



## U74LVC2G34

CMOS IC

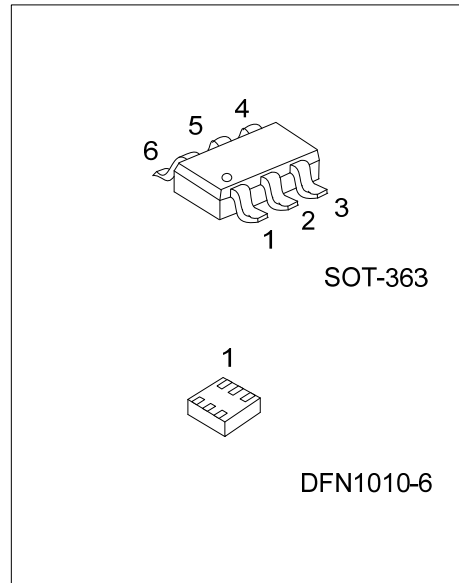
### DUAL BUFFER GATE

#### DESCRIPTION

The **U74LVC2G34** is a dual buffer, it provides the function  $Y = A$ .  
 This device has power-down protective circuit, preventing device destruction when it is powered down.

#### FEATURES

- \* Operate From 1.65V to 5.5V
- \* Inputs Accept Voltages to 5.5V
- \* I<sub>OFF</sub> Supports Partial-Power-Down Mode
- \* Low Power Dissipation
- \* Max t<sub>PD</sub> of 4.1 ns at 3.3V



#### ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC2G34L-AL6-R	U74LVC2G34G-AL6-R	SOT-363	Tape Reel
U74LVC2G34L-K06-1010-R	U74LVC2G34G-K06-1010-R	DFN1010-6	Tape Reel

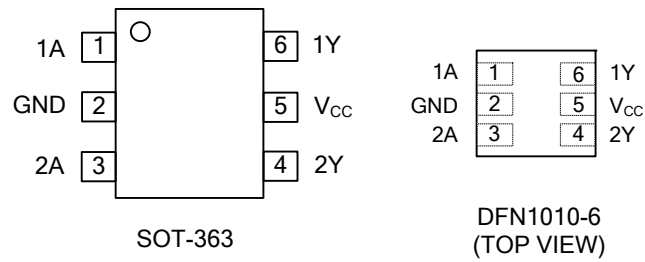
<p>U74LVC2G34G-AL6-R</p> <p>(1) Packing Type          (2) Package Type          (3) Green Package</p>	<p>(1) R: Tape Reel          (2) AL6: SOT-363, K06-1010: DFN1010-6          (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING

SOT-363	DFN1010-6
<p>L: Lead Free          G: Halogen Free</p>	



■ PIN CONFIGURATION

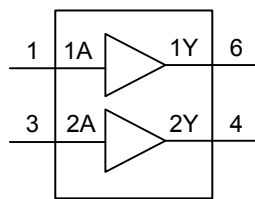


■ FUNCTION TABLE

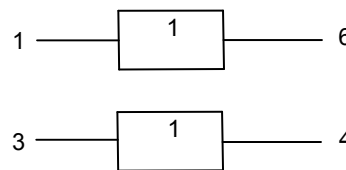
INPUT(nA)	OUTPUT(nY)
H	H
L	L

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

■ LOGIC DIAGRAM (Positive Logic)



Logic Symbol



IEC Logic Symbol

## ■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	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
	Power-down mode		-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 ( $V_{OUT}<0$ or $V_{OUT}>V_{CC}$ )		$I_{OK}$	± 50	mA
Power Dissipation ( $T_A=-40^{\circ}C$ to $+125^{\circ}C$ )	SOT-363	$P_D$	300	mW
	DFN1010-6		200	mW
Storage Temperature Range		$T_{STG}$	-65 ~ +150	$^{\circ}C$

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	$V_{OUT}$	Active mode	0		$V_{CC}$	V
		$V_{CC}=0V$ , Power-down mode	0		5.5	V
Operating Temperature	$T_A$		-40		125	$^{\circ}C$
Input Rise or Fall Times	$t_R / t_F$	$V_{CC}=1.65V \sim 2.7V$	0		20	ns/V
		$V_{CC}=2.7V \sim 5.5V$	0		10	ns/V

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	$V_{IH}$	$V_{CC}=1.65V \sim 1.95V$	$0.65 \times V_{CC}$			V
		$V_{CC}=2.3V \sim 2.7V$	1.7			V
		$V_{CC}=3V \sim 3.6V$	2			V
		$V_{CC}=4.5V \sim 5.5V$	$0.7 \times V_{CC}$			V
Low-Level Input Voltage	$V_{IL}$	$V_{CC}=1.65V \sim 1.95V$			$0.35 \times V_{CC}$	V
		$V_{CC}=2.3V \sim 2.7V$			0.7	V
		$V_{CC}=3V \sim 3.6V$			0.8	V
		$V_{CC}=4.5V \sim 5.5V$			$0.3 \times V_{CC}$	V
High-Level Output Voltage	$V_{OH}$	$V_{CC}=1.65 \sim 5.5V, I_{OH}=-100\mu A$	$V_{CC}-0.1$			V
		$V_{CC}=1.65V, I_{OH}=-4mA$	1.2			V
		$V_{CC}=2.3V, I_{OH}=-8mA$	1.9			V
		$V_{CC}=2.7V, I_{OH}=-12mA$	2.2			V
		$V_{CC}=3.0V, I_{OH}=-24mA$	2.3			V
		$V_{CC}=4.5V, I_{OH}=-32mA$	3.8			V
Low-Level Output Voltage	$V_{OL}$	$V_{CC}=1.65 \sim 5.5V, I_{OL}=100\mu A$			0.1	V
		$V_{CC}=1.65V, I_{OL}=4mA$			0.45	V
		$V_{CC}=2.3V, I_{OL}=8mA$			0.3	V
		$V_{CC}=2.7V, I_{OL}=12mA$			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, $V_{CC}=5.5V$			± 5	$\mu A$
Power OFF Leakage Current	$I_{OFF}$	$V_{IN}$ or $V_{OUT}=5.5V, V_{CC}=0V$			±10	$\mu A$

### ■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Supply Current	$I_Q$	$V_{IN}=5.5V$ or GND, $I_{OUT}=0$ $V_{CC}=5.5V$			10	$\mu A$
Additional Quiescent Supply Current Per Input Pin	$\Delta I_Q$	$V_{CC}=2.3 \sim 5.5V$ , $I_{OUT}=0$ One input at $V_{CC}-0.6V$ , Other inputs at $V_{CC}$ or GND			500	$\mu A$
Input Capacitance	$C_{IN}$			2.5		pF

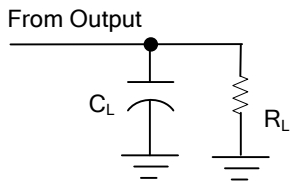
### ■ SWITCHING CHARACTERISTICS ( $T_A=25^\circ C$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Propagation delay from input (nA) to output(nY)	$t_{PLH} / t_{PHL}$	$C_L=30pF$	$V_{CC}=1.65V \sim 1.95V$ , $R_L=1K\Omega$	1.0	3.8	8.6	ns
			$V_{CC}=2.3V \sim 2.7V$ , $R_L=500\Omega$	0.5	2.4	4.4	ns
		$C_L=50pF$	$V_{CC}=2.7V$ , $R_L=500\Omega$	0.5	2.5	5.0	ns
			$V_{CC}=3.0V \sim 3.6V$ , $R_L=500\Omega$	0.5	2.2	4.1	ns
			$V_{CC}=4.5V \sim 5.5V$ , $R_L=500\Omega$	0.5	1.9	3.2	ns

### ■ OPERATING CHARACTERISTICS ( $T_A=25^\circ C$ )

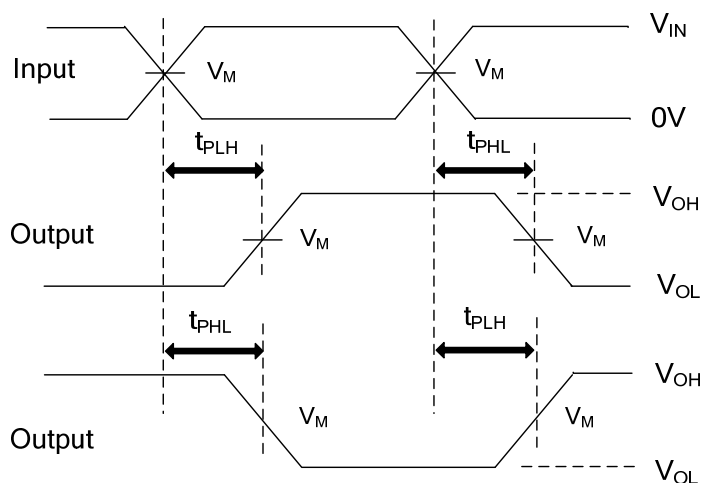
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	$C_{PD}$	$V_{CC}=3.3V$ , $V_{IN}=GND$ to $V_{CC}$		20		pF

## TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

V <sub>CC</sub>	INPUTS		V <sub>M</sub>	C <sub>L</sub>	R <sub>L</sub>
	V <sub>IN</sub>	t <sub>R</sub> , t <sub>F</sub>			
1.65V ~ 1.95V	V <sub>CC</sub>	≤2ns	V <sub>CC</sub> /2	30pF	1KΩ
2.3V ~ 2.7V	V <sub>CC</sub>	≤2ns	V <sub>CC</sub> /2	30pF	500Ω
2.7V	2.7V	≤2.5ns	1.5V	50pF	500Ω
3.0V ~ 3.6V	2.7V	≤2.5ns	1.5V	50pF	500Ω
4.5V ~ 5.5V	V <sub>CC</sub>	≤2.5ns	V <sub>CC</sub> /2	50pF	500Ω



PROPAGATION DELAY TIMES

Note: C<sub>L</sub> includes probe and jig capacitance.

All input pulses are supplied by generators having the following characteristics: PRR ≤10MHz, Z<sub>o</sub> = 50Ω.

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