

National Semiconductor's New Amplifiers Break Gigahertz Barrier for High-Speed Applications

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National Semiconductor Corporation today introduced two new high-speed amplifier products that break the gigahertz speed barrier. Based on National's high-speed VIP10 manufacturing process, the 1.2 GHz amplifier and programmable gain buffer enable high signal fidelity and stability for improved performance in high-speed applications such as video, test and measurement, and other industrial applications. High large-signal bandwidth and fast slew rates allow National's new devices to drive high-resolution red, green and blue (RGB) video. The dynamic performance of these amplifiers is ideal for driving single-ended high-speed analog-to-digital converters (ADCs).

"Today we're introducing a true gigahertz op amp," said Erroll Dietz, vice president of National Semiconductor's Amplifier products group. "National's LMH6703 provides a flatter, more stable frequency response at high speeds. The LMH6704, also introduced today, provides gain accuracy within one percent, for demanding high-performance applications."

High Bandwidth, Low Distortion and Stability: National Delivers a Powerful Combination

National's LMH6703 is the industry's most stable 1.2 GHz amplifier for high-speed signals, making it less dependent on PC board layout compared to most solutions currently on the market. It features the

industry's highest large-signal (2Vpp) bandwidth at 750 MHz and 4500V/us slew rate for better signal fidelity, resulting in improved performance in high-end video applications with UXGA (1600 x 1200, 75 Hz) resolutions and beyond. Additionally, the LMH6703 has a shutdown feature, provides 0.1 dB gain flatness out to 150 MHz, and low second/third harmonic distortion of -87/-100 dBc at 5 MHz for driving single-ended high-speed ADCs.

National's LMH6704 is a 650 MHz programmable gain buffer with internal gain-setting resistors, allowing the user to set the gain at -1, +1, or +2. It provides a shutdown feature, 0.1 dB gain flatness out to 200 MHz, and low second/third harmonic distortion of -62/-78 dBc at 10 MHz. The LMH6704's low differential phase and gain specifications provide less luminance and chrominance distortion when driving composite video signals. The high output current (90 mA) allows both the LMH6703 and LMH6704 to drive low-impedance, high-capacitive loads in any application.

VIP10 Process

National's LMH6703 and LMH6704 are the latest amplifiers in a new series of high-speed products based upon the VIP10 process. Developed in National's wafer fabrication site in Arlington, Texas, VIP10 is a high-speed, dielectrically isolated, complementary bipolar IC process that utilizes deep trench technology on a bonded wafer for complete dielectric isolation and optimal high-speed amplifier performance. The VIP10 process technology allows National to design the most power-efficient, performance-oriented high-speed amplifiers on the market today.

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