

ADVANCE INFORMATION

All information in this data sheet is preliminary and subject to change.

6/95



1Gsps, 8-Bit ADC with Track/Hold

MAX104

General Description

The MAX104 ECL-compatible, 1Gsps, 8-bit analog-to-digital converter (ADC) allows accurate digitizing of analog signals from DC to 1.5GHz. Designed with Maxim's proprietary advanced GST-2 bipolar process, the MAX104 contains a high-performance track/hold (T/H) amplifier and a quantizer on a single monolithic die.

The innovative design of the internal T/H, which has an exceptionally wide input bandwidth of 1.5GHz, results in high, 7.3 effective bits performance at Nyquist. Special comparator design and decoding circuitry reduce out-of-sequence code errors and provide excellent metastable performance of less than one error per 10^{12} clock cycles. Unlike other ADCs, which can have errors that result in false full-scale or zero-scale outputs, the MAX104 keeps the error magnitude to 1LSB.

The analog input is designed for differential or single-ended use with a 300mV input range. Dual differential ECL-compatible output data paths provide for easy interfacing and include an 8:16 demultiplexer that reduces output data rates to one-half the clock rate. Control inputs are provided for interleaving additional MAX104 devices to increase the effective system sampling rate.

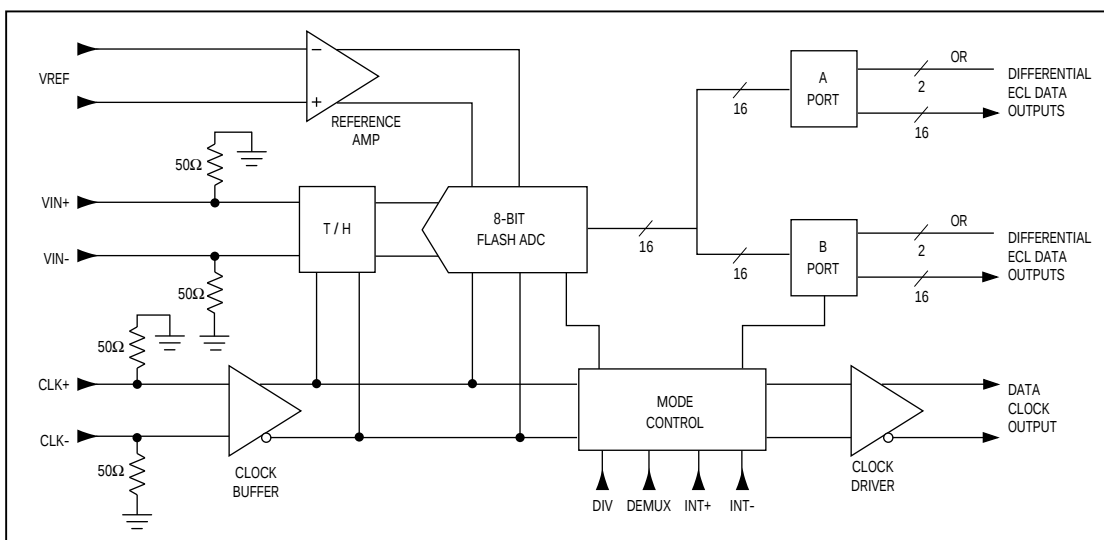
Features

- ♦ 1Gsps (min) Conversion Rate
- ♦ 7.3 Effective Bits at 500MHz
- ♦ Less than $\pm 1/2$ LSB DNL and INL
- ♦ 50 Ω Differential Input
- ♦ 300mV Input Signal Range
- ♦ On-Chip Differential Reference Amplifier
- ♦ 3.5W Power Dissipation
- ♦ Latched, ECL-Compatible Differential Outputs with Overrange Bit
- ♦ Low Error Rate, Less than 10^{-12} Metastable States
- ♦ Selectable On-Chip 8:16 Demultiplexer
- ♦ Control Inputs for Interleaving
- ♦ ± 5 V Power Supplies
- ♦ 100-Pin PowerQuad-2 Plastic Package

Applications

Digital RF/IF Signal Processing
High-Speed Data Acquisition
High-Energy Physics
Medical Systems
Radar/Sonar/ECM Systems

Functional Diagram



Maxim Integrated Products 1

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