TI OPERATIONAL AMPLIFIER BREAKS DOWN DISTORTION BARRIERS AT 5-V SINGLE-SUPPLY OPERATION

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Texas Instruments Incorporated (TI) announced today the industry's lowest distortion 5-V single-supply operational amplifier (op amp), designed for applications requiring high speed, low distortion and low noise. The THS4304 enables greater resolution and precision in wireless infrastructure, medical imaging and automatic test equipment, and is ideal for high-speed signal conditioning applications such as driving high-resolution, high-speed analog-to-digital converters like the ADS5500 family. The THS4304 is the first unity gain stable op amp released from TI's groundbreaking BiCom-III complementary bipolar Silicon Germanium (SiGe) process.

Low Noise and Distortion Enable High Dynamic Range Systems

Using a single 5-V supply, the THS4304 wideband op amp offers best-in-class performance that rivals even the best previous-generation op amps operating with twice the power supply voltage. Distortion performance is extraordinary with a 2nd order harmonic distortion of -85 dBc and a 3rd order harmonic distortion of -100 dBc at 10 MHz and 2Vpp output into 100 ohm load.

The THS4304 provides 3-GHz unity gain bandwidth, 830-V/µs slew rate and 2.4-nV/rtHz input noise, all while consuming only 18 mA of quiescent current on a 5-V supply. The device´s voltage-feedback topology offers designers the advantages of an op amp with balanced inputs, low offset voltage, low offset current and low offset drift, along with high common-mode and power supply rejection ratio.

The low noise and distortion of the THS4304, along with the device's low power supply overhead, maximize its signal-to-noise ratio (SNR) and spurious free dynamic range (SFDR). These factors enable designers to achieve high dynamic range in their systems, allowing for more sensitive wireless systems, better diagnostic capabilities in medical ultrasound units and greater resolution in measurement equipment.

The THS4304 provides high-performance analog processing that matches well with high-performance digital signal processors (DSP) such as the TMS320C6000TM DSP platform, which offers a broad portfolio of the industry´s fastest DSPs running at clock speeds up to 1 GHz.

"The THS4304 demonstrates TI's significant advance in technology, which is enabling today's trend toward lower-voltage single-supply

operation of high-performance analog circuits," said Art George, vice president of TI's high-performance linear business. "This allows designers to lower their system power supply, while achieving the performance needed in high-speed signal-acquisition chains."

About BiCom-III

Announced in mid-2002, TI´s BiCom-III SiGe process focuses TI´s state-of-the-art manufacturing technology on the future needs of high-performance systems. The process is the first to integrate complementary NPN and PNP bipolar transistors in a SiGe process. The complementary bipolar transistors enable many high-performance analog and mixed-signal products, increasing speed up to 3X while reducing noise by as much as one half. Devices designed with the process operate much faster at lower voltage and with greater dynamic range than ever before.

Source: TI

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