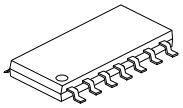
U74ACT00

CMOS IC

QUADRUPLE 2-INPUT POSITIVE-NAND GATES



SOP-14

■ DESCRIPTION

The UTC **U74ACT00** contains four independent 2-input positive-nand gates. Each Gate Performs the Boolean function $Y=\overline{A \bullet B}$ or $Y=\overline{A}+\overline{B}$

■ FEATURES

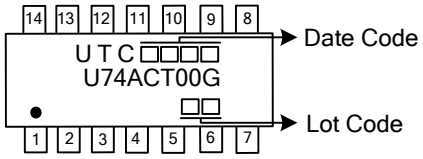
* Operation Voltage Range: 4.5~5.5V
* Low Power Dissipation: I_{CC}=2μA (Max.)
* High Noise Immunity
* Compatible With TTL Output

■ ORDERING INFORMATION

Ordering Number	Package	Packing
U74ACT00G-S14-R	SOP-14	Tape Reel

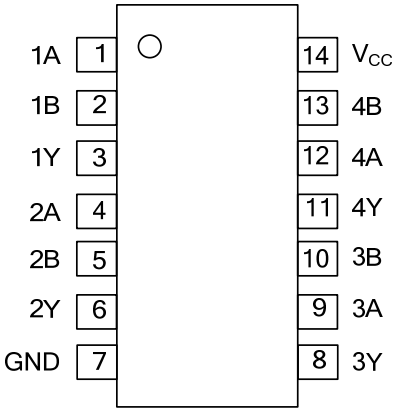
U74ACT00G-S14-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S14: SOP-14 (3) G: Halogen Free and Lead Free

■ MARKING



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■ PIN CONFIGURATION

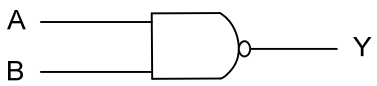


■ FUNCTION TABLE

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

H = High voltage level；L = Low voltage level；X = Don't care

■ LOGIC DIAGRAM (positive gate)



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ +7.0	V
Input Voltage (Note 2)	V_{IN}		-0.5 ~ +V_{CC}+0.5	V
Output Voltage	V_{OUT}		-0.5 ~ +V_{CC}+0.5	V
Continuous Output Current	I_{OUT}	V_{OUT}=0V ~ V_{CC}	±50	mA
Input Clamp Current	I_{IK}	V_{IN} < 0 or V_{IN} > V_{CC}	±20	mA
Output Clamp Current	I_{OK}	V_{OUT} < 0 or V_{OUT} > V_{CC}	±20	mA
Continuous Current Through V_{CC} or GND	I_{CC}		±200	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}		4.5		5.5	V
Input Voltage	V_{IN}		0		V_{CC}	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input Transition Rise or Fall Rate	Δt/Δv				8	ns/V
Operating Temperature	T_A		-40		+85	°C

■ 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}=4.5~5.5V		2			V
Low Level Input Voltage	V_{IL}	V_{CC}=4.5~5.5V				0.8	V
High-Level Output Voltage	V_{OH}	V_{CC}=4.5V	I_{OH}=-24mA	3.86			V
			I_{OH}=-50μA	4.4	4.49		V
		V_{CC}=5.5V	I_{OH}=-24mA	4.86			V
			I_{OH}=-50μA	5.4	5.49		V
Low-Level Output Voltage	V_{OL}	V_{CC}=4.5V	I_{OL}=24mA			0.36	V
			I_{OL}=50μA		0.001	0.1	V
		V_{CC}=5.5V	I_{OL}=24mA			0.36	V
			I_{OL}=50μA		0.001	0.1	V
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=5.5V, V_{IN}=V_{CC} or GND				±0.1	μA
Quiescent Supply Current	I_{CC}	V_{CC}=5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0A				2	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_{CC}	V_{CC}=5.5V, One input at 3.4V, Other inputs at V_{CC} or GND			0.6		mA
Input Capacitance	C_I	V_{CC}= 5V, V_{IN}= V_{CC} or GND			2.6		pF

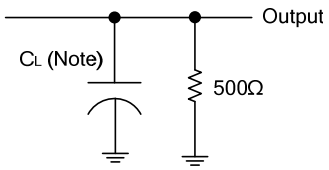
■ SWITCHING CHARACTERISTICS (C_L=50pF, R_L=500Ω, T_A =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (A or B) to output(Y)	t_{PLH}	V_{CC}=5V±0.5V	1.5	5.5	9.0	ns
	t_{PHL}		1.5	4.0	7.0	ns

■ OPERATING CHARACTERISTICS (C_L=50pF, f=10MH$_Z$, T_A =25°C , unless otherwise specified)

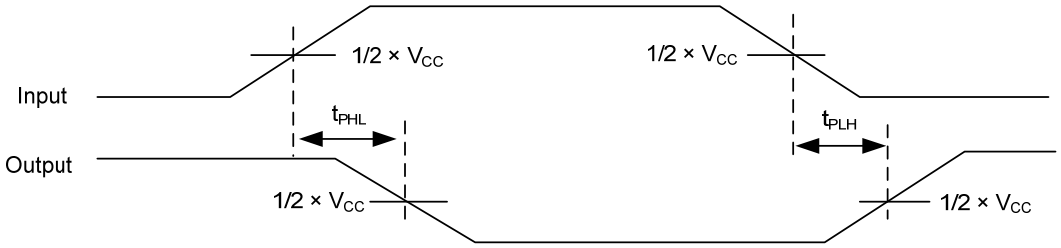
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	V_{CC}=5.0V		40		pF

■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

Note : C_L includes probe and jig capacitance.



PROPAGATION DELAY FROM INPUT(A) TO OUTPUT(Y).

Notes: 1. C_L includes probe and jig capacitance.
2. All input pulses are supplied by generators having the following characteristics: PRR ≤1MHz, Z_O = 50Ω.

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