



U74AHC1G34

CMOS IC

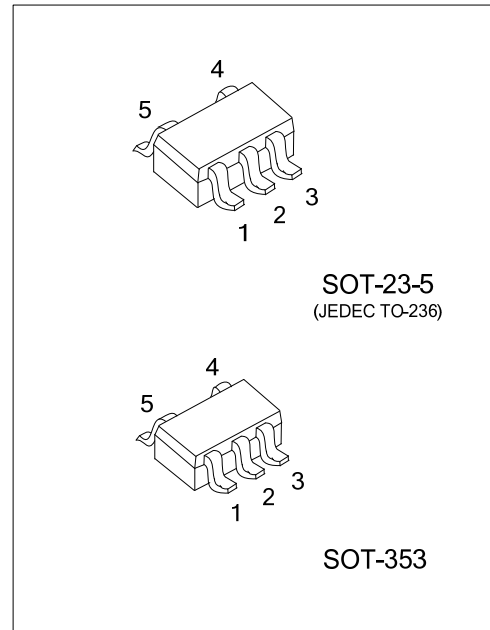
SINGLE NON-INVERTING GATE

DESCRIPTION

The **U74AHC1G34** are high-speed Si-gate CMOS devices. The U74AHC1G34 provide the non-inverting buffer with function $Y=A$.

FEATURES

- * Operation Voltage Range: 2V~5.5V
- * Low Power Dissipation: $I_{CC}=10\mu A$ (Max)
- * High Speed: $t_{pd}=3.8ns$ (Typ)
- * Balanced propagation delays
- * High noise immunity
- * Typical $V_{OL} < 0.36V$ at $V_{CC}=4.5V, I_o=8mA, T_A=25^\circ C$
- * Typical $V_{OH} > 3.94V$ at $V_{CC}=4.5V, I_o=-8mA, T_A=25^\circ C$

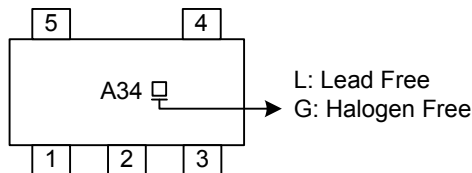


ORDERING INFORMATION

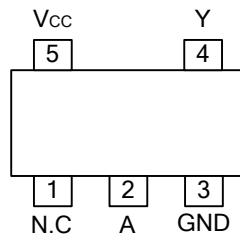
| Ordering Number | | Package | Packing |
|-------------------|-------------------|----------|-----------|
| Lead Free | Halogen Free | | |
| U74AHC1G34L-AE5-R | U74AHC1G34G-AE5-R | SOT-23-5 | Tape Reel |
| U74AHC1G34L-AL5-R | U74AHC1G34G-AL5-R | SOT-353 | Tape Reel |

| | |
|---|---|
| <p>U74AHC1G34G-AE5-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p> | <p>(1) R: Tape Reel (2) AE5: SOT-23-5, AL5: SOT-353 (3) G: Halogen Free and Lead Free, L: Lead Free</p> |
|---|---|

MARKING



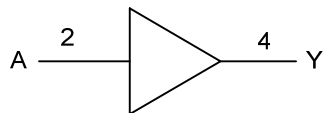
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (positive logic)



Logic symbol

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■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)(Note1)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|--------------------------------|------------------|------------|------|
| Supply Voltage | V _{CC} | -0.5~+7.0 | V |
| Input Voltage | V _{IN} | -0.5~+7.0 | V |
| Input Clamp Current | I _{IK} | -20 | mA |
| Output Clamp Current | I _{OK} | ±20 | mA |
| Output Current | I _{OUT} | ±25 | mA |
| V _{CC} or GND Current | I _{CC} | ±50 | mA |
| 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.

■ RECOMMENDED OPERATING CONDITIONS

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|------------------------------------|------------------|----------------------------|-----|-----|-----------------|------|
| Supply Voltage | V _{CC} | | 2.0 | | 5.5 | V |
| Input Voltage | V _{IN} | | 0 | | 5.5 | V |
| Output Voltage | V _{OUT} | | 0 | | V _{CC} | V |
| High-level Output Current | I _{OH} | V _{CC} =2V | | | -50 | mA |
| | | V _{CC} =3.3V±0.3V | | | -4 | mA |
| | | V _{CC} =5V±0.5V | | | -8 | mA |
| Low-level Output Current | I _{OL} | V _{CC} =2V | | | 50 | mA |
| | | V _{CC} =3.3V±0.3V | | | 4 | mA |
| | | V _{CC} =5V±0.5V | | | 8 | mA |
| Input Transition Rise or Fall Rate | Δt/ΔV | V _{CC} =3.3+0.3V | | | 100 | ns/V |
| | | V _{CC} =5.0+0.5V | | | 20 | |
| Operating Temperature | T _A | | -40 | +25 | +85 | °C |

■ STATIC CHARACTERISTICS

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

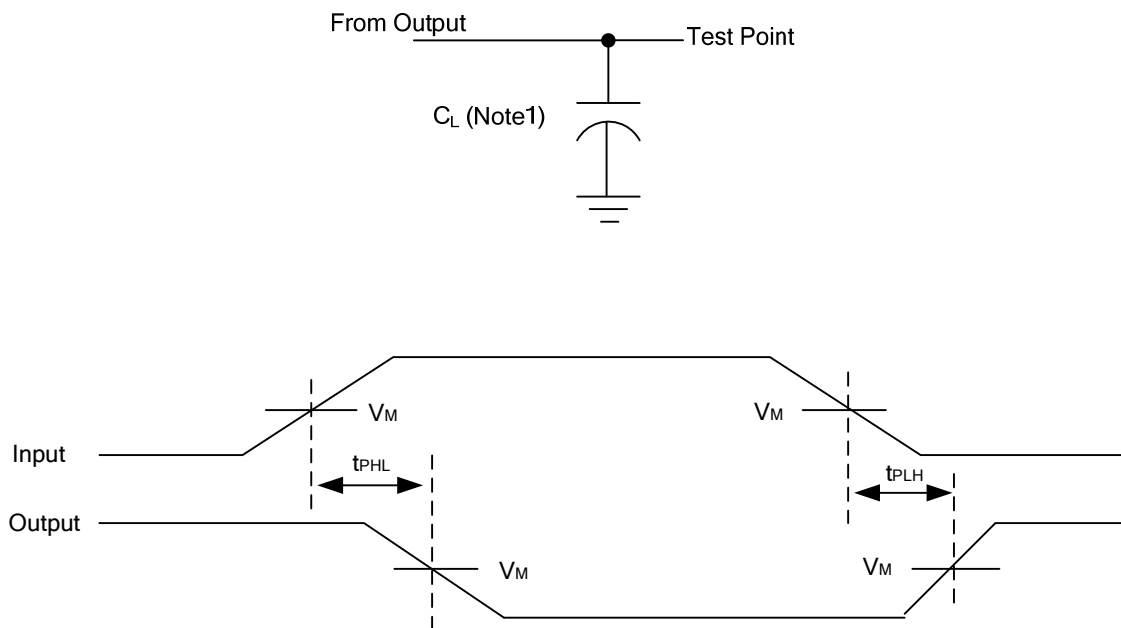
■ DYNAMIC CHARACTERISTICS (Input: $t_r, t_f \leq 3\text{ns}$; $\text{PRR} \leq 1\text{MHz}$)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|-------------|-------------------|--|-----|-----|------|------|
| From A to Y | t_{PHL}/t_{PLH} | $V_{CC}=3.3\pm 0.3\text{V}, C_L=15\text{pF}$ | | 5 | 7.1 | ns |
| | t_{PHL}/t_{PLH} | $V_{CC}=3.3\pm 0.3\text{V}, C_L=50\text{pF}$ | | 7.5 | 10.6 | |
| | t_{PHL}/t_{PLH} | $V_{CC}=5\pm 0.5\text{V}, C_L=15\text{pF}$ | | 3.8 | 5.5 | ns |
| | t_{PHL}/t_{PLH} | $V_{CC}=5\pm 0.5\text{V}, C_L=50\text{pF}$ | | 5.3 | 7.5 | |

■ OPERATING CHARACTERISTICS ($V_{CC}=5\text{V}$; $T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | TYP | UNIT |
|-------------------------------|--------|--------------------------|-----|------|
| Power Dissipation Capacitance | Cpd | No load, $f=1\text{MHz}$ | 12 | pF |

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.

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