_{\text{OUT}}=0\text{ to }500\text{mA}$	$5\text{V +/- 4\%}$
Maximum Output Current at $V_{\text{LOGIC}}$	$V_{\text{IN}}=8\text{V to }30\text{V}$	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.

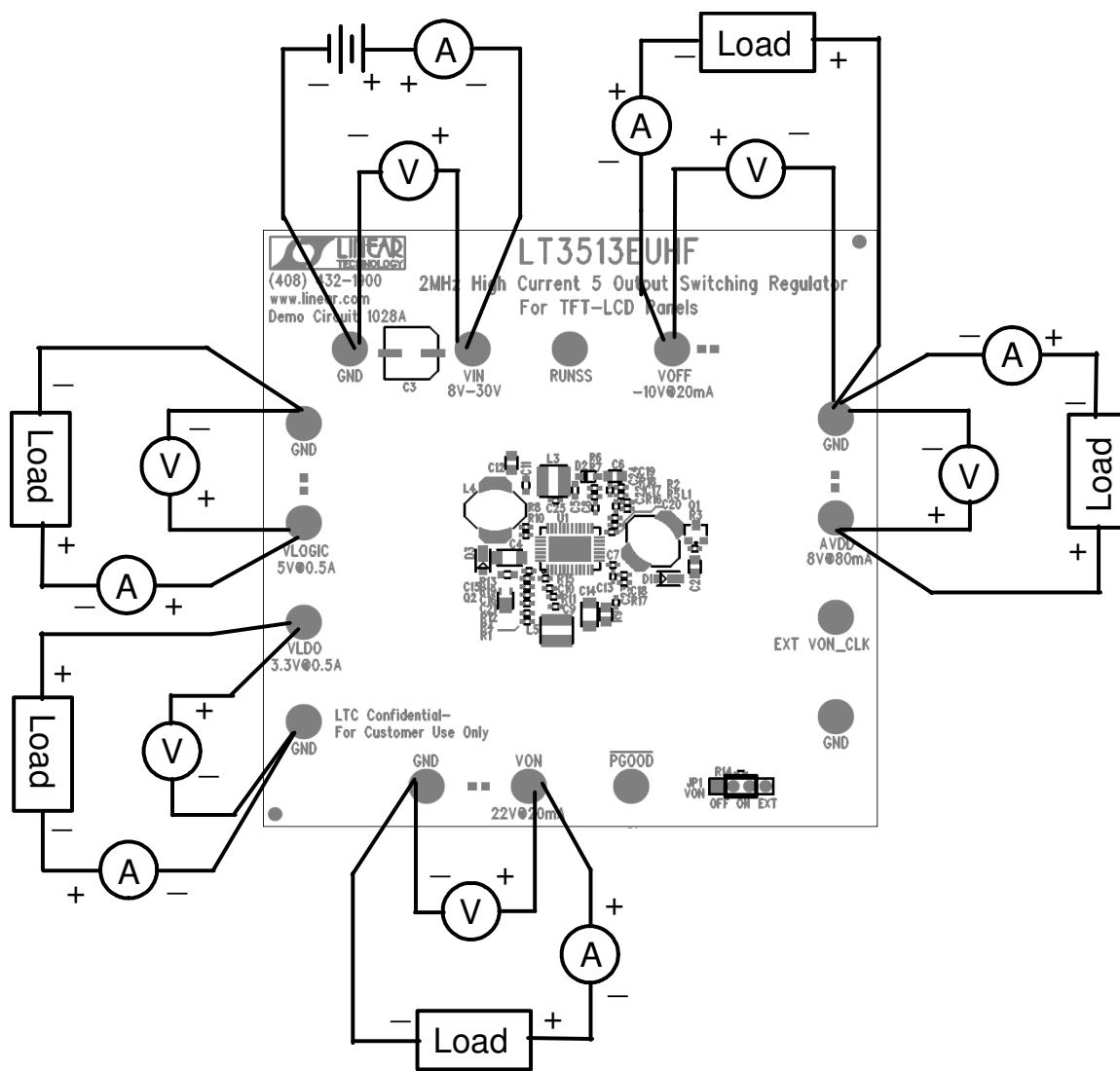


Figure 1. Proper Measurement Equipment Setup

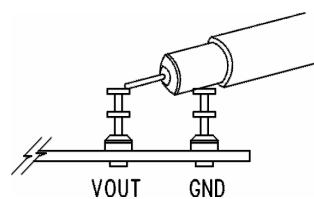


Figure 2. Measuring Input or Output Ripple

