Op Amp Drives SAR ADCs to True Zero on a Single 5V Supply

MILPITAS, CA – September 8, 2011 – Linear Technology introduces the LTC6360, a very low noise, high speed amplifier that can drive to 0V while maintaining high linearity on a single +5V supply. The LTC6360's integrated ultralow noise charge pump provides an internal negative rail, eliminating the need for a negative supply. Compared to typical rail-to-rail output single-supply amplifiers that can only swing to within a few hundred millivolts of ground, the LTC6360 provides improved linearity and dynamic range in applications that benefit from a true zero output swing.

The LTC6360 achieves outstanding precision and is ideal for driving 16- and 18-bit SAR ADCs (successive approximation register analog-to-digital converters). Input offset voltage is less than 250µV max, and noise is only 2.3nV/√Hz, providing excellent dynamic range. The device settles to 16-bits in 150ns, and achieves a closed loop -3dB bandwidth of 250MHz. Harmonic distortion (HD2/HD3) is -103dBc/-109dBc at f_{IN} = 40kHz. The LTC6360 is unity gain stable, allowing it to be used as a buffer to achieve the lowest output noise. The output is designed to drive a series 10Ω resistor and 330pF capacitor filter network, although larger load capacitances can be driven.

The LTC6360 is available in MSOP and 3mm x 3mm DFN 8-pin packages, and is fully specified over the commercial (0°C to 70°C), industrial (-40°C to 85°C), and extended (-40°C to 125°C) temperature ranges. Prices start at $2.19 each in 1,000 piece quantities. For more information, visit www.linear.com/product/LTC6360

Photo Caption: Integrated Low Noise Charge Pump Maximizes 16- & 18-Bit SAR ADC Dynamic Range

Summary of Features: LTC6360

- Output Swings to True Zero on Single Supply
- 2.3nV/√Hz Noise Density
- Fast Settling Time: 150ns, 16-Bit, 4V Step
- 110dB SNR in 3MHz Bandwidth
- Low Distortion, HD_2 = –103dBc and HD3 = –109dBc for $4V_{P-P}$ Output at 40kHz
- Low Offset Voltage: 250µV Max
- 3mm × 3mm 8-Pin DFN & 8-Lead MSOP Packages

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, and µModule® subsystems.

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