

**U74LVC06A****CMOS IC****HEX INVERTER
BUFFERS/DRIVERS WITH
OPEN-DRAIN OUTPUTS****DESCRIPTION**

The **U74LVC06A** contain six independent inverter buffers/drivers with open drain outputs, and performs the Boolean function $Y = \overline{A}$ in positive logic.

This device has power-down protective circuit preventing destruction of the device when it is powered down.

FEATURES

- * Operate From 1.65V to 3.6V
- * Inputs and Open-Drain Outputs Accept Voltages to 5.5V
- * I_{OFF} Supports Partial-Power-Down Mode
- * Low Power Dissipation

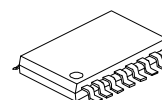
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC06AL-P14-R	U74LVC06AG-P14-R	TSSOP-14	Tape Reel
U74LVC06AL-P14-T	U74LVC06AG-P14-T	TSSOP-14	Tube

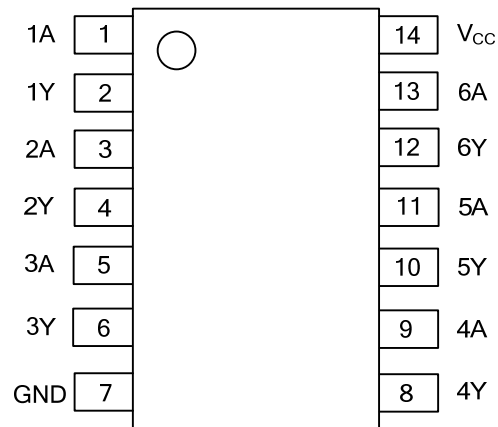
U74LVC06AL-P14-R

- (1) Packing Type
- (2) Package Type
- (3) Lead Free

- (1) R: Tape Reel, T: Tube
- (2) P14: TSSOP-14
- (3) G: Halogen Free, L: Lead Free

**TSSOP-14**

■ PIN CONFIGURATION

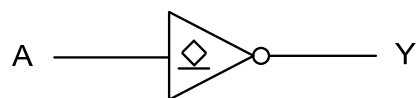


■ FUNCTION TABLE (Each Inverter)

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

Note: H: HIGH voltage level; L: LOW voltage level.

■ LOGIC DIAGRAM (Each Inverter)



Logic Symbol

■ ABSOLUTE MAXIMUM RATING

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 ~ +6.5	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	T_{STG}	-65 ~ +150	°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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	113	°C /W

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	Operating	1.65		3.6	V
		Data retention only	1.5			V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}		0		5.5	V
Operating Temperature	T_A		-40		85	°C
Low-Level Output Current	I_{OL}	$V_{CC}=1.65V$			4	mA
		$V_{CC}=2.3V$			8	mA
		$V_{CC}=2.7V$			12	mA
		$V_{CC}=3V$			24	mA

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}C$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V_{IH}	$V_{CC}=1.65V \sim 1.95V$	$0.65 \cdot V_{CC}$			V
		$V_{CC}=2.3V \sim 2.7V$	1.7			V
		$V_{CC}=2.7V \sim 3.6V$	2			V
Low-Level Input Voltage	V_{IL}	$V_{CC}=1.65V \sim 1.95V$			$0.35 \cdot V_{CC}$	V
		$V_{CC}=2.3V \sim 2.7V$			0.7	V
		$V_{CC}=2.7V \sim 3.6V$			0.8	V
Low-Level Output Voltage	V_{OL}	$I_{OL}=100\mu A$ $V_{CC}=1.65 \sim 3.6V$			0.2	V
		$I_{OL}=4mA$ $V_{CC}=1.65V$			0.45	V
		$I_{OL}=8mA$ $V_{CC}=2.3V$			0.7	V
		$I_{OL}=12mA$ $V_{CC}=2.7V$			0.4	V
		$I_{OL}=24mA$ $V_{CC}=3.0V$			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_Q	$V_{IN}=V_{CC}$ or GND, $I_{OUT}=0$, $V_{CC}=3.6V$			10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_Q	$V_{CC}=2.7 \sim 3.6V$, One input at $V_{CC}-0.6V$, $I_{OUT}=0$, Other inputs at V_{CC} or GND			500	μA
Input Capacitance	C_{IN}	$V_{IN}=V_{CC}$ or GND, $V_{CC}=3.3V$		5		pF

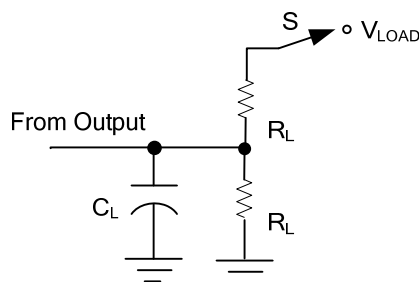
■ SWITCHING CHARACTERISTICS (T_A=25°C)

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, R _L =1KΩ	1.4		3.9	ns
		V _{CC} =2.5±0.2V, R _L =500Ω				
		V _{CC} =2.7V, R _L =500Ω	1.0		3.9	ns
		V _{CC} =3.3±0.3V, R _L =500Ω				

■ OPERATING CHARACTERISTICS (T_A=25°C)

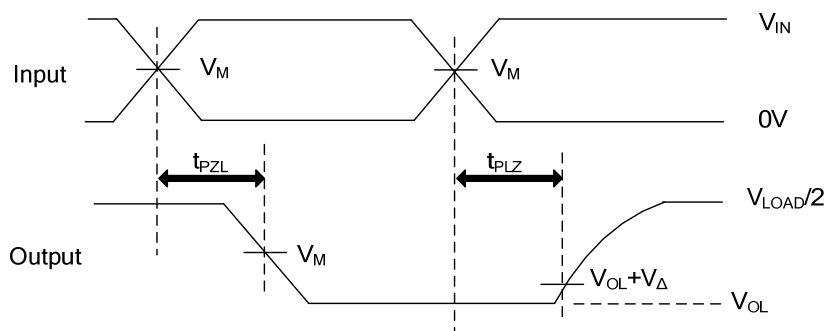
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance Per Inverter	C _{PD}	V _{CC} =1.8±0.15V		2.1		pF
		V _{CC} =2.5±0.2V		2.3		pF
		V _{CC} =3.3±0.3V		2.5		pF

■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

V_{CC}	INPUTS		V_M	V_{LOAD}	V_{Δ}	C_L	R_L
	V_{IN}	t_R, t_F					
$1.8V \pm 0.15V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	$2 \times V_{CC}$	$0.15V$	$30pF$	$1K\Omega$
$2.5V \pm 0.2V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	$2 \times V_{CC}$	$0.15V$	$30pF$	500Ω
$2.7V$	$2.7V$	$\leq 2.5ns$	$1.5V$	$6V$	$0.3V$	$50pF$	500Ω
$3.3V \pm 0.3V$	$2.7V$	$\leq 2.5ns$	$1.5V$	$6V$	$0.3V$	$50pF$	500Ω



ENABLE AND DISABLE TIMES

Note: C_L includes probe and jig capacitance.

All input pulses are supplied by generators having the following characteristics: $PRR \leq 10MHz$, $Z_o = 50\Omega$.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.