



*Temperature-Insensitive Comparator with Rail-to-Rail  
Input/output with Extended Temperature Range*

**GENERAL DESCRIPTION**

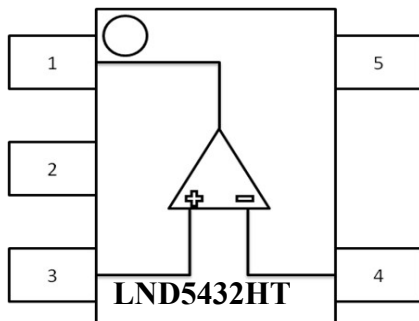
The LND5432HT is a high-gain differential amplifier with rail-to-rail input voltage performance range, designed in 0.5 $\mu$ m SOI technology.

The LND5432HT uses a 3.3V supply, and provides rise and fall times of less than 75ns at the output.

The LND5432HT uses a two sided folded cascode primary differential stage to create a rail-to-rail input range. The intermediate stage has two variations, a differential amplifier or a logic controlled dual-pass-transistor. The final stage shapes the output using buffers/inverters.

At 27 $^{\circ}$ C, over the 0.0V-3.3V common mode input voltage range the input-offset error is less than 1mV and 250 $\mu$ V for the differential amplifier and logic controlled variations respectively. Over the temperature range of 27 $^{\circ}$ C to 200 $^{\circ}$ C the input-offset error is 2.85mV for both variations.

**PIN DIAGRAM**



**FEATURES**

- Rail-to-Rail input/output performance range
- 2.85mV Input-Offset Error (Temperature-Insensitive)
- 250 $\mu$ V Attainable Input-Offset Error (27 $^{\circ}$ C)
- Propagation delay of 375 ns
- Internally biased for temperature insensitive operation
- No phase inversion
- (Two versions of design)

**APPLICATIONS**

- Null and Zero-Crossing Detector
- Temperature Insensitive High-Gain Op-Amp.
- 10-Bit(or less) resolution ADC-Comparator for 27 $^{\circ}$ C to 200 $^{\circ}$ C
- 13-Bit(or less) resolution ADC-Comparator at 27 $^{\circ}$ C

**PIN DESCRIPTION**

Pin Number	Description
1	Output Voltage ( $V_{BUFF}$ )
2	Ground Voltage ( $V_{SS}$ )
3	Non-Inverting Input ( $V_{NONINV}$ )
4	Inverting Input ( $V_{INV}$ )
5	Supply Voltage ( $V_{DD}$ )