



U74AHC34

CMOS IC

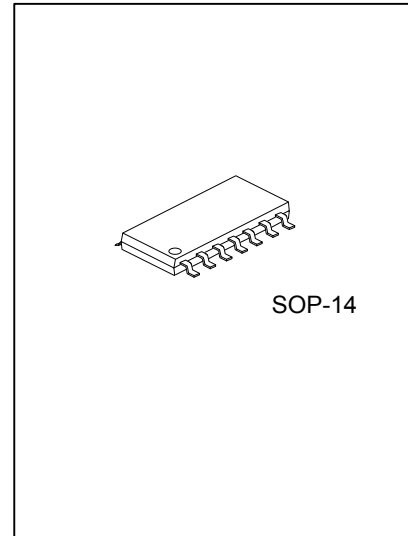
NON-INVERT BUFFER

DESCRIPTION

The **U74AHC34** is six independent non-invert buffers. Each buffer provides the function $Y=A$.

FEATURES

- * Operate from 2V to 5.5V
- * High noise immunity
- * Low power dissipation
- * Balanced propagation delays

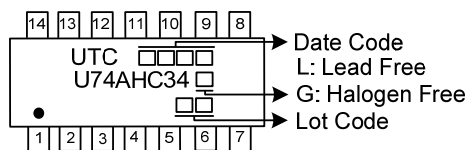


ORDERING INFORMATION

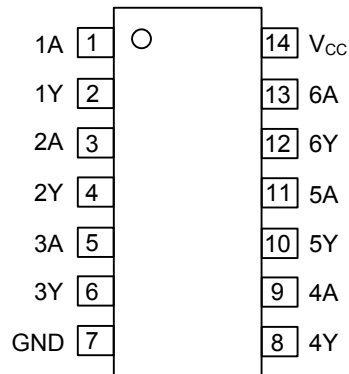
| Ordering Number | | Package | Packing |
|-----------------|-----------------|---------|-----------|
| Lead Free | Halogen Free | | |
| U74AHC34L-S14-R | U74AHC34G-S14-R | SOP-14 | Tape Reel |

| | |
|--|--|
| <p>U74AHC34G-S14-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package | <ul style="list-style-type: none"> (1) R: Tape Reel (2) S14: SOP-14 (3) G: Halogen Free and Lead Free, L: Lead Free |
|--|--|

MARKING



■ PIN CONFIGURATION

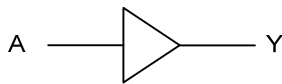


■ FUNCTION TABLE (each gate)

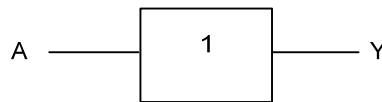
| INPUT A | OUTPUT Y |
|---------|----------|
| L | L |
| H | H |

Note: H: HIGH voltage level; L: LOW voltage level.

■ LOGIC SYMBOL(each gate)



Logic symbol



IEC logic symbol

■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-------------------------|------------------------------|---------------------|------|
| Supply Voltage | V_{CC} | -0.5 ~ +7 | V |
| Input Voltage | V_{IN} | -0.5 ~ +7 | V |
| Output Voltage | V_{OUT} | -0.5~ V_{CC} +0.5 | V |
| V_{CC} or GND Current | I_{CC} | ±50 | mA |
| Output Sink Current | $V_{OUT}>-0.5V$ I_{OUT} | ±25 | mA |
| Input Clamp Current | $V_{IN}<-0.5V$ I_{IK} | -20 | mA |
| Output Clamp Current | $V_{OUT}<-0.5V$ I_{OK} | ±20 | mA |
| Operating Temperature | T_{OPR} | -40 ~ + 85 | °C |
| Storage Temperature | T_{STG} | -65 ~ + 150 | °C |

Note 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT |
|---------------------|---------------|-----|-----|-----|------|
| Junction to Ambient | θ_{JA} | | | 76 | °C/W |

■ RECOMMENDED OPERATING CONDITIONS

| PARAMETER | SYMBOL | CONDITIONS | MIN | TYP | MAX | UNIT |
|------------------------------------|-------------|----------------------|------|-----|------|------|
| Supply Voltage | V_{CC} | | 2.0 | | 5.5 | V |
| Input Voltage | V_{IN} | | 0 | | 5.5 | V |
| High-Level Input Voltage | V_{IH} | $V_{CC}=2.0V$ | 1.5 | | | V |
| | | $V_{CC}=3.0V$ | 2.1 | | | |
| | | $V_{CC}=5.5V$ | 3.85 | | | |
| Low-Level Input Voltage | V_{IL} | $V_{CC}=2.0V$ | | | 0.5 | V |
| | | $V_{CC}=3.0V$ | | | 0.9 | |
| | | $V_{CC}=5.5V$ | | | 1.65 | |
| Input Transition Rise or Fall Rate | t_R / t_F | $V_{CC}=3.3\pm 0.3V$ | | | 100 | ns/V |
| | | $V_{CC}=5.0\pm 0.5V$ | | | 20 | |

■ STATIC CHARACTERISTICS($T_A=25^\circ C$)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------------------|--------------|--|------|-----|------|------|
| High-Level Output Voltage | V_{OH} | $V_{CC}=2.0V, I_{OH}=-50\mu A$ | 1.9 | | | V |
| | | $V_{CC}=3.0V, I_{OH}=-50\mu A$ | 2.9 | | | |
| | | $V_{CC}=4.5V, I_{OH}=-50\mu A$ | 4.4 | | | |
| | | $V_{CC}=3.0V, I_{OH}=-4 mA$ | 2.58 | | | |
| | | $V_{CC}=4.5V, I_{OH}=-8mA$ | 3.94 | | | |
| Low-Level Output Voltage | V_{OL} | $V_{CC}=2.0V, I_{OL}=50\mu A$ | | | 0.1 | V |
| | | $V_{CC}=3.0V, I_{OL}=50\mu A$ | | | 0.1 | |
| | | $V_{CC}=4.5V, I_{OL}=50\mu A$ | | | 0.1 | |
| | | $V_{CC}=3.0V, I_{OL}=4 mA$ | | | 0.36 | |
| | | $V_{CC}=4.5V, I_{OL}=8mA$ | | | 0.36 | |
| Input Leakage Current | $I_{(LEAK)}$ | $V_{IN}=5.5V$ or GND, $V_{CC}=0V$ to 5.5V | | | ±0.1 | μA |
| Quiescent Supply Current | I_Q | $V_{IN}=V_{CC}$ or GND, $I_{OUT}=0$, $V_{CC}=5.5V$ | | | 2 | μA |
| Input Capacitance | C_I | | | 4 | 10 | pF |

■ SWITCHING CHARACTERISTICS($T_A=25^{\circ}\text{C}$)

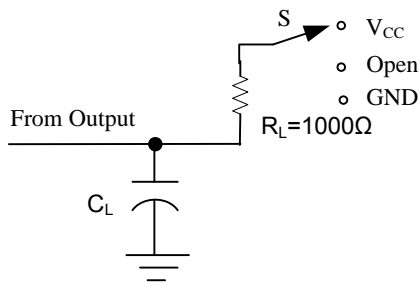
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT | |
|--|-------------------|----------------------------------|-----------------------|-----|-----|------|----|
| Propagation Delay, From Input(A) To Output(Y) | t_{PLH}/t_{PHL} | $V_{CC} = 3.3 \pm 0.3 \text{ V}$ | $C_L = 15 \text{ pF}$ | | 5.0 | 7.1 | ns |
| | | | $C_L = 50 \text{ pF}$ | | 7.5 | 10.6 | |
| | t_{PLH}/t_{PHL} | $V_{CC} = 5.0 \pm 0.5 \text{ V}$ | $C_L = 15 \text{ pF}$ | | 3.8 | 5.5 | |
| | | | $C_L = 50 \text{ pF}$ | | 5.3 | 7.5 | |

■ OPERATING CHARACTERISTICS($T_A=25^{\circ}\text{C}$)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|-------------------------------|----------|-----------------|-----|-----|-----|------|
| Power Dissipation Capacitance | C_{pd} | | | 13 | | pF |

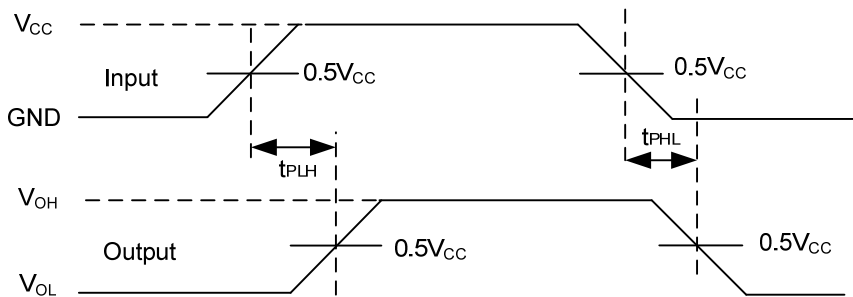
■ TEST CIRCUIT AND WAVEFORMS

Test circuit for measuring propagation delay



| TEST | S |
|-------------------|----------|
| t_{PLH}/t_{PHL} | Open |
| t_{PHZ}/t_{PZH} | GND |
| t_{PLZ}/t_{PZL} | V_{CC} |

Waveforms showing the Input(A) to Output(Y) propagation delays



Note: C_L includes probe and jig capacitance.

All input pulses are supplied by generators having the following characteristics: $PRR \leq 1\text{MHz}$, $Z_o = 50\Omega$, $t_R \leq 3\text{ns}$, $t_F \leq 3\text{ns}$.

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