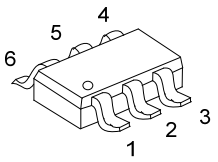
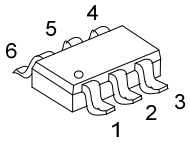
DUAL INVERTER GATE



SOT-26



SOT-363

■ DESCRIPTION

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

The **U74AUC2G04** performs the Boolean function $Y = \overline{A}$.

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}=10μA (Max.)
* ±8mA Output Driver: V_{CC}=1.8V
* I_{OFF} Supports partial-Power-Down Mode Operation

■ ORDERING INFORMATION

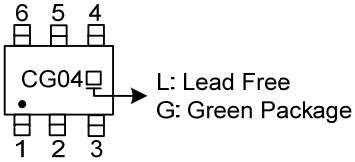
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AUC2G04L-AG6-R	U74AUC2G04G-AG6-R	SOT-26	Tape Reel
U74AUC2G04L-AL6-R	U74AUC2G04G-AL6-R	SOT-363	Tape Reel

U74AUC2G04G-AG6-R

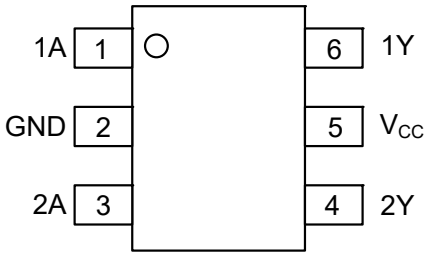
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) AG6: SOT-26, AL6: SOT-363
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ PIN CONFIGURATION

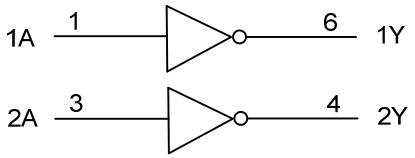


■ FUNCTION TABLE

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

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 ~ +3.6	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 ~ +3.6	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} >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	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
Input Transition Rise or Fall Rate	Δt/Δv	V_{CC}=0.8V ~ 1.95V			20	ns/V
		V_{CC}=2.3V ~ 2.7V			10	ns/V
Operating Temperature	T_A		-40		+85	°C

■ 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

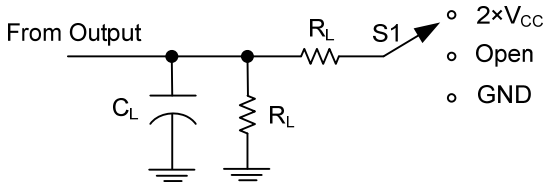
■ SWITCHING CHARACTERISTICS (Unless otherwise specified)

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		15			18	.	ns
			V_{CC}=1.2±0.1V	0.1		9.1	0.1		10.1	ns
			V_{CC}=1.5±0.1V	0.1		8	0.1		9	ns
			V_{CC}=1.8±0.15V	0.1		7.7	0.1		8.7	ns
			V_{CC}=2.5±0.2V	0.1		7.2	0.1		8.2	ns
		C_L=30pF, R_L=1KΩ	V_{CC}=1.8±0.15V	0.1		5	0.1		6	ns
		C_L=30pF, R_L=500Ω	V_{CC}=2.5±0.2V	0.1		4.5	0.1		5.5	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		2.1		pF
Power Dissipation Capacitance	C_{PD}	V_{CC}=0.8V		12.5		pF
		V_{CC}=1.2V		12.5		pF
		V_{CC}=1.5V		12.5		pF
		V_{CC}=1.8V		12.5		pF
		V_{CC}=2.5V		14		pF

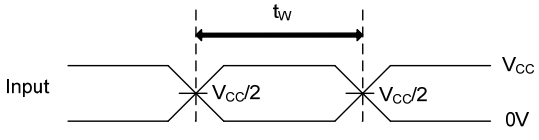
■ TEST CIRCUIT AND WAVEFORMS



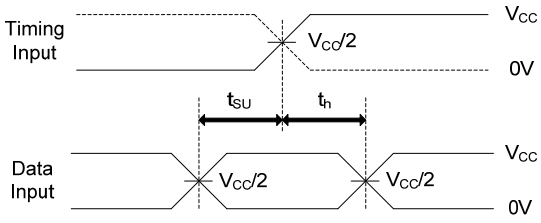
TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	2×V_{CC}
t_{PHZ}/t_{PZH}	GND

TEST CIRCUIT

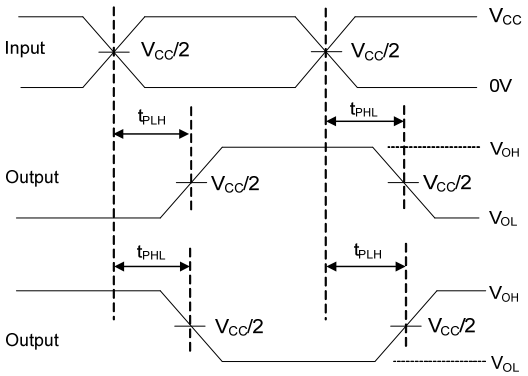
V_{CC}	C_L	R_L	$V_\triangle$
0.8V	15pF	2kΩ	0.1V
1.2V±0.1V	15pF	2kΩ	0.1V
1.5V±0.1V	15pF	2kΩ	0.1V
1.8V±0.15V	15pF	2kΩ	0.15V
2.5V±0.2V	15pF	2kΩ	0.15V
1.8V±0.15V	30pF	1kΩ	0.15V
2.5V±0.2V	30pF	500Ω	0.15V



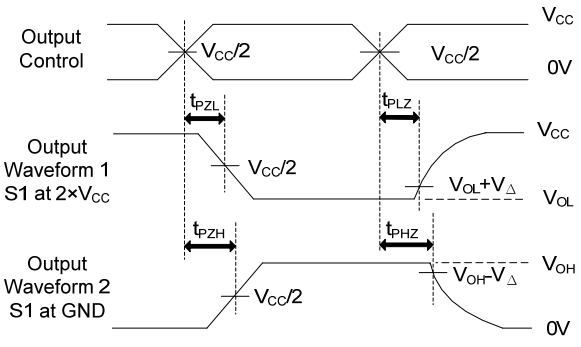
PULSE DURATION



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 ≤10MHz, Z_O = 50Ω.