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Broadband, Super-Low Distortion Digitally Programmable IF VGA Improves Signal Integrity Performance

MILPITAS, CA – December 16, 2008 – Linear Technology introduces the LT5554, a broadband digitally programmable gain IF amplifier, featuring a 48dBm OIP3 (output 3rd order intercept) at 200MHz. Additionally, the amplifier has very low noise, enabling very high dynamic range performance in wireless communication receivers and signal processing systems. Its gain is digitally controlled from 2dB to 18dB by a 7-bit parallel word, producing the finest 0.125dB steps gain control granularity of any amplifier available. The amplifier settles in less than 5ns from a gain change, producing low glitch noise and supporting very fast and accurate AGC (Automatic Gain Control) performance. Its output stage has robust capability to drive into 50Ω loads with low distortion and noise. Thus it enables high spurious-free dynamic range performance in ADC systems.

Unique to the LT5554 is its OIP3 performance, which remains consistently high over a wide varying signal level range. In contrast, the closest competing solution is limited to only a narrow ± 1 dB signal level range. With today's new generation of wireless technology such as LTE (Long-Term Evolution) and WiMAX, which use modulated signals with 12dB crest-factor, the need to maintain linearity performance over wide operating levels is paramount for producing consistent basestation performance. Additionally the LT5554 has excellent gain accuracy of ± 0.1 dB from -40°C to 85°C , which is a five time improvement over the closest competing offering, which has accuracy of ± 0.5 dB over similar temperature range. Moreover, the LT5554 offers the finest 0.125dB gain control step granularity of any IF amplifier on the market.

The LT5554 is a full differential input and output amplifier. Its differential outputs can drive directly into 50Ω loads. The amplifier may be overdriven and can recover very quickly in less than 5ns. Additionally, the amplifier has excellent reverse isolation. These characteristics make the LT5554 an ideal amplifier to drive high speed, high resolution A/D converters, where the input sampling noise can couple back to the RF and IF circuits.

The LT5554 is powered from a single 5V supply. It draws a nominal supply current of 200mA. The chip can be shutdown via an ENABLE pin. When in shutdown the device draws a typical supply current of 4mA, and a maximum of 5.1mA. The device comes in a 32-lead, 5mm x 5mm plastic QFN surface mount package. Prices for the LT5554 start at \$4.40 each in 1,000-piece quantities. The LT5554 is available immediately from stock. For more information, visit www.linear.com.


Photo Caption: Digitally Programmable IF Amplifier Has Super-Low Distortion & Fine Gain Control

Summary of Features: LT5554

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|---|--------------------------------|
| • OIP3 (Third-Order Intercept) | 48dBm @200MHz, 2Vp-p into 50Ω |
| • IMD3 (Third-Order Intermodulation Distortion) | -88dBc @200MHz, 2Vp-p into 50Ω |
| • Output P1dB (1dB Compression) | 20dBm @70MHz |
| • Gain Control Range | 1.725dB to 17.6dB |
| • Minimum Gain Step Resolution | 0.125dB |
| • Gain Accuracy (-40°C to 85°C) | ± 0.1dB Typical |
| • Noise Figure | 10dB at Maximum Gain |

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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