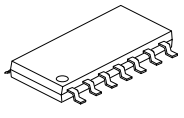
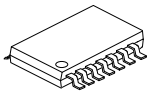
U74LVC34A

CMOS IC

HEX BUFFER



SOP-14U



TSSOP-14U

■ DESCRIPTION

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

■ FEATURES

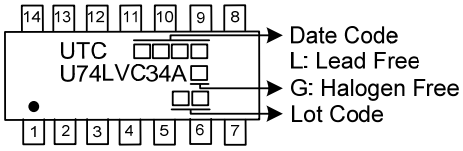
* Operation voltage range: 1.65~5.5V
* Low Power Dissipation
* 24mA Output Drive (V_{CC}=3.3V)
* High Noise Immunity
* Power Down Protection

■ ORDERING INFORMATION

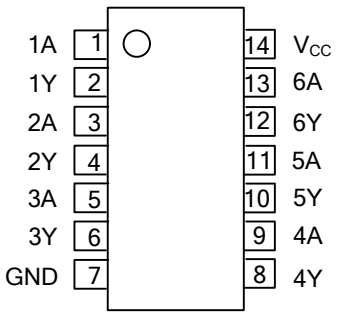
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC34AL-UEA-R	U74LVC34AG-UEA-R	SOP-14U	Tape Reel
U74LVC34AL-UEB-R	U74LVC34AG-UEB-R	TSSOP-14U	Tape Reel

U74LVC34AG-UEA-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) UEA: SOP-14U, UEB: TSSOP-14U (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



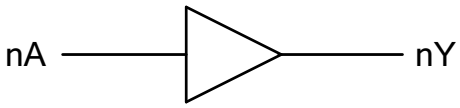
■ PIN CONFIGURATION

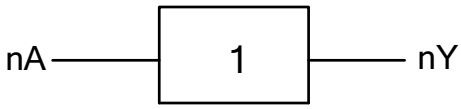


■ FUNCTION TABLE (Each Gate)

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

■ 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 (Unless otherwise specified)

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
Input Transition Rise or Fall Rate	t_R / t_F	V_{CC}=1.8V±0.15V, 2.5V±0.2V			20	ns/V
		V_{CC}=3.3V±0.3V			10	ns/V
		V_{CC}=5V±0.5V			5	ns/V
Operating Temperature	T_A		-40		+125	°C

■ STATIC CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V_{IH}	V_{CC}=1.65~1.95V	0.65×V_{CC}			V
		V_{CC}=2.3~2.7V	1.7			
		V_{CC}=2.7~3.6V	2			
		V_{CC}=4.5~5.5V	0.7×V_{CC}			
Low-Level Input Voltage	V_{IL}	V_{CC}=1.65~1.95V			0.35×V_{CC}	V
		V_{CC}=2.3~2.7V			0.7	
		V_{CC}=2.7~3.6V			0.8	
		V_{CC}=4.5~5.5V			0.3×V_{CC}	
High-Level Output Voltage	V_{OH}	V_{CC}=1.65~5.5V, 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			
		V_{CC}=4.5V, I_{OH}=-32mA	3.8			
Low-Level Output Voltage	V_{OL}	V_{CC}=1.65~5.5V, 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	
		V_{CC}=4.5V, I_{OL}=32mA			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}=1.65~5.5V, V_{IN}=5.5V or GND, I_{OUT}=0			1	μA
Additional Quiescent Supply Current	ΔI_Q	One input at V_{CC}-0.6V, other inputs at V_{CC} or GND, V_{CC}=3~5.5V			500	μA
Input Capacitance	C_{IN}	V_{CC}=3.3V, V_{IN}= V_{CC} or GND		3.5		pF

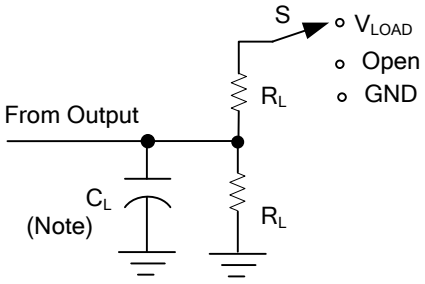
■ DYNAMIC CHARACTERISTICS (Input: t_R=t_F=6ns, unless otherwise specified)

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±0.15V	C_L=15pF, R_L=1MΩ		2		9.9	ns
		V_{CC}=2.5±0.2V			1.5		6	
		V_{CC}=3.3±0.3V			1		3.5	
		V_{CC}=5±0.5V			1		2.9	
		V_{CC}=1.8±0.15V	C_L=15pF	R_L=1kΩ	3.2		8.6	ns
		V_{CC}=2.5±0.2V		R_L=500Ω	1.5		4.4	
		V_{CC}=3.3±0.3V	C_L=15pF, R_L=500Ω		1.5		4.1	
		V_{CC}=5±0.5V			1		3.2	

■ OPERATING CHARACTERISTICS (f=10MHz, 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_Δ
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