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6GHz RMS Power Detector with Digital Output Provides Fast, Accurate RF Power Measurements in a Compact Solution

MILPITAS, CA – August 16, 2010 – Linear Technology introduces the [LTC5587](http://www.linear.com/5587), an industry first 40dB dynamic range 6GHz RMS detector integrated with a high sampling rate 12-bit serial A/D converter. The digital output RMS RF detector provides +/-1dB measurement accuracy of high crest-factor signals, independent of the modulation used. The detector is capable of operating over a wide frequency range from 10MHz to 6GHz. The integrated 12-bit ADC captures and digitizes the detector measurement at a rate of up to 500k samples/second and delivers the data via a bit stream over a serial SPI port. The RF detector operates with single-ended input and requires no external balun transformer. Its small 3mm x 3mm DFN package provides a highly compact solution.

The LTC5587's +/- 1dB accuracy over a 40dB dynamic range and over the full temperature range from -40°C to 85°C offers best-in-class performance. Combined with a 12-bit A/D converter, the device provides 0.014dB per bit measurement resolution. Its low power consumption is ideal for applications in cellular basestations, picocells, and femtocells supporting all standards including LTE, W-CDMA, TD-SCDMA, CDMA/2k, GSM/EDGE and WiMAX. Other applications include MIMO radios, repeaters, point-to-point microwave links, military radios with complex modulation, remote power measurements, and portable test and measurement instruments. The detector is particularly useful in FPGA-based systems where no A/D converters are available.

The LTC5587 is powered from a single 3.3V supply. During sampling mode, its total operating current is 3mA, consuming only 10mW of power. Its consumption is further reduced by one-half when the ADC is idled, making the LTC5587 suitable for battery powered or portable remote RF measurement systems. The device also has shutdown capability, drawing less than 10uA supply current when disabled. The LTC5587 is offered in a small 3mm x 3mm 12-pin DFN package, providing a compact solution footprint. The LTC5587 is available from stock, priced starting at \$5.17 each in 1,000 piece quantities. For more information, visit <http://www.linear.com/5587>.


Photo Caption: 6GHz RMS Power Detector with Digital Output

Summary of Features: LTC5587

- Operating Frequency Range 10MHz to 6GHz
- Log-Linear Dynamic Range (Modulated Signals)
 - at 880MHz 40dB
 - at 2.14GHz 37dB
 - at 3.5GHz 35dB
- Accurate RF Measurement Range -34dBm to 6dBm
- Accuracy Over Temperature (-40°C to +85°C) ± 1 dB
- Integrated 12-Bit ADC 500ksps sampling rate
- SPI/MICROWIRE Serial I/O
- Very Low Power Consumption 10mW (3.3V, 3mA)
- Single-Ended RF Input No External Transformer
- Fast Acquisition Time
 - Rise 2 μ s
 - Fall 8 μ s
- Small Package 3mm x 3mm DFN

About Linear Technology

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, uModule[®] products, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems.

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