Rochester Electronics

Datasheet

ADC1031, ADC1034, ADC1038

10-Bit Serial I/O A/D Converters with Analog Multiplexer and Track/Hold Function

The ADC1031, ADC1034 and ADC1038 are 10-bit successive approximation A/D converters with serial I/O. The serial input, for the ADC1034 and ADC1038, controls a single-ended analog multiplexer that selects one of 4 input channels (ADC1034) or one of 8 input channels (ADC1038). The ADC1034 and ADC1038 serial output data can be configured into a left- or right-justified format.

An input track/hold is implemented by a capacitive reference ladder and sampled-data comparator. This allows the analog input to vary during the A/D conversion cycle.

Separate serial I/O and conversion clock inputs are provided to facilitate the interface to various microprocessors.

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer (OCM).

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
    - Class Q Military
    - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
    - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

FOR REFERENCE ONLY

National Semiconductor

ADC1031/ADC1034/ADC1038 10-Bit Serial I/O A/D Converters with Analog Multiplexer and Track/Hold Function

General Description

The ADC1031, ADC1034 and ADC1038 are 10-bit successive approximation A/D converters with serial I/O. The serial input, for the ADC1034 and ADC1038, controls a single-ended analog multiplexer that selects one of 4 input channels (ADC1034) or one of 8 input channels (ADC1038). The ADC1034 and ADC1038 serial output data can be configured into a left- or right-justified format.

An input track/hold is implemented by a capacitive reference ladder and sampled-data comparator. This allows the analog input to vary during the A/D conversion cycle.

Separate serial I/O and conversion clock inputs are provided to facilitate the interface to various microprocessors.

Applications

- Engine control
- Process control
- Instrumentation
- Test equipment

Features

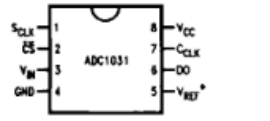
- Serial I/O (MICROWIRE™ compatible)
- Separate asynchronous converter clock and serial data I/O clock
- Analog input track/hold function
- Ratiometric or absolute voltage referencing
- No zero or full scale adjustment required
- 0V to 5V analog input range with single 5V power supply
- TTL/MOS input/output compatible
- No missing codes

Key Specifications

■ Resolution	10 bits
■ Total unadjusted error	±1 LSB (max)
■ Single supply	5V ±5%
■ Power dissipation	20 mW (max)
■ Max. conversion time (f_C = 3 MHz)	13.7 μs (max)
■ Serial data exchange time (f_S = 1 MHz)	10 μs (max)

Connection Diagrams

Dual-In-Line and SO Packages



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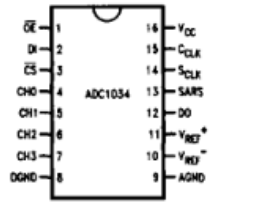
Top View

ADC1031 In NS Package N08E



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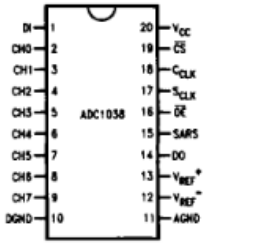
Top View

ADC1034 In NS Packages J16A, M16B or N16E



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Top View

ADC1038 In NS Packages J20A, M20B or N20A

Ordering Information

Industrial −40°C ≤ T_A ≤ +85°C	Package
ADC1031CIN	N08E
ADC1034CIN	N16E
ADC1034CIWM	M16B
ADC1038CIN	N20A
ADC1038CIWM	M20B
Military −55°C ≤ T_A ≤ +125°C	**Package**
ADC1034CMJ	J16A
ADC1038CMJ	J20A

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