



## U74LVC34A

CMOS IC

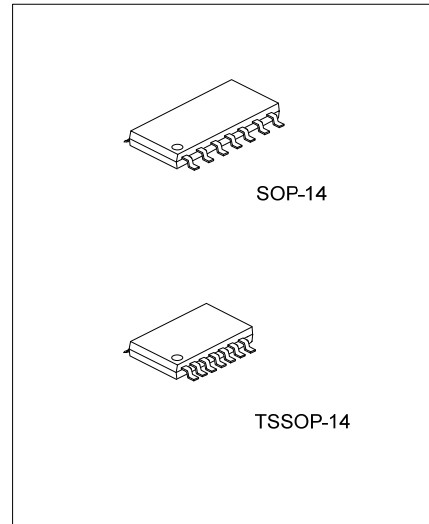
### HEX BUFFER

#### 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

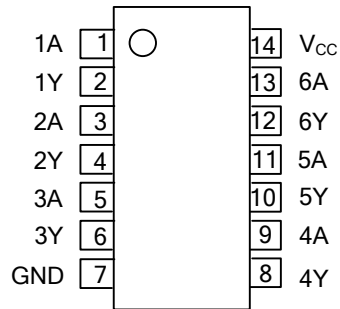


#### ORDERING INFORMATION

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

<p>U74LVC34AL-S14-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) R: Tape Reel, T: Tube (2) S14: SOP-14, P14: TSSOP-14 (3) G: Halogen Free, L: Lead Free</p>
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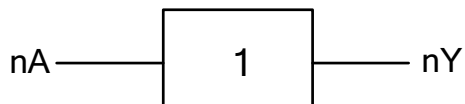
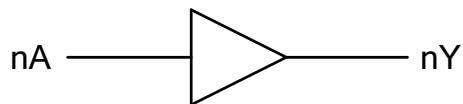
■ PIN CONFIGURATION



■ FUNCTION TABLE (Each Gate)

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

■ LOGIC DIAGRAM (Each Gate)



IEC Logic Symbol

## ■ 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
		Datat 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 ( $T_A = -40\sim85^\circ\text{C}$ )

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

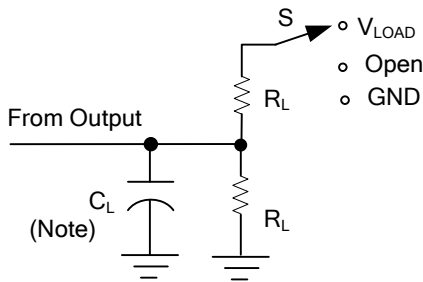
■ DYNAMIC CHARACTERISTICS ( $T_A=25^\circ C$ , Input:  $t_R=t_F=6ns$ , unless otherwise specified )

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		
		$V_{CC}=1.8\pm 0.15V$	$C_L=15pF$	$R_L=1k\Omega$	3.2	8.6	ns
		$V_{CC}=2.5\pm 0.2V$		$R_L=500\Omega$	1.5	4.4	
		$V_{CC}=3.3\pm 0.3V$	$C_L=15pF$ , $R_L=500\Omega$		1.5	4.1	
		$V_{CC}=5\pm 0.5V$			1	3.2	

■ OPERATING CHARACTERISTICS ( $T_a=25^\circ C$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	$C_{PD}$	$V_{CC}=1.8V$	f=10MHz		16	pF
		$V_{CC}=2.5V$			16	
		$V_{CC}=3.3V$			16	
		$V_{CC}=5V$			18	

## ■ TEST CIRCUIT AND WAVEFORMS

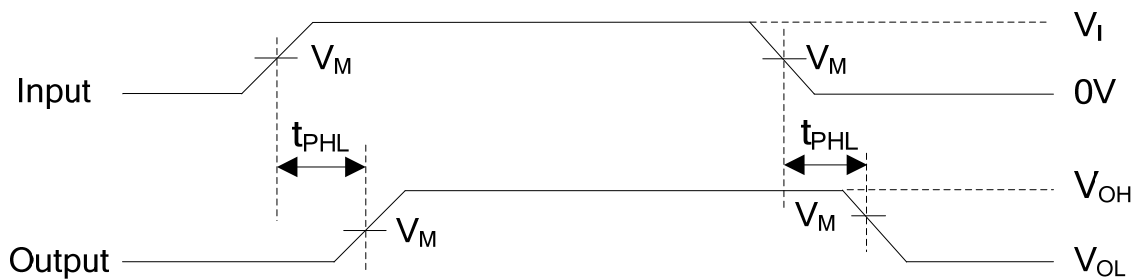


TEST	S
$t_{PLH}/t_{PHL}$	Open
$t_{PLZ}/t_{PZL}$	$V_{LOAD}$
$t_{PHZ}/t_{PZH}$	GND

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	$V_{CC}/2$	$2*V_{CC}$	15pF	1MΩ	0.15V
					30pF	1KΩ	
2.5V±0.2V	$V_{CC}$	≤2ns	$V_{CC}/2$	$2*V_{CC}$	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	$V_{CC}/2$	$2*V_{CC}$	15pF	1MΩ	0.3V
					50pF	500Ω	



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