



February 14, 2003

## DC539B DEMO BOARD QUICK START GUIDE

### INTRODUCTION

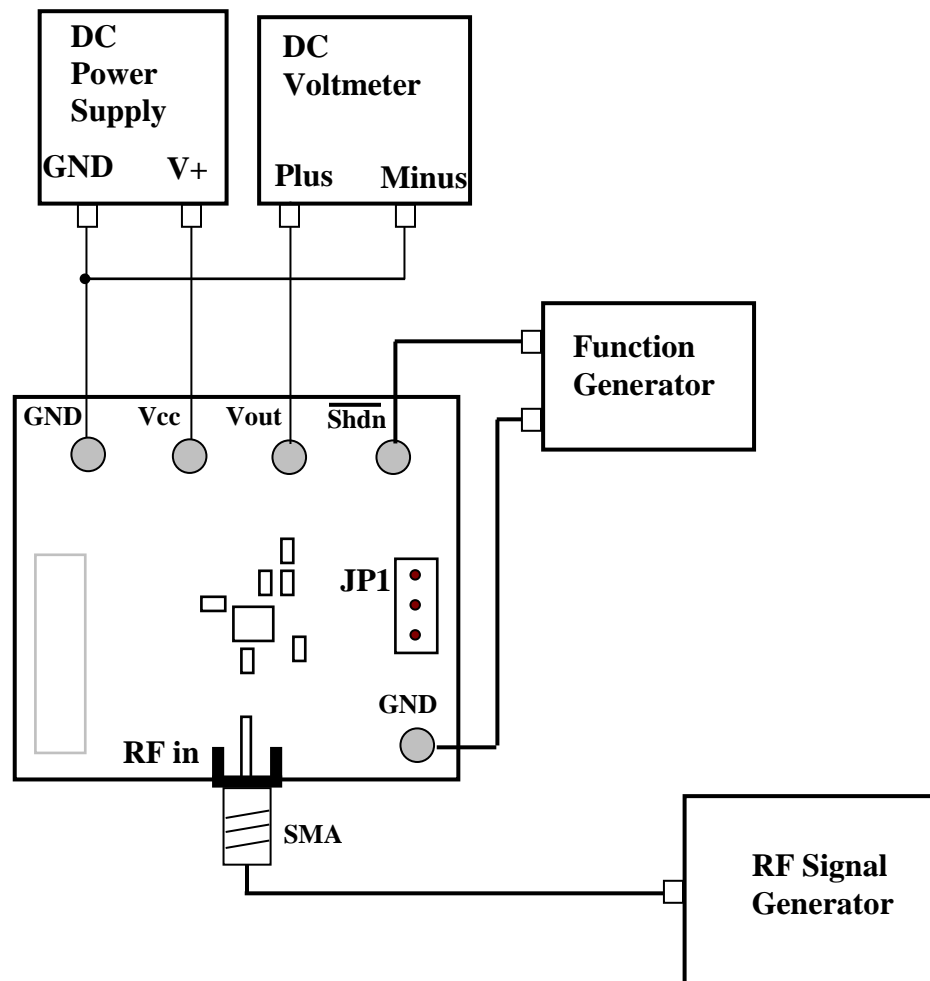
The DC539B demo board is used to evaluate the LTC5509, RF power detector with integrated output buffer and voltage reference. The LTC5509 converts an RF input signal at pin 6 (RF) to a DC voltage at pin 3 (Vout). The RF input frequency range is 300 MHz to 3000 MHz. Maximum input power is 8 dBm. The output voltage at Vout will start at an initial DC value of typically 250mV. When the RF signal is applied the output voltage will increase.

The optional 68 $\Omega$  (R1) termination resistor is not placed on PCB. The optional C5 shunt capacitor is not installed. R2 and C5 form a low pass filter at Vout. Capacitor C1 is 33 pF for high frequency tests and evaluations at 1000 to 3000 MHz. For frequencies at 300 to 1000 MHz a 51 pF value is suggested.

A logic high at pin 1 enables the part. It is controlled by a jumper JP1.

The DC539B demo board is easily set up for evaluating the LTC5509 RF power detector performance. Follow the procedures outlined below and connections on the attached diagram for proper operation.

1. Connect the input DC power supply (2.7V to 6V) to Vcc pin (E1). Connect the power supply ground to ground pin (E3 or E5). Connect RF input (SMA connector J1) to the RF signal generator output via coaxial cable. It is common practice to include a 3dB pad at the RF input of the demo board to minimize reflections back into the signal generator.
2. The part can be shutdown via jumper switch JP1. When JP1 is connected to ground the part will be in shutdown. When JP1 is connected to VCC via the 22k resistor the part will be enabled. The shutdown terminal E4 can also be controlled externally by a pulse from function generator, to characterize enable times from the shutdown state. When external shutdown signal is used, set JP1 to the enable position. External 50 $\Omega$  termination from E4 to ground is recommended for timing measurements when signal source with 50 $\Omega$  output impedance is used. Connect a pulse generator to E4 via a coaxial cable.
3. With JP1 set to the enable position, apply an RF input signal (-35 to +9dBm) and measure the Vout DC voltage at E2.



**DC539B Demo Board Connection Diagram**

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