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

2x4-Channel, Simultaneous-Sampling 14-Bit DAS

General Description

The MAX125/MAX126 are high-speed, multichannel, 14-bit data-acquisition systems (DAS) with simultaneous track/holds (T/Hs). These devices contain a 14-bit, 3µs successive-approximation analog-to-digital converter (ADC), a +2.5V reference, a buffered reference input, and a bank of four simultaneous-sampling T/H amplifiers that preserve the relative phase information of the sampled inputs. The MAX125/MAX126 have two multiplexed inputs for each T/H, allowing a total of eight inputs. In addition, the converter is overvoltage tolerant to ±17V; when a conversion is in progress, a fault condition on any other channel will not harm the IC. Available input ranges are ±5V (MAX125) and ±2.5V (MAX126).

An on-board sequencer converts from one to four channels with a single $\overline{CONVST}$ pulse. In default mode, one T/H output (CH1A) is converted. An interrupt signal ($\overline{INT}$) is provided after the last conversion is complete. Convert two, three, or four channels by reprogramming the MAX125/MAX126 through the bidirectional parallel interface. Once programmed, the MAX125/MAX126 continue to convert the specified number of channels per $\overline{CONVST}$ pulse until they are reprogrammed. The channels are converted sequentially beginning with CH1. The $\overline{INT}$ signal always follows the end of the last conversion in a conversion sequence. The ADC converts each assigned channel in 3µs and stores the result in an internal 14x4 RAM. Upon completion of the conversions, data can be accessed by applying successive pulses to the $\overline{RD}$ pin. Four successive reads access the four data words sequentially.

The parallel interface's data-access and bus-release timing specifications are compatible with most popular digital-signal processors and 16-bit/32-bit microprocessors, so the MAX125/MAX126 conversion results can be accessed without resorting to wait states.

Applications

Multiphase Motor Control
Power-Grid Synchronization
Power-Factor Monitoring
Digital-Signal Processing
Vibration and Waveform Analysis

Features

- **Four Simultaneous-Sampling T/H Amplifiers with Two Multiplexed Inputs (eight single-ended inputs total)**
- **3µs Conversion Time per Channel**
- **Throughput: 250ksps (1 channel)**
  142ksps (2 channels)
  100ksps (3 channels)
  75ksps (4 channels)
- **Input Range: ±5V (MAX125), ±2.5V (MAX126)**
- **Fault-Protected Input Multiplexer (±17V)**
- **±5V Supplies**
- **+2.5V Buffered Internal or External Reference**
- **Programmable On-Board Sequencer**
- **High-Speed Parallel DSP Interface**

Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE	INL (LSB)
MAX125ACAX	0°C to +70°C	36 SSOP	±2
MAX125BCAX	0°C to +70°C	36 SSOP	±4
MAX125BC/D	0°C to +70°C	Dice*	±4
MAX125AEAX	-40°C to +85°C	36 SSOP	±2
MAX125BEAX	-40°C to +85°C	36 SSOP	±4
MAX126ACAX	0°C to +70°C	36 SSOP	±2
MAX126BCAX	0°C to +70°C	36 SSOP	±4
MAX126BC/D	0°C to +70°C	Dice*	±4
MAX126AEAX	-40°C to +85°C	36 SSOP	±2
MAX126BEAX	-40°C to +85°C	36 SSOP	±4

*Dice are tested at T_A = +25°C only.

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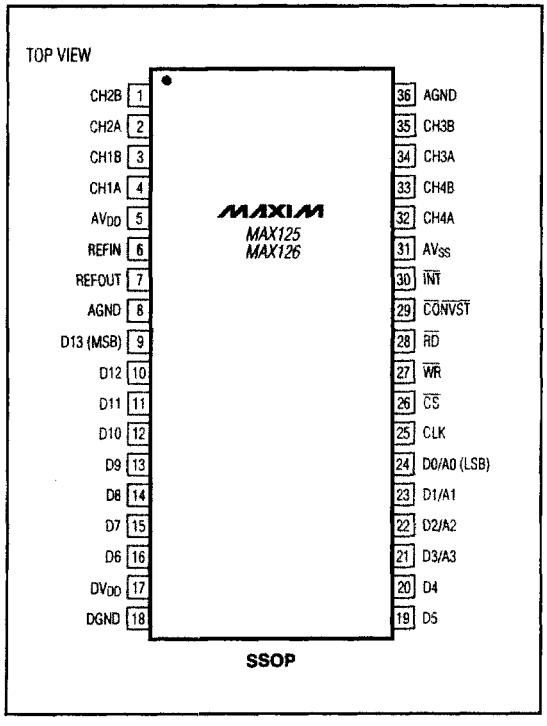
Pin Configuration



Typical Operating Circuit