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10MHz to 6GHz Low Power RMS Detector with 40dB Dynamic Range Provides Accurate RF Power Measurement

MILPITAS, CA – October 1, 2008 – Linear Technology introduces the LT5581, a broadband 6GHz RMS detector, featuring 40dB dynamic range and a low operating supply current of 1.4mA. The device is well suited for a wide range of power monitor and control applications in portable and battery- powered wireless systems, cellular basestations, picocells and femtocells, fiber optic transmitters and instrumentation. The LT5581 outputs a DC voltage that is linearly proportional to the log input power, providing an easy-to-use, mV/dB scaling with exceptional linearity of better than ±1dB across 40dB range. The LT5581's RMS measurement capability provides accurate RF power readings to within ±0.2dB regardless of waveforms that have high crest-factor modulated content, multi-carrier or multitone. Moreover, the LT5581 offers exceptional accuracy of ±1dB over its operating temperature range of -40°C to 85°C.

Operating over a wide supply voltage range of 2.7V to 5.25V, the LT5581's low power consumption makes it ideal for battery-powered communication and multimedia devices. Yet, it has the accuracy performance to meet the performance required by basestations, picocells and femtocells, cable infrastructure and optical communication systems. Additionally, the LT5581's wide frequency range extends to applications including WiMAX and wireless systems in the 5GHz ISM bands. The LT5581's single-ended RF input does not require an external RF transformer, thus simplifying the application design while reducing costs. The LT5581 has a fast response time of 1us rise time to a full power swing, suitable for time-division duplexing systems.

The LT5581 also incorporates a shutdown feature. When the LT5581's Enable input pin is pulled low, the chip draws a typical shutdown current of 0.2uA, and a maximum of 6uA. The

device is offered in a tiny 8-lead, 3mm x 2mm DFN surface mount package. Pricing starts at $2.29 each in 1,000-piece quantities. The LT5581 is available immediately from stock.

Photo Caption: 6 GHz Low Power RMS Detector

Summary of Features: LT5581

- Operating Frequency Range — 10MHz to 6GHz
- Low Power Consumption — 1.4mA @ 3.3V
- Accurate over Temperature (-40°C to +85°C) — ±1dB
- Log-Linear Dynamic Range (Modulated Signals)
  - @ 880MHz — 40dB
  - @ 2.14GHz — 37dB
  - @ 3.5GHz — 35dB
  - @ 5.8GHz — 36dB
- Fast Response Time
  - Rise Time — 1us
  - Fall Time — 8us
- Single-Ended RF Input: — No External Transformer
- Small Package — 3mm x 2mm 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. For more information, visit www.linear.com.

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