



## U74LVC34A

CMOS IC

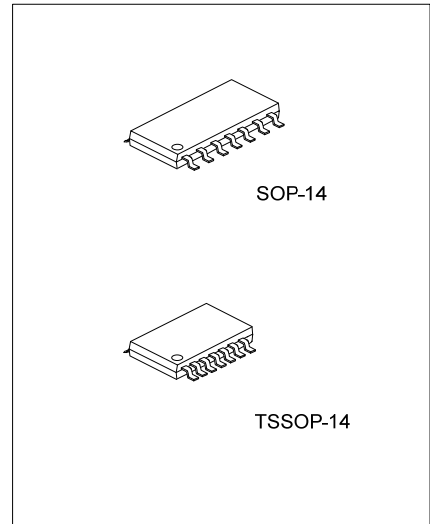
### HEX BUFFER

#### DESCRIPTION

The **U74LVC34A** is a hex buffer device providing, it provides the function  $Y = A$ .

#### FEATURES

- \* Operation voltage range: 1.65~5.5V
- \* Low Power Dissipation
- \* 24mA Output Drive ( $V_{CC}=3.3V$ )
- \* High Noise Immunity
- \* Power Down Protection

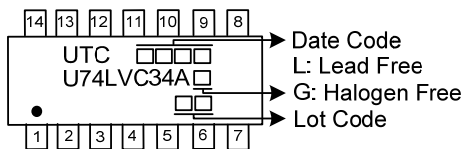


#### ORDERING INFORMATION

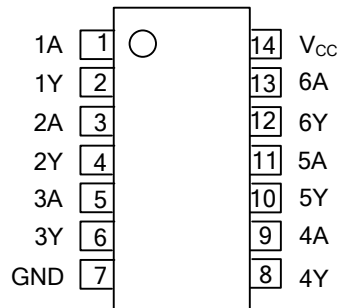
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC34AL-S14-R	U74LVC34AG-S14-R	SOP-14	Tape Reel
U74LVC34AL-P14-R	U74LVC34AG-P14-R	TSSOP-14	Tape Reel

<p>U74LVC34AG-S14-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) S14: SOP-14, P14: TSSOP-14</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



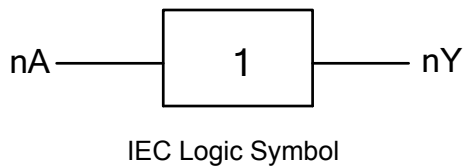
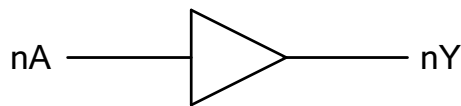
■ PIN CONFIGURATION



■ FUNCTION TABLE (Each Gate)

INPUT(A)	OUTPUT(Y)
L	L
H	H

■ LOGIC DIAGRAM (Each Gate)



■ ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	-0.5~6.5	V
Input Voltage	$V_{IN}$	-0.5~6.5	V
Output Voltage (active mode)	$V_{OUT}$	-0.5~ $V_{CC}+0.5$	V
Output Voltage (power-down mode)	$V_{OUT}$	-0.5~6.5	V
Input Clamp Current ( $V_{IN}<0$ )	$I_{IK}$	-50	mA
Output Clamp Current ( $V_O<0$ )	$I_{OK}$	-50	mA
Output Current	$I_{OUT}$	±50	mA
$V_{CC}$ or GND Current	$I_{CC}$	±100	mA
Storage Temperature	$T_{STG}$	-65 ~ +150	°C

Note: 1. 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.

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

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$	Operating	1.65		5.5	V
		Data retention only	1.5			V
Input Voltage	$V_{IN}$		0		5.5	V
Output Voltage	$V_{OUT}$		0		$V_{CC}$	V
Operating Temperature	$T_A$		-40		85	°C
Input Transition Rise or Fall Rate	$t_R / t_F$	$V_{CC}=1.8V\pm0.15V, 2.5V\pm0.2V$			20	ns/V
		$V_{CC}=3.3V\pm0.3V$			10	ns/V
		$V_{CC}=5V\pm0.5V$			5	ns/V

■ STATIC CHARACTERISTICS ( $T_A = -40\sim85^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	$V_{IH}$	$V_{CC}=1.65\sim1.95V$	$0.65\times V_{CC}$			V
		$V_{CC}=2.3\sim2.7V$	1.7			
		$V_{CC}=2.7\sim3.6V$	2			
		$V_{CC}=4.5\sim5.5V$	$0.7\times V_{CC}$			
Low-Level Input Voltage	$V_{IL}$	$V_{CC}=1.65\sim1.95V$			$0.35\times V_{CC}$	V
		$V_{CC}=2.3\sim2.7V$			0.7	
		$V_{CC}=2.7\sim3.6V$			0.8	
		$V_{CC}=4.5\sim5.5V$			$0.3\times V_{CC}$	
High-Level Output Voltage	$V_{OH}$	$V_{CC}=1.65\sim5.5V, I_{OH}=-100mA$	$V_{CC}-0.1$			V
		$V_{CC}=1.65V, I_{OH}=-4mA$	1.2			
		$V_{CC}=2.3V, I_{OH}=-8mA$	1.9			
		$V_{CC}=3V, I_{OH}=-16mA$	2.4			
		$V_{CC}=3V, I_{OH}=-24mA$	2.3			
Low-Level Output Voltage	$V_{OL}$	$V_{CC}=1.65\sim5.5V, I_{OL}=100mA$			0.1	V
		$V_{CC}=1.65V, I_{OL}=4mA$			0.45	
		$V_{CC}=2.3V, I_{OL}=8mA$			0.3	
		$V_{CC}=3V, I_{OL}=16mA$			0.4	
		$V_{CC}=3V, I_{OL}=24mA$			0.55	
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=3.6V, V_{IN}=5.5V$ or GND			±1	µA
Power OFF leakage current	$I_{OFF}$	$V_{CC}=0V, V_{IN}$ or $V_O=5.5V$			±10	µA

■ STATIC CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Supply Current	$I_Q$	$V_{CC}=1.65\sim 5.5V$ , $V_{IN}=5.5V$ or GND, $I_{OUT}=0$			1	$\mu A$
Additional Quiescent Supply Current	$\Delta I_Q$	One input at $V_{CC}-0.6V$ , other inputs at $V_{CC}$ or GND, $V_{CC}=3\sim 5.5V$			500	$\mu A$
Input Capacitance	$C_{IN}$	$V_{CC}=3.3V$ , $V_{IN}=V_{CC}$ or GND		3.5		pF

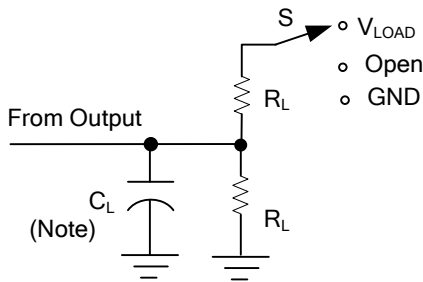
■ DYNAMIC CHARACTERISTICS ( $T_A=25^\circ C$ , Input:  $t_R=t_F=6ns$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT				
Propagation delay from Input(nA or nB) to Output(Y)	$t_{PLH} / t_{PHL}$	$V_{CC}=1.8\pm 0.15V$	$C_L=15pF$ , $R_L=1M\Omega$	2		9.9	ns			
		$V_{CC}=2.5\pm 0.2V$		1.5		6				
		$V_{CC}=3.3\pm 0.3V$		1		3.5				
		$V_{CC}=5\pm 0.5V$		1		2.9				
		$t_{PLH} / t_{PHL}$	$V_{CC}=1.8\pm 0.15V$	$C_L=15pF$	$R_L=1k\Omega$	3.2		8.6	ns	
			$V_{CC}=2.5\pm 0.2V$		$R_L=500\Omega$	1.5		4.4		
			$t_{PLH} / t_{PHL}$	$V_{CC}=3.3\pm 0.3V$	$C_L=15pF$ , $R_L=500\Omega$		1.5			4.1
				$V_{CC}=5\pm 0.5V$			1			3.2

■ OPERATING CHARACTERISTICS ( $f=10MHz$ ,  $T_A=25^\circ C$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	$C_{PD}$	$V_{CC}=1.8V$		16		pF
		$V_{CC}=2.5V$		16		
		$V_{CC}=3.3V$		16		
		$V_{CC}=5V$		18		

■ TEST CIRCUIT AND WAVEFORMS

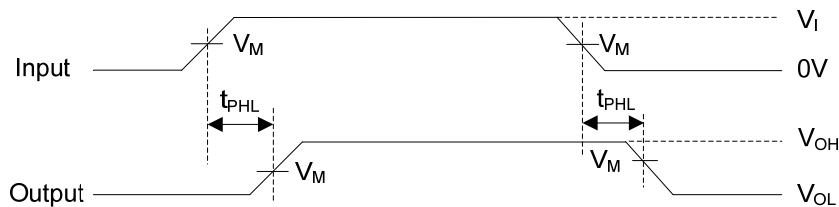


TEST	S
$t_{PLH}/t_{PHL}$	Open
$t_{PLZ}/t_{PZL}$	$V_{LOAD}$
$t_{PHZ}/t_{PZH}$	GND

TEST CIRCUIT

Note :  $C_L$  includes probe and jig capacitance.

$V_{CC}$	$V_{IN}$	$t_r, t_f$	$V_M$	$V_{LOAD}$	$C_L$	$R_L$	$V_{\Delta}$
1.8V±0.15V	$V_{CC}$	≤2ns	$V_{CC}/2$	$2 \cdot V_{CC}$	15pF	1MΩ	0.15V
					30pF	1KΩ	
2.5V±0.2V	$V_{CC}$	≤2ns	$V_{CC}/2$	$2 \cdot V_{CC}$	15pF	1MΩ	0.15V
					30pF	500Ω	
3.3V±0.3V	3V	≤2.5ns	1.5V	6V	15pF	1MΩ	0.3V
					50pF	500Ω	
5V±0.5V	$V_{CC}$	≤2.5ns	$V_{CC}/2$	$2 \cdot V_{CC}$	15pF	1MΩ	0.3V
					50pF	500Ω	



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