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## **800MHz VGA with 31dB Analog Control Range Has 35dBm OIP3 from 3.3V Supply**

MILPITAS, CA – July 14, 2009 – Linear Technology introduces the LTC6412, an 800MHz analog-controlled variable gain amplifier (VGA) with outstanding noise and distortion performance, gain conformance, and gain flatness. The device's gain control is highly linear. With a guaranteed maximum conformance error of only 0.45dB, the LTC6412 offers a significant improvement over competing solutions.

The LTC6412 is optimized for operation from 1MHz to 500MHz and provides continuous gain adjustment from -14dB to 17dB. Third-order output intercept point (OIP3) is 35dBm at 240MHz across all gain settings. The LTC6412 also achieves a constant output noise level over the entire gain range, with a noise figure (NF) of just 10dB at the maximum gain setting. This results in a constant SFDR characteristic, remaining at greater than 120dB at 240MHz over the full gain control range. The LTC6412 is therefore ideal for use in automatic gain control (AGC) in receiver IF chains.

The device's gain is controlled with either a positive or negative slope control voltage. Using negative gain slope mode, the gain control slope is approximately -32dB/V at 140MHz, with a control range of 0.1V to 1.1V.

The LTC6412 consumes just 110mA on a 3.3V supply, enabling a low power, compact solution when paired with other low voltage mixers such as the LT5557, ADC drivers such as the LTC6400 and LTC6416, and ADCs such as the LTC2208. It also includes a shutdown pin, reducing the current consumption to below 1mA for power-down or sleep modes.

The LTC6412 is available in a 4mm x 4mm 24-pin QFN package. Starting at \$4.69 in 1,000 piece quantities, the LTC6412 is offered in commercial-grade and industrial-grade versions. For more information, visit [www.linear.com](http://www.linear.com).


**Photo Caption:** 800MHz VGA Features Linear Gain Control over Entire -40°C to 85°C Temperature Range

## Summary of Features: LTC6412

- 800MHz –3dB Small-Signal Bandwidth
- Continuously Adjustable Gain Control
- –14dB to +17dB Linear-in-dB Gain Range
- 35dBm OIP3 at 240MHz Across All Gain Settings
- 10dB Noise Figure at Maximum Gain
- 2.7nV/√Hz Input Referred Noise
- Differential Inputs and Outputs
- 50Ohm Input Impedance Across all Gains
- Single Supply Operation from 3V to 3.6V
- 110mA Supply Current
- 4mm × 4mm × 0.75mm 24-Pin QFN Package

## 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<sup>®</sup> 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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