

AS1970 - AS1975

Low-Voltage Single/Dual/Quad Comparators

1 General Description

The AS1970 - AS1975 are single/dual/quad comparators that operate with supplies from 2.5 to 3.6V making them perfect for all 3 volt applications. The comparators can also operate with dual supplies (± 1.25 to $\pm 1.8V$), and require very little supply current ($8.5\mu A$) 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 $3.6V > V_{EE}$. 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.

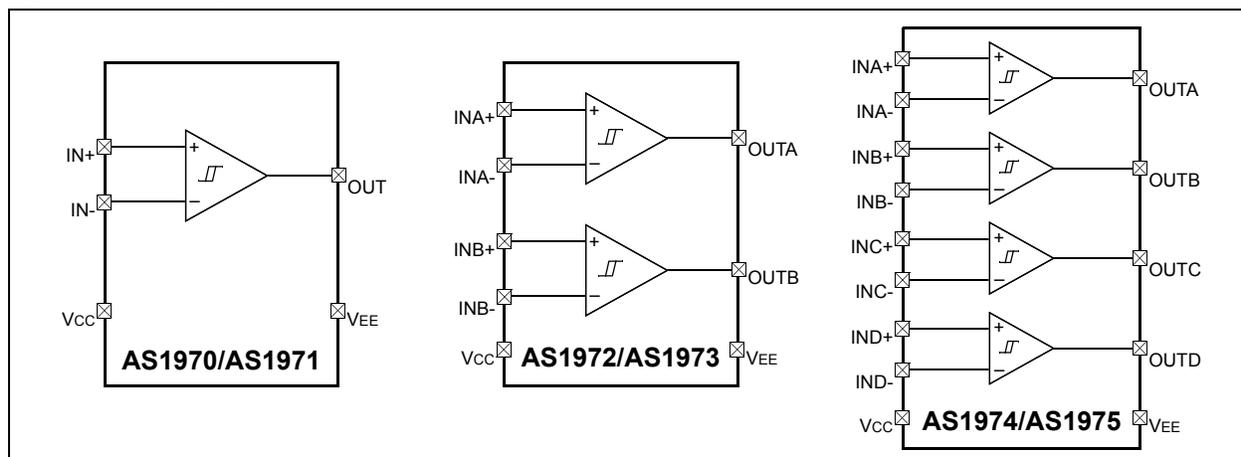
2 Key Features

- 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: $8.5\mu A$ per Comparator
- Internal Hysteresis: $3mV$
- Single-Supply Operation: 2.5 to 3.6V
- Common-Mode Input Voltage Range Extends $250mV$ Above the Rails
- Low Propagation Delay: 300ns
- Minimized Overall Power Consumption
- Supply Current @1MHz Switching Frequency: $80\mu A$
- 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, threshold detectors/discriminators, ground/supply-sensing applications, IR receivers or any other space-limited application with low power-consumption requirements.

Figure 1. Block Diagrams



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