

AS1970 - AS1975

Low-Voltage Single/Dual/Quad Comparators

Product Brief

1 General Description

The AS1970 - AS1975 are single/dual/quad comparators that operate with supplies from 2.5 to 5.5V making them perfect for all 3- and 5-volt applications. The comparators can also operate with dual supplies (± 1.25 to ± 2.75 V), and require very little supply current (down to $8.5\mu\text{A}$) with minimal propagation delay (300ns).

Low input bias current (1.0pA , typ), low input offset voltage (0.5mV , typ), and internal hysteresis (3mV) make these comparators ideal for low-power single-cell applications including power-management and power-monitoring systems.

The comparators are available as the standard products listed in [Table 1](#).

Table 1. Standard Products

Model	Output Type
AS1970/AS1972/AS1974	Push/Pull
AS1971/AS1973/AS1975	Open-Drain

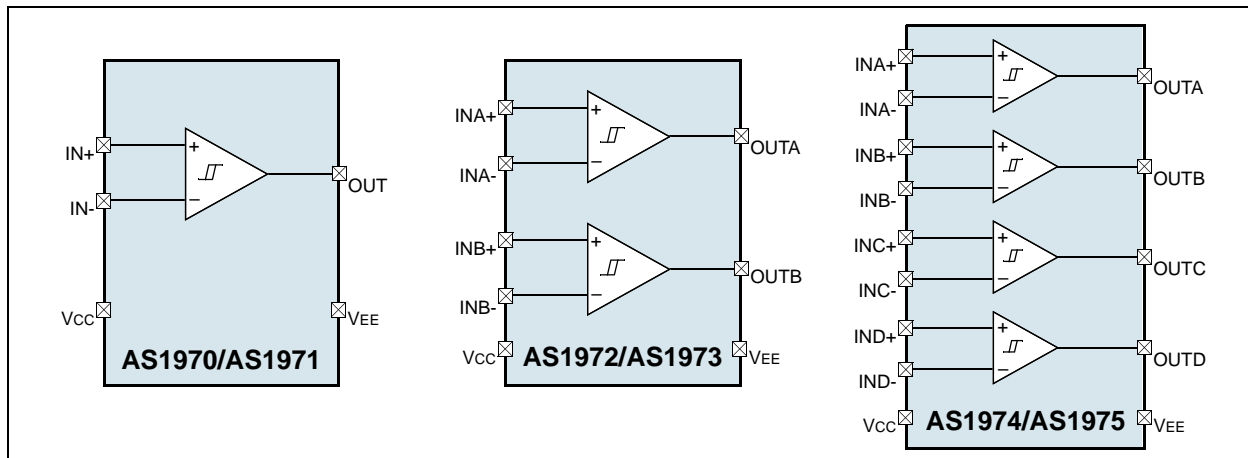
The AS1970/AS1972/AS1974 push/pull output can sink or source current.

The AS1971/AS1973/AS1975 open-drain output can be pulled beyond V_{CC} to a maximum of $5.5\text{V} > V_{EE}$. These open-drain versions are ideal for logic-level translators or bipolar-to-unipolar converters.

Large internal output drivers allow Rail-to-Rail output swings with loads of up to 8mA .

The AS1970/AS1971 are available in a 5-pin SOT23 package. The AS1972/AS1973 are available in a 8-pin MSOP package. The AS1974/AS1975 are available in a 14-pin TSSOP package.

Figure 1. Block Diagrams



2 Key Features

- CMOS Push/Pull Output Sinks and Sources 8mA (AS1970/AS1972/AS1974)
- CMOS Open-Drain Output Voltage Extends Beyond V_{CC} (AS1971/AS1973/AS1975)
- Quiescent Supply Current: $8.5\mu\text{A}$ per Comparator
- Internal Hysteresis: 3mV
- 3V/5V Logic-Level Translation
- Single-Supply Operation: 2.5 to 5.5V
- Common-Mode Input Voltage Range Extends 250mV Above the Rails
- Low Propagation Delay: 300ns
- Minimized Overall Power Consumption
- Supply Current @ 1MHz Switching Frequency: $80\mu\text{A}$
- No Phase Reversal for Overdriven Inputs
- Package Types:
 - 5-pin SOT23 – AS1970/AS1971
 - 8-pin MSOP – AS1972/AS1973
 - 14-pin TSSOP – AS1974/AS1975

3 Applications

The devices are ideal for battery-powered systems, mobile communication devices, zero-crossing detectors, window comparators, level translators, threshold detectors/discriminators, ground/supply-sensing applications, IR receivers or any other space-limited application with low power-consumption requirements.

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