



U74AUC2G34

Preliminary

CMOS IC

DUAL BUFFER GATE

■ DESCRIPTION

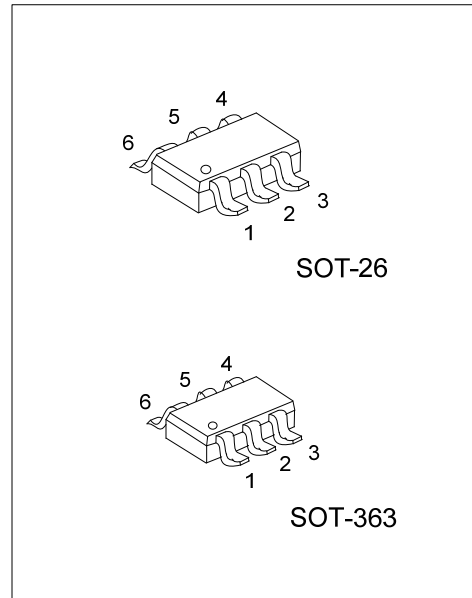
The **U74AUC2G34** dual buffer gate is operational at 0.8V to 2.7V V_{CC} , but is designed specifically for 1.65V to 1.95V V_{CC} operation.

The **U74AUC2G34** performs the Boolean function $Y = \bar{A}$ in positive logic.

This device is fully specified for partial-power-down applications using I_{OFF} . The I_{OFF} circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down.

■ FEATURES

- * Operate from 0.8V to 2.7V
- * Low power dissipation: $I_{CC}=10\mu A$ (Max.)
- * $\pm 8mA$ Output Driver: $V_{CC}=1.8V$
- * I_{OFF} Supports partial-Power-Down Mode Operation

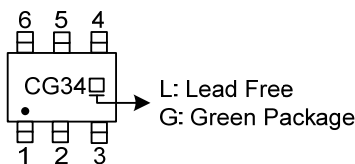


■ ORDERING INFORMATION

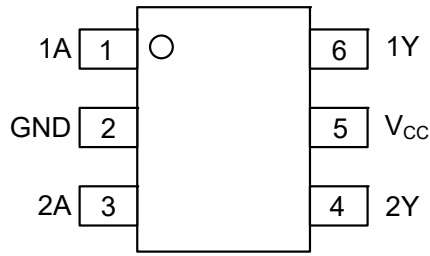
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AUC2G34L-AG6-R	U74AUC2G34G-AG6-R	SOT-26	Tape Reel
U74AUC2G34L-AL6-R	U74AUC2G34G-AL6-R	SOT-363	Tape Reel

<p>U74AUC2G34G-AG6-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AG6: SOT-26, AL6: SOT-363 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING



■ PIN CONFIGURATION

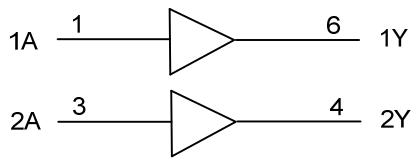


■ FUNCTION TABLE

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

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

■ LOGIC DIAGRAM (positive logic)



Logic symbol

■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ +3.6	V
Input Voltage	V_{IN}		-0.5 ~ +4.1	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 ~ +4.1	V
V_{CC} or GND Current	I_{CC}		±100	mA
Continuous Output Current	I_{OUT}		±20	mA
Input Clamp Current	I_{IK}	$V_{IN} < 0$	-50	mA
Output Clamp Current	I_{OK}	$V_{OUT} < 0$	-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	0.8		2.7	V
Input Voltage	V_{IN}		0		3.6	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	$\Delta t/\Delta v$	$V_{CC}=0.8V \sim 1.65V$ (Note 1)			20	ns/V
		$V_{CC}=0.65V \sim 1.95V$ (Note 2)			20	ns/V
		$V_{CC}=2.3V \sim 2.7V$			10	ns/V

Notes: 1. The data was taken at $C_L=15pF$, $R_L=2k\Omega$.

2. The data was taken at $C_L=30pF$, $R_L=500\Omega$.

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+85°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-level Input Voltage	V _{IH}	V _{CC} =0.8V	V _{CC}			V _{CC}			V
		V _{CC} =1.1V ~ 1.95V	0.65× V _{CC}			0.65× V _{CC}			V
		V _{CC} =2.3V ~ 2.7V	1.7			1.7			V
Low-level Input Voltage	V _{IL}	V _{CC} =0.8V			0			0	V
		V _{CC} =1.1V ~ 1.95V			0.35 ×V _{CC}			0.35 ×V _{CC}	V
		V _{CC} =2.3V ~ 2.7V			0.7			0.7	V
High-Level Output Voltage	V _{OH}	V _{CC} =0.8 ~ 2.7V, I _{OH} =-100μA	V _{CC} -0.1			V _{CC} -0.1			V
		V _{CC} =0.8V, I _{OH} =-700μA		0.55			0.55		V
		V _{CC} =1.1V, I _{OH} =-3mA	0.8			0.8			V
		V _{CC} =1.4V, I _{OH} =-5mA	1			1			V
		V _{CC} =1.65V, I _{OH} =-8mA	1.2			1.2			V
		V _{CC} =2.3V, I _{OH} =-9mA	1.8			1.8			V
Low-Level Output Voltage	V _{OL}	V _{CC} =0.8~ 2.7V, I _{OL} =100μA			0.2			0.2	V
		V _{CC} =0.8V, I _{OL} =700μA		0.25			0.25		V
		V _{CC} =1.1V, I _{OL} =3mA			0.3			0.3	V
		V _{CC} =1.4V, I _{OL} =5mA			0.4			0.4	V
		V _{CC} =1.65V, I _{OL} =8mA			0.45			0.45	V
		V _{CC} =2.3V, I _{OL} =9mA			0.6			0.6	V
Input Leakage Current (A Inputs)	I _{I(LEAK)}	V _{CC} =0 ~ 2.7V, V _{IN} = V _{CC} or GND		±0.1	±5		±0.1	±5	μA
Power OFF Leakage Current	I _{OFF}	V _{CC} =0V, V _{IN} = V _O or 2.7V		±0.1	±10		±0.1	±10	μA
Quiescent Supply Current	I _{CC}	V _{CC} =0.8~ 2.7V, V _{IN} =V _{CC} or GND I _{OUT} =0		0.1	10		0.1	10	μA

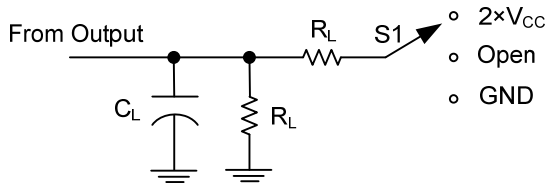
■ SWITCHING CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+85°C			UNIT	
			MIN	TYP	MAX	MIN	TYP	MAX		
Propagation delay from input (A) to output(Y)	t _{PLH} / t _{PHL}	C _L =15pF, R _L =2KΩ	V _{CC} =0.8V		16			21	ns	
			V _{CC} =1.2±0.1V	0.1		8.4	0.1		9.4	ns
			V _{CC} =1.5±0.1V	0.1		7.3	0.1		8.3	ns
			V _{CC} =1.8±0.15V	0.1		6.6	0.1		7.6	ns
			V _{CC} =2.5±0.2V	0.1		6.2	0.1		7.2	ns
		C _L =30pF, R _L =1KΩ	V _{CC} =1.8±0.15V	0.1		6.4	0.1		7.4	ns
		C _L =30pF, R _L =500Ω	V _{CC} =2.5±0.2V	0.1		5.8	0.1		6.8	ns

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _i	V _{CC} =2.5V, V _{IN} =V _{CC} or GND		2		pF
Power Dissipation Capacitance	C _{PD}	V _{CC} =0.8V		12		pF
		V _{CC} =1.2V		12		pF
		V _{CC} =1.5V		12		pF
		V _{CC} =1.8V		13		pF
		V _{CC} =2.5V		14		pF

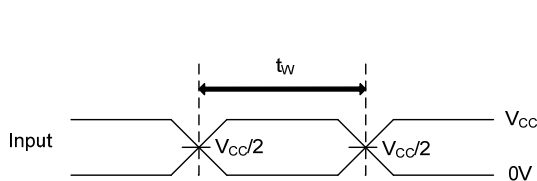
■ TEST CIRCUIT AND WAVEFORMS



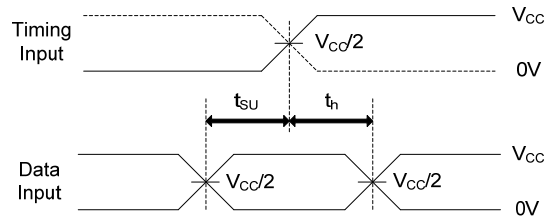
TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	$2 \times V_{CC}$
t_{PHZ}/t_{PZH}	GND

TEST CIRCUIT

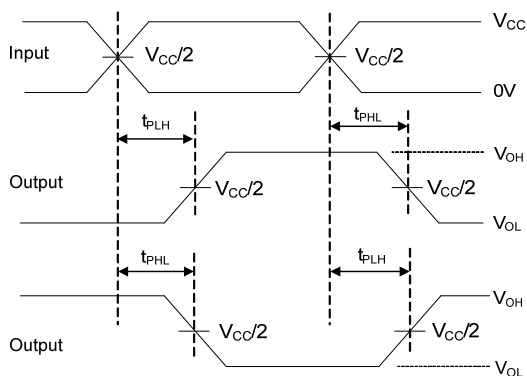
V_{CC}	C_L	R_L	V_{Δ}
0.8V	15pF	2k Ω	0.1V
1.2V \pm 0.1V	15pF	2k Ω	0.1V
1.5V \pm 0.1V	15pF	2k Ω	0.1V
1.8V \pm 0.15V	15pF	2k Ω	0.15V
2.5V \pm 0.2V	15pF	2k Ω	0.15V
1.8V \pm 0.15V	30pF	1k Ω	0.15V
2.5V \pm 0.2V	30pF	500 Ω	0.15V



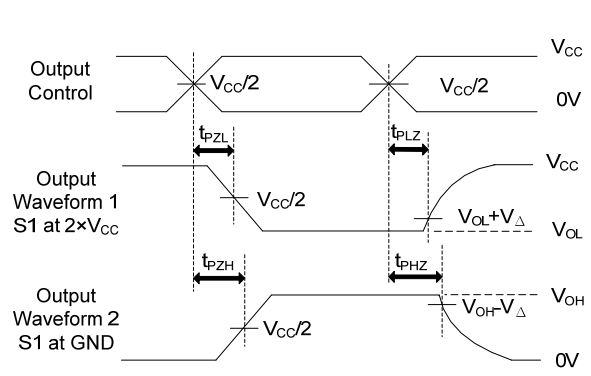
PULSE DURATION



SETUP AND HOLD TIMES



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

Notes: 1. C_L includes probe and jig capacitance.

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

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