



U74LVC07A

CMOS IC

HEX BUFFERS WITH OPEN-DRAIN OUTPUTS

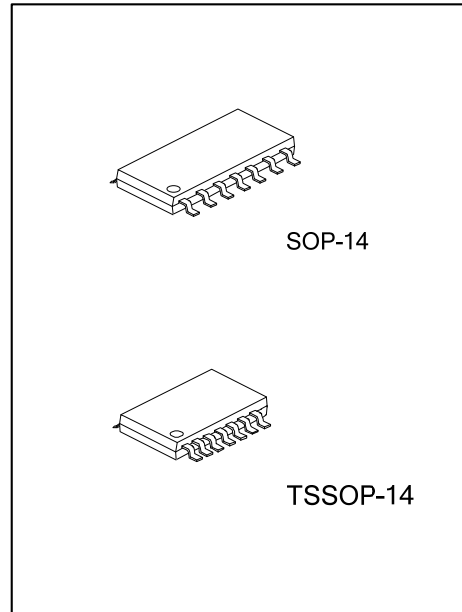
DESCRIPTION

The **U74LVC07A** contain six independent buffers with open drain outputs. The outputs are open-drain and can be connected to other open-drain outputs to implement active-LOW wired-OR or active-HIGH wired-AND functions

Inputs can be driven from 1.8V, 2.5V, 3.3V, or 5V devices. This feature allows the use of these devices as translators in a mixed-system environment.

FEATURES

- * Operate from 1.65V to 5.5V
- * Inputs and open-drain outputs accept voltages to 5.5V
- * Direct interface with TTL levels
- * I_{off} supports partial-power-down mode

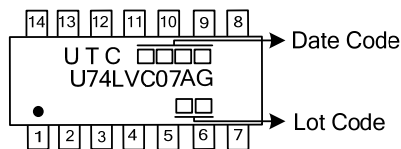


ORDERING INFORMATION

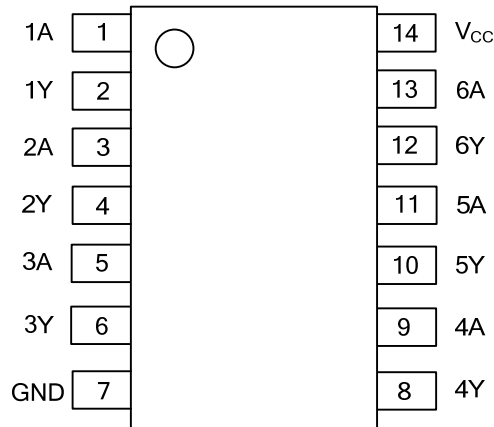
Ordering Number	Package	Packing
U74LVC07AG-S14-R	SOP-14	Tape Reel
U74LVC07AG-P14-R	TSSOP-14	Tape Reel

<p>U74LVC07AG-P14-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) P14: TSSOP-14, S14: SOP-14 (3) G: Halogen Free and Lead Free</p>
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MARKING



■ PIN CONFIGURATION

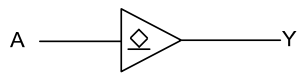


■ FUNCTION TABLE(each buffer)

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

Note: H: HIGH voltage level; L: LOW voltage level; Z=high-impedance OFF-state.

■ LOGIC DIAGRAM(each inverter)



Logic symbol

■ ABSOLUTE MAXIMUM RATING ($T_A = 25^\circ\text{C}$, 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	V_{OUT}	-0.5 ~ $V_{CC}+0.5$	V
V_{CC} or GND Current	I_{CC}	± 100	mA
Continuous Output Current ($V_{OUT}=0$ to V_{CC})	I_{OUT}	50	mA
Input Clamp Current ($V_{IN}<0$)	I_{IK}	-50	mA
Output Clamp Current ($V_{OUT}<0$)	I_{OK}	-50	mA
Storage Temperature Range	T_{STG}	-65 ~ +150	$^\circ\text{C}$

Note: 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}	Operating	1.65		5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Operating Temperature	T_A		-40		85	$^\circ\text{C}$
Low-level Output Current	I_{OL}	$V_{CC}=1.65\text{V}$			4	mA
		$V_{CC}=2.3\text{V}$			12	mA
		$V_{CC}=2.7\text{V}$			12	mA
		$V_{CC}=3\text{V}$			24	mA
		$V_{CC}=4.5\text{V}$			24	mA

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	SOP-14	86	$^\circ\text{C}/\text{W}$
	TSSOP-14	113	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS (T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-level Input Voltage	V _{IH}	V _{CC} =1.65V ~ 1.95V	0.65×V _{CC}			V
		V _{CC} =2.3V ~ 2.7V	1.7			V
		V _{CC} =2.7V ~ 3.6V	2			V
		V _{CC} =4.5V ~ 5.5V	0.7×V _{CC}			V
Low-level Input Voltage	V _{IL}	V _{CC} =1.65V ~ 1.95V			0.35×V _{CC}	V
		V _{CC} =2.3V ~ 2.7V			0.7	V
		V _{CC} =2.7V ~ 3.6V			0.8	V
		V _{CC} =4.5V ~ 5.5V			0.3×V _{CC}	V
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65 ~ 5.5V, I _{OL} =100μA			0.2	V
		V _{CC} =1.65V, I _{OL} =4mA			0.45	V
		V _{CC} =2.3V, I _{OL} =12mA			0.7	V
		V _{CC} =2.7V, I _{OL} =12mA			0.4	V
		V _{CC} =3.0V, I _{OL} =24mA			0.55	V
		V _{CC} =4.5V, I _{OL} =32mA			0.55	V
Input Leakage Current	I _{I(LEAK)}	V _{IN} =5.5V or GND, V _{CC} =3.6V			±5	μA
Power OFF Leakage Current	I _{off}	V _{IN} or V _{OUT} =5.5V, V _{CC} =0V			±10	μA
Quiescent Supply Current	I _{CC}	V _{IN} = V _{CC} or GND, I _{OUT} =0 V _{CC} =3.6V			10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI _{CC}	V _{CC} =2.7 ~ 3.6V, I _{OUT} =0 One input at V _{CC} -0.6V, Other inputs at V _{CC} or GND			500	μA
Input Capacitance	C _I	V _{IN} = V _{CC} or GND, V _{CC} =3.3V		5		pF

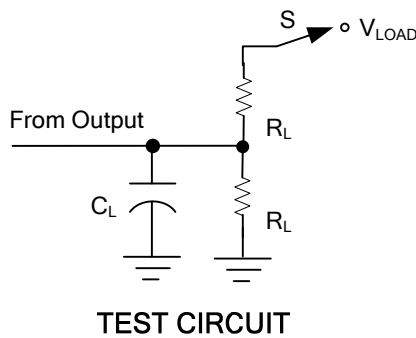
■ SWITCHING CHARACTERISTICS (T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (nA) to output(nY)	t _{PLZ} t _{PZL}	V _{CC} =1.8±0.15V, C _L =30pF, R _L =1KΩ	1		5.6	ns
		V _{CC} =2.5±0.2V, C _L =30pF, R _L =500Ω	1		3.4	ns
		V _{CC} =2.7V, C _L =50pF, R _L =500Ω			3.3	ns
		V _{CC} =3.3±0.3V, C _L =50pF, R _L =500Ω	1		3.6	ns
		V _{CC} =5±0.5V, C _L =50pF, R _L =500Ω	1		2.6	ns

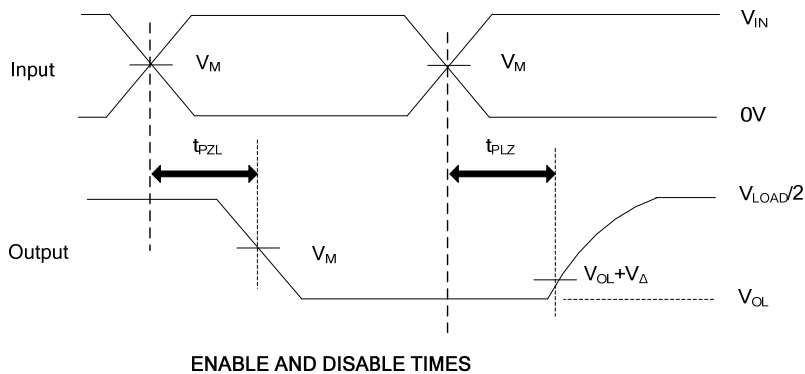
■ OPERATING CHARACTERISTICS (T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance Per Inverter	C _{PD}	V _{CC} =1.8±0.15V, f=10MHz		1.8		pF
		V _{CC} =2.5±0.2V, f=10MHz		2.0		pF
		V _{CC} =3.3±0.3V, f=10MHz		2.5		pF

■ TEST CIRCUIT AND WAVEFORMS



V _{CC}	Inputs		V _M	V _{LOAD}	V _Δ	C _L	R _L
	V _{IN}	t _R , t _F					
1.8V±0.15V	V _{CC}	≤2ns	V _{CC} /2	2 x V _{CC}	0.15V	30pF	1KΩ
2.5V±0.2V	V _{CC}	≤2ns	V _{CC} /2	2 x V _{CC}	0.15V	30pF	500Ω
2.7V	2.7V	≤2.5ns	1.5V	2 x V _{CC}	0.3V	50pF	500Ω
3.3V±0.3V	2.7V	≤2.5ns	1.5V	2 x V _{CC}	0.3V	50pF	500Ω
5V±0.5V	V _{CC}	≤2.5ns	V _{CC} /2	2 x V _{CC}	0.3V	50pF	500Ω



Notes: 1. C_L includes probe and jig capacitance.

2. All input pulses are supplied by generators having the following characteristics: PRR ≤10MHz, Z_O = 50Ω.

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