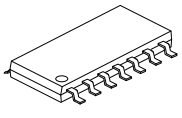
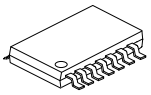
U74LVC06A

CMOS IC

HEX INVERTER BUFFERS/DRIVERS WITH OPEN-DRAIN OUTPUTS



SOP-14U



TSSOP-14U

■ 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

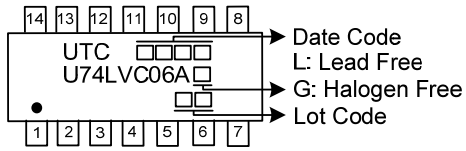
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC06AL-UEA-R	U74LVC06AG-UEA-R	SOP-14U	Tape Reel
U74LVC06AL-UEB-R	U74LVC06AG-UEB-R	TSSOP-14U	Tape Reel

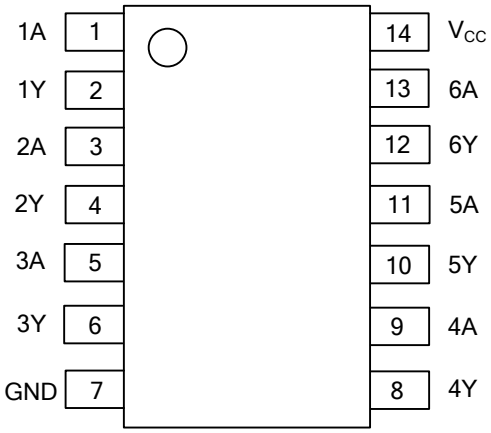
U74LVC06AG-UEA-R
(1)Packing Type
(2)Package Type
(3)Green Package

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

■ MARKING



■ PIN CONFIGURATION

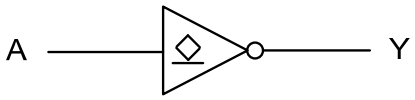


■ FUNCTION TABLE (Each Inverter)

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

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

■ 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.

■ 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
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
Operating Temperature	T_A		-40		+125	°C

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOP-14U	θ_{JA}	125	°C/W
	TSSOP-14U		150	°C/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
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
Low-Level Output Voltage	V_{OL}	V_{CC}=1.65 ~ 3.6V, I_{OL}=100μA			0.2	V
		V_{CC}=1.65V, I_{OL}= 4mA			0.45	V
		V_{CC}=2.3V, I_{OL}= 8mA			0.7	V
		V_{CC}=2.7V, I_{OL}=12mA			0.4	V
		V_{CC}=3.0V, I_{OL}=24mA			0.55	V
Input Leakage Current	$I_{I(LEAK)}$	V_{IN}=5.5V or GND, V_{CC}=3.6V			±1	μA
Power OFF Leakage Current	I_{OFF}	V_{IN} or V_{OUT}=5.5V, V_{CC}=0V			±1	μA
Quiescent Supply Current	I_Q	V_{IN}= V_{CC} or GND, I_{OUT}=0, V_{CC}=3.6V			1	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_Q	V_{CC}=2.7~3.6V,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

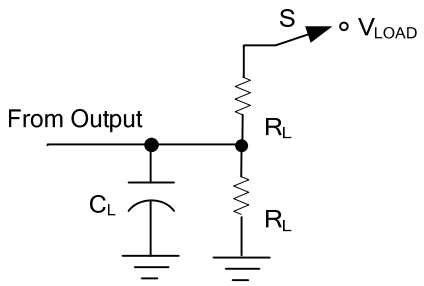
■ SWITCHING CHARACTERISTICS (T_A=25°C, unless otherwise specified)

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, R_L=1KΩ	C_L=30pF	1.4		5.1	ns
		V_{CC}=2.5±0.2V, R_L=500Ω		1.0		2.8	ns
		V_{CC}=2.7V, R_L=500Ω	C_L=50pF	1.0		3.7	ns
		V_{CC}=3.3±0.3V, R_L=500Ω		1.0		3.5	ns

■ OPERATING CHARACTERISTICS (f=10MHz, T_A=25°C, unless otherwise specified)

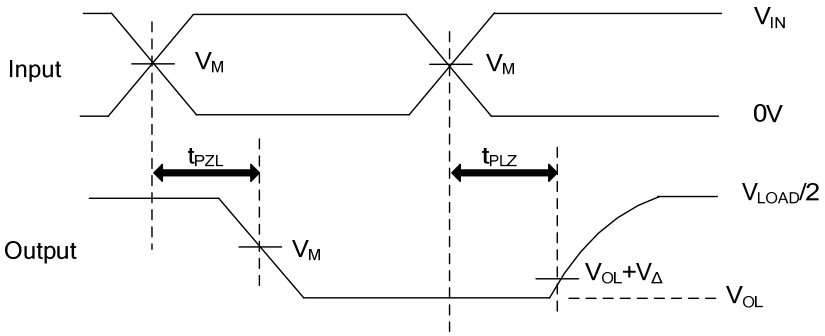
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance Per Inverter	C_{PD}	V_{CC}=1.8±0.15V		2.1		pF
		V_{CC}=2.5±0.2V		2.3		pF
		V_{CC}=3.3±0.3V		2.5		pF

■ 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±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	6V	0.3V	50pF	500Ω
3.3V±0.3V	2.7V	≤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 ≤10MHz, Zo = 50Ω.