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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 730

7 GHZ RF DETECTOR WITH OUTPUT COMPARATOR

LTC5536ES6

DESCRIPTION

Demonstration circuit 730 is used to evaluate the LTC®5536ES6, RF power detector with integrated output comparator. The LTC5536ES6 has provisions for comparator reference settings. The RF input frequency range is 600 MHz to 7000 MHz. Maximum input power is 12 dBm. The output voltage at Vout is either logic HIGH or logic LOW. Logic LOW can be 800mV while sinking 20mA. Logic HIGH is within 0.4V of Vcc when sourcing 20mA. Vm (pin E3) should be set for desired reference voltage (about 125mV or higher) for initial tests and measurements.

When the RF signal is applied, and depending on reference (Vm) settings, the output voltage will stay LOW, or will go to HIGH level, typically Vcc-0.4V.

The optional R1 and R3 termination resistors, C3 output shunt capacitor and R2 pull-up resistor are not placed on the PCB. C5 shunt capacitor (0.22 uF) at Vm pin is used to reduce noise and voltage spikes from power supply.

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

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QUICK START PROCEDURE

Demonstration circuit 730 is easily set up for evaluating the LTC5536ES6 RF power detector performance. Follow the procedures outlined below and connections on the attached diagram for proper operation.

1. Connect the power supply ground to E4 or E6. Connect the DC power supply (2.7V to 5.5V) to E1. The typical current consumption is about 2.1mA. Connect J1 to the RF signal generator via coaxial cable with an SMA connector. It is common practice to include a 2dB or 3dB pad to minimize reflections back into the signal generator.
2. Apply an RF input signal and measure the Vout DC voltage at E2.

3. Set Vm (pin E3) to desired reference voltage, 125mV or higher. Connect LEN (Latch Enable) pin to ground. Increase RF input level to the point when output voltage will go to HIGH level, typically Vcc-0.4V.

Optional measurements can be done by increasing Vm reference level. During the measurements, when Vout is HIGH, connect LEN to Vcc. Remove the RF input signal and the Vout will continue to stay HIGH.

NOTE: For timing measurements at Vm pin C5 capacitor (0.22 uF) should be removed.

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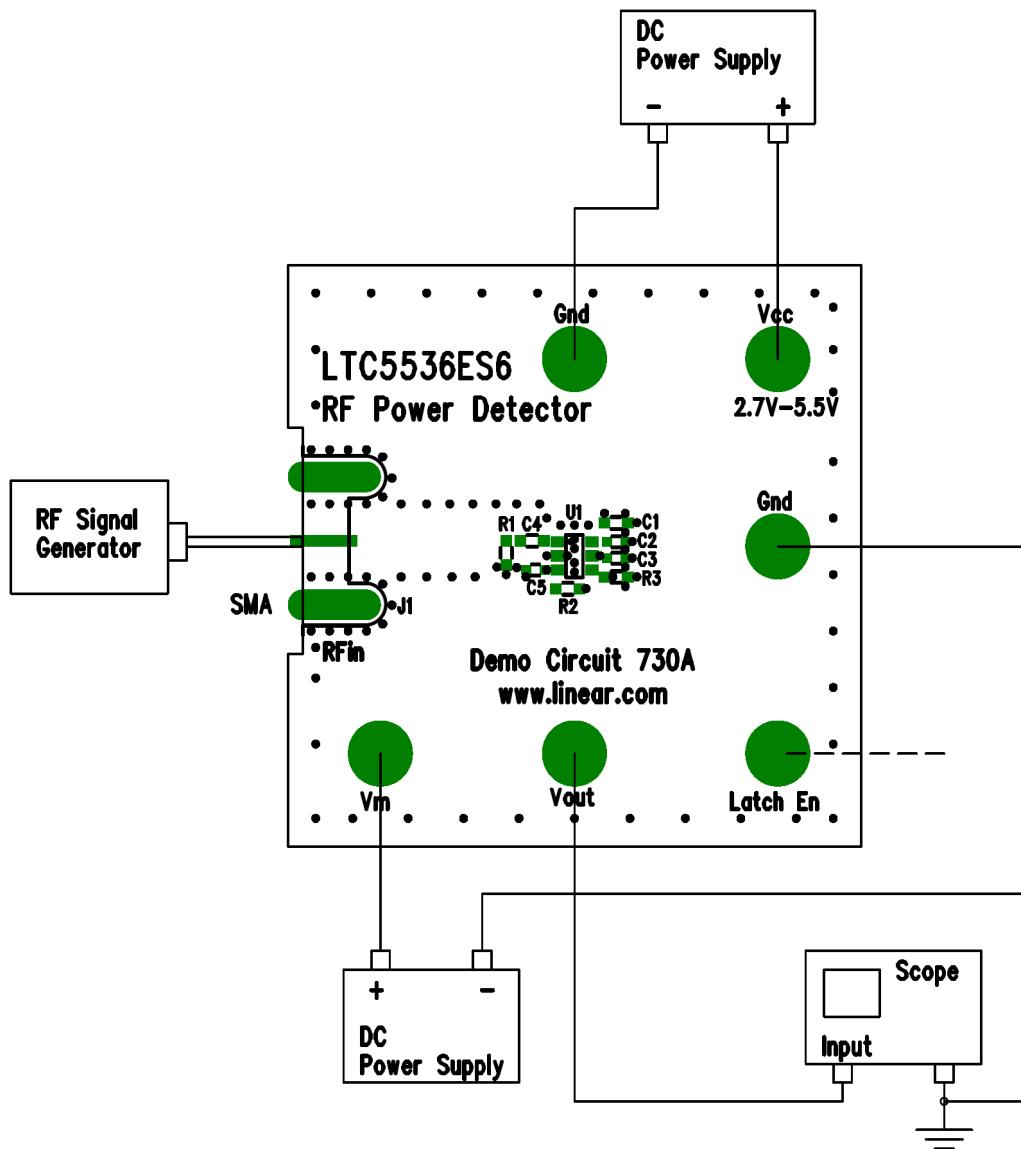
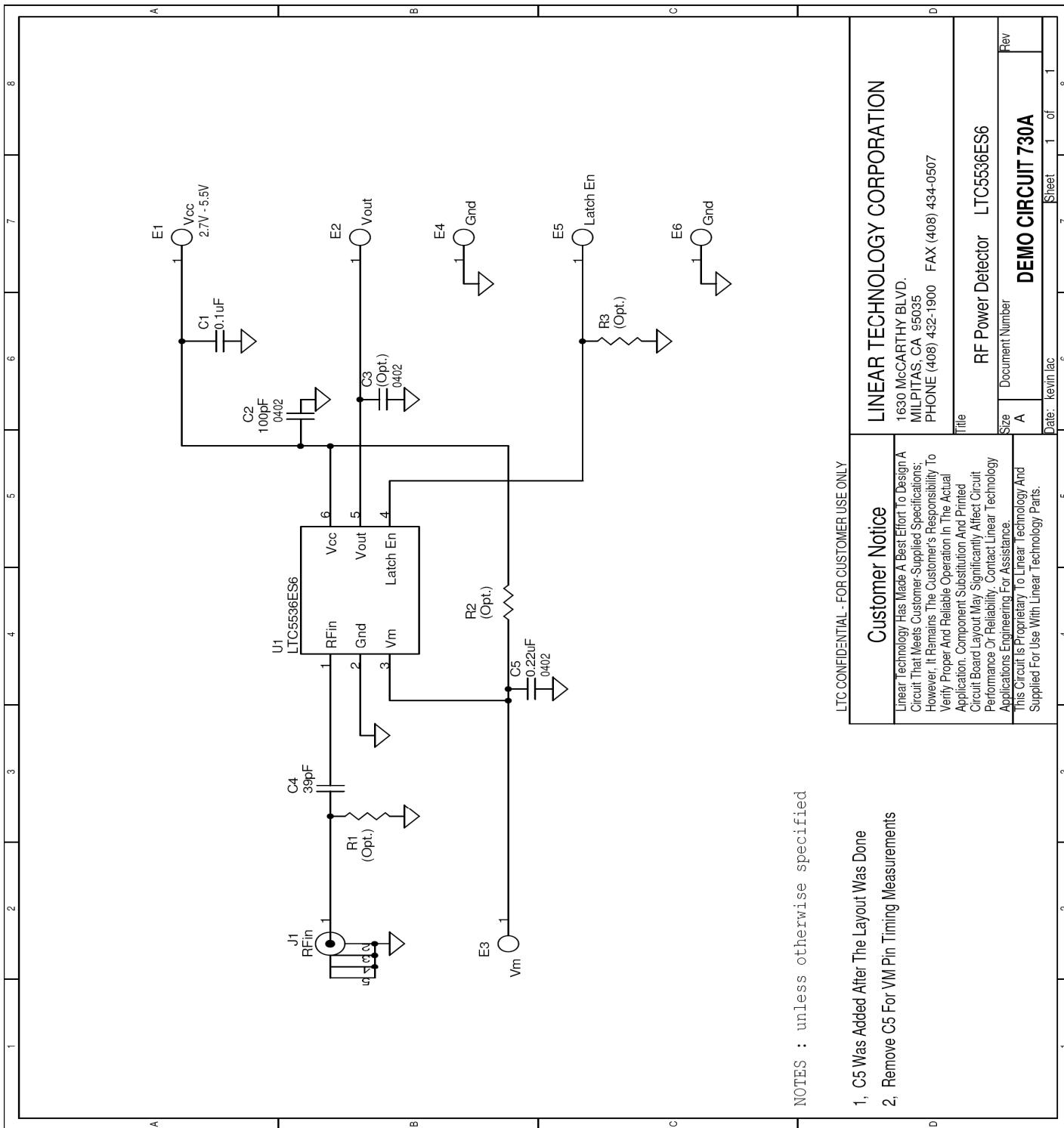


Figure 1. LTC5536 Measurements Setup

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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.

This Circuit Is Proprietary To Linear Technology And Supplied For Use With Linear Technology Parts.

1630 McCARTHY BLVD.
MILPITAS, CA 95035
PHONE (408) 432-1900 FAX (408) 434-0507

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