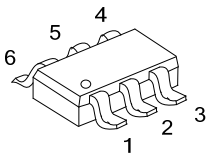
U74LVC2G34

CMOS IC

DUAL BUFFER GATE



SOT-363

■ 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_{OFF} Supports Partial-Power-Down Mode
* Low Power Dissipation
* Max t_{PD} of 4.1 ns at 3.3V

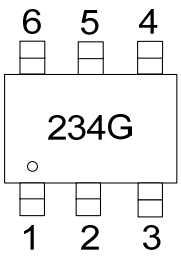
■ ORDERING INFORMATION

Ordering Number	Package	Packing
U74LVC2G34G-AL6-R	SOT-363	Tape Reel

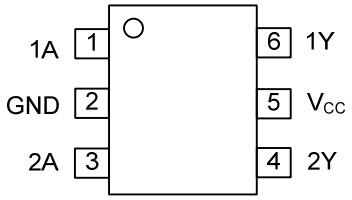
U74LVC2G34G-AL6-R
(1)Packing Type
(2)Package Type
(3)Halogen Free

(1) R: Tape Reel
(2) AL6: SOT-363
(3) G: Halogen Free

■ MARKING



■ PIN CONFIGURATION

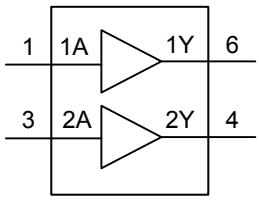


■ FUNCTION TABLE

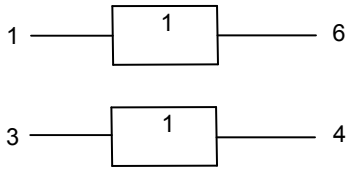
INPUT(nA)	OUTPUT(nY)
H	H
L	L

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°C to +125°C)		P_D	300	mW
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
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	°C
Input Rise or Fall Times	t_R / t_F	V_{CC}=1.65V ~ 2.7V	0		20	ns/V
		V_{CC}=2.7V ~ 5. 5V	0		10	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 ~ 2.7V		1.7			V
		V_{CC}=3V ~ 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}=3V ~ 3.6V				0.8	V
		V_{CC}=4.5V ~ 5.5V				0.3*V_{CC}	V
High-Level Output Voltage	V_{OH}	I_{OH}=-100μA	V_{CC}=1.65 ~ 5.5V	V_{CC}-0.1			V
		I_{OH}=-4mA	V_{CC}=1.65V	1.2			V
		I_{OH}=-8mA	V_{CC}=2.3V	1.9			V
		I_{OH}=-12mA	V_{CC}=2.7V	2.2			V
		I_{OH}=-24mA	V_{CC}=3.0V	2.3			V
		I_{OH}=-32mA	V_{CC}=4.5V	3.8			V
Low-Level Output Voltage	V_{OL}	I_{OL}=100μA	V_{CC}=1.65 ~ 5.5V			0.1	V
		I_{OL}=4mA	V_{CC}=1.65V			0.45	V
		I_{OL}=8mA	V_{CC}=2.3V			0.3	V
		I_{OL}=12mA	V_{CC}=2.7V			0.4	V
		I_{OL}=24mA	V_{CC}=3.0V			0.55	V
		I_{OL}=32mA	V_{CC}=4.5V			0.55	V
Input Leakage Current	$I_{I(LEAK)}$	V_{IN}=5.5V or GND, V_{CC}=5.5V				± 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}=5.5V or GND, I_{OUT}=0 V_{CC}=5.5V				10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_Q	V_{CC}=2.3 ~ 5.5V, I_{OUT}=0 One input at V_{CC}-0.6V, Other inputs at V_{CC} or GND				500	μA
Input Capacitance	C_{IN}				2.5		pF

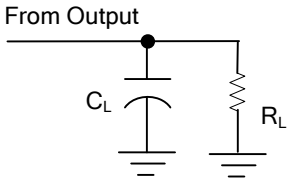
■ SWITCHING CHARACTERISTICS (T_A=25°C)

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

■ OPERATING CHARACTERISTICS (T_A=25°C)

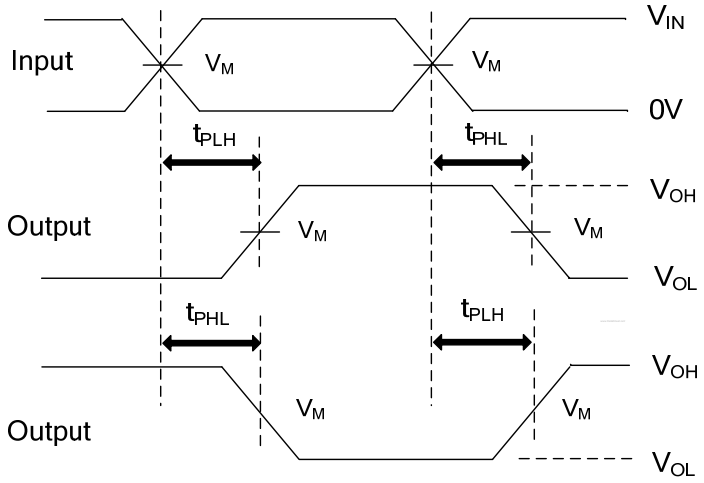
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	V_{CC}=3.3V, V_{IN}=GND to V_{CC}		20		pF

■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

V_{CC}	INPUTS		V_M	C_L	R_L
	V_{IN}	t_R, t_F			
1.65V ~ 1.95V	V_{CC}	≤2ns	$V_{CC}/2$	30pF	1KΩ
2.3V ~ 2.7V	V_{CC}	≤2ns	$V_{CC}/2$	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_{CC}	≤2.5ns	$V_{CC}/2$	50pF	500Ω



PROPAGATION DELAY TIMES

Note: C_L includes probe and jig capacitance.
All input pulses are supplied by generators having the following characteristics: PRR ≤10MHz, Zo = 50Ω.