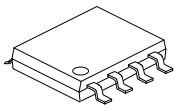
U74LVC3G34

CMOS IC

TRIPLE BUFFER GATE



SOP-8

■ DESCRIPTION

The **U74LVC3G34** is a triple buffer gate which provides the Boolean function Y = A.

The **U74LVC3G34** inputs can be driven from either 3.3 V or 5 V devices.

The **U74LVC3G34** IOFF circuitry disables the output, preventing a damaging backflow current through the device when it is powered down.

■ FEATURES

* Wide supply voltage range from 1.65V to 5.5V
* Inputs accept voltages up to 5.5V
* I_{OFF} supports partial-power-down mode
* Low static power consumption; I_{CC}=10μA (Max.)

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC3G34L-S08-R	U74LVC3G34G-S08-R	SOP-8	Tape Reel

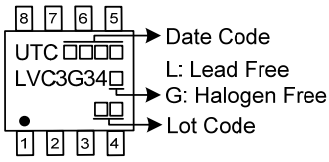
U74LVC3G34G-S08-R

(1)Packing Type — (1) R: Tape Reel

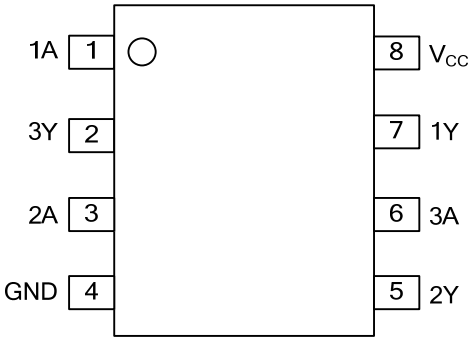
(2)Package Type — (2) S08: SOP-8

(3)Green Package — (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ PIN CONFIGURATION

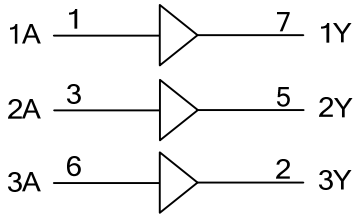


■ FUNCTION TABLE

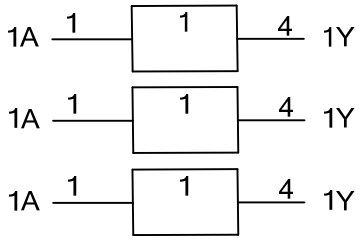
INPUT(A)	OUTPUT(Y)
H	H
L	L

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

■ LOGIC DIAGRAM (positive logic)



Logic symbol



IEC logic symbol

■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ +6.5	V
Input Voltage	V_{IN}		-0.5 ~ +6.5	V
Output Voltage	V_{OUT}	Output in the high or low state	-0.5 ~ V_{CC} +0.5	V
		Output in the power-off state	-0.5 ~ +6.5	V
Continuous V_{CC} or GND Current	I_{CC}		±100	mA
Continuous Output Current	I_{OUT}	V_{OUT}=0 ~ V_{CC}	±50	mA
Input Clamp Current	I_{IK}	V_{IN}<0	-50	mA
Output Clamp Current	I_{OK}	V_O>V_{CC} or V_{OUT}<0	-50	mA
Storage Temperature Range	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		5.5	V
		Data retention only	1.5			V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	High or low state	0		V_{CC}	V
Operating Temperature	T_A		-40		+85	°C
Input Transition Rise or Fall Rate	Δt/Δv	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

■ 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 to 2.7V		1.7			V
		V_{CC}=3V to 3.6V		2			V
		V_{CC}=4.5V to 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 to 2.7V				0.7	V
		V_{CC}=3V to 3.6V				0.8	V
		V_{CC}=4.5V to 5.5V				0.3×V_{CC}	V
High-Level Output Voltage	V_{OH}	V_{CC}=1.65 ~ 5.5V, I_{OH}=-100μA		V_{CC}-0.1			V
		V_{CC}=1.65V, I_{OH}=-4mA		1.2			V
		V_{CC}=2.3V, I_{OH}=-8mA		1.9			V
		V_{CC}=3.0V	I_{OH}=-16mA	2.4			V
			I_{OH}=-24mA	2.3			V
		V_{CC}=4.5V, I_{OH}=-32mA		3.8			V
Low-Level Output Voltage	V_{OL}	V_{CC}=1.65 ~ 5.5V, I_{OL}=-100μA				0.1	V
		V_{CC}=1.65V, I_{OL}=-4mA				0.45	V
		V_{CC}=2.3V, I_{OL}=-8mA				0.3	V
		V_{CC}=3.0V	I_{OL}=-16mA			0.4	V
			I_{OL}=-24mA			0.55	V
		V_{CC}=4.5V, I_{OL}=-32mA				0.55	V

■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=0 to 5.5V, V_{IN}=5.5V or GND			±5	μA
Power OFF Leakage Current	I_{off}	V_{CC}=0V, V_{IN} or V_{OUT}=5.5V			±10	μA
Quiescent Supply Current	I_{CC}	V_{CC}=1.65 ~5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0			10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_{CC}	V_{CC}=3 to 5.5V, One input at V_{CC}-0.6V, Other inputs at V_{CC} or GND			500	μA
Input Capacitance	C_I	V_{CC}=3.3V, V_{IN}=V_{CC} or GND		6		pF

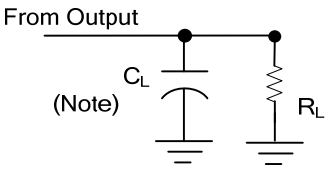
■ SWITCHING CHARACTERISTICS (T_A =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (A or B) to output(Y)	t_{PLH} / t_{PHL}	V_{CC}=1.8±0.15V,C_L=30pF, R_L=1000Ω	3.2		7.9	ns
		V_{CC}=2.5±0.2V,C_L=30pF, R_L=500Ω	1.5		4.4	ns
		V_{CC}=3.3±0.3V,C_L=50pF, R_L=500Ω	1.4		4.1	ns
		V_{CC}=5±0.5V,C_L=50pF, R_L=500Ω	1.1		3.2	ns

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	V_{CC}=1.8V		19		pF
		V_{CC}=2.5V		19		pF
		V_{CC}=3.3V		19		pF
		V_{CC}=5V		21		pF

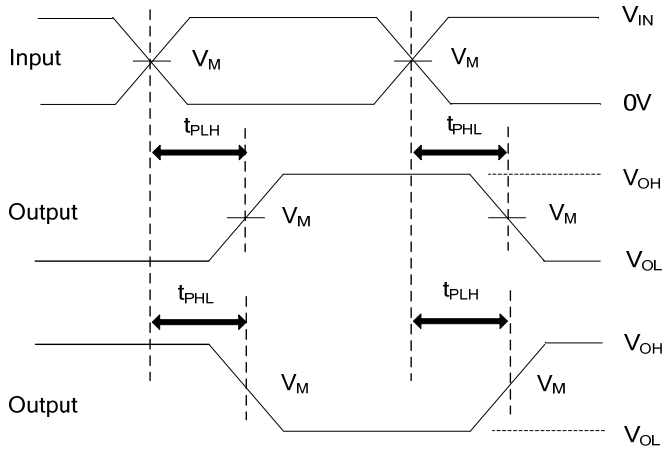
■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

Note: C_L includes probe and jig capacitance.

V_{CC}	V_{IN}	t_R / t_F	V_M	C_L	R_L
1.8V±0.15V	V_{CC}	≤2ns	V_{CC}/2	30pF	1KΩ
2.5V±0.2V	V_{CC}	≤2ns	V_{CC}/2	30pF	500Ω
3.3V±0.3V	3V	≤2.5ns	1.5V	50pF	500Ω
5V±0.5V	V_{CC}	≤2.5ns	V_{CC}/2	50pF	500Ω



PROPAGATION DELAY TIMES

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.