



U74AHC07

CMOS IC

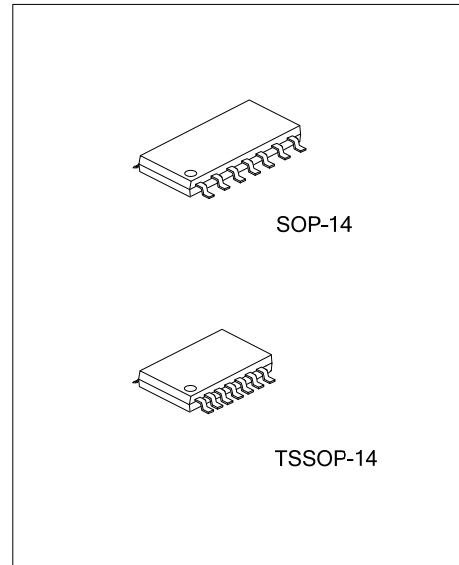
NON-INVERT BUFFERS WITH OPEN-DRAIN OUTPUT

■ DESCRIPTION

The **U74AHC07** is a device with six independent non-inverting buffers and the output of the buffer is an open drain. Each buffer provides the Function $Y=A$.

■ FEATURES

- * Operate From 2V to 5.5V
- * High Noise Immunity
- * Low Power Dissipation
- * Balanced Propagation Delays
- * Output Capability Standard (Open Drain)

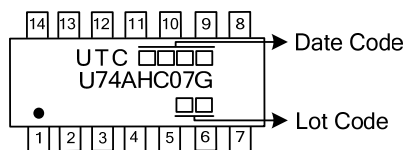


■ ORDERING INFORMATION

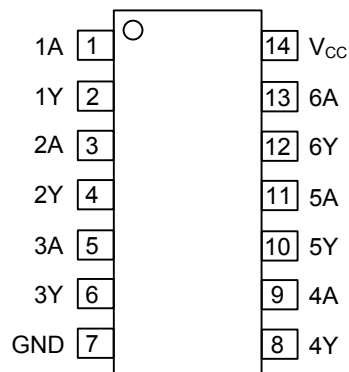
Ordering Number	Package	Packing
U74AHC07G-S14-R	SOP-14	Tape Reel
U74AHC07G-P14-R	TSSOP-14	Tape Reel

U74AHC07G-S14-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S14: SOP-14, P14: TSSOP-14 (3) G: Halogen Free and Lead Free
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■ MARKING



■ PIN CONFIGURATION



■ FUNCTION TABLE (Each Gate)

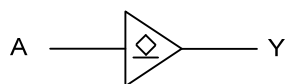
INPUT A	OUTPUT Y
H	Z
L	L

Note: H: High Voltage Level

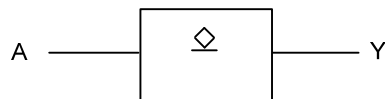
L: Low Voltage Level

Z: High-Impedance OFF-State

■ LOGIC SYMBOL(each gate)



Logic Symbol



IEC Logic Symbol

■ **ABSOLUTE MAXIMUM RATING** (unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	-0.5 ~ +7	V
Input Voltage		V_{IN}	-0.5 ~ +7	V
Output Voltage	Active Mode	V_{OUT}	-0.5 ~ $V_{CC} + 0.5$	V
	High-Impedance Mode		-0.5 ~ +7	V
V_{CC} or GND Current		I_{CC}	±75	mA
Output Sink Current ($V_{OUT} > -0.5V$)		I_{OUT}	±25	mA
Input Clamp Current ($V_{IN} < -0.5V$)		I_{IK}	-20	mA
Output Clamp Current ($V_{OUT} < -0.5V$)		I_{OK}	±20	mA
Operating Temperature		T_{OPR}	-40 ~ +85	°C
Storage Temperature		T_{STG}	-65 ~ +150	°C

Note: 1. 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.

2. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

■ **THERMAL DATA**

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOP-14	θ_{JA}	76	°C/W
	TSSOP-14		113	°C/W

■ **RECOMMENDED OPERATING COMDITIONS**

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2.0	5.0	5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	Active Mode	0		V_{CC}	V
		High-Impedance Mode	0		6.0	
High-Level Input Voltage	V_{IH}	$V_{CC} = 2.0V$	1.5			V
		$V_{CC} = 3.0V$	2.1			
		$V_{CC} = 5.5V$	3.85			
Low-Level Input Voltage	V_{IL}	$V_{CC} = 2.0V$			0.5	V
		$V_{CC} = 3.0V$			0.9	
		$V_{CC} = 5.5V$			1.65	
Input Transition Rise or Fall Rate	t_R / t_F	$V_{CC} = 3.3 \pm 0.3V$			100	ns/V
		$V_{CC} = 5.0 \pm 0.5V$			20	

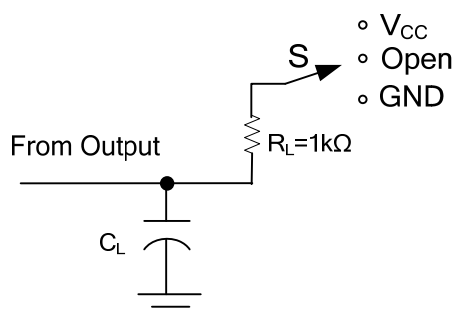
■ **STATIC CHARACTERISTICS** ($T_A = 25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Low-Level Output Voltage	V_{OL}	$I_{OL} = 50\mu A$			0.1	V
		$V_{CC} = 2.0V$				
		$V_{CC} = 3.0V$			0.1	
		$V_{CC} = 4.5V$			0.1	
		$I_{OL} = 4 mA$			0.36	
Input Leakage Current	$I_{I(LEAK)}$	$V_{IN} = 5.5V$ or GND, $V_{CC} = 0V$ to 5.5V			0.1	μA
		$V_{IN} = V_{IH}$ or V_{IL} , $V_{OUT} = V_{CC}$ or GND, $V_{CC} = 5.5V$			±0.25	
3-State Output OFF-state Current	I_{OZ}	$V_{IN} = V_{IH}$ or V_{IL} , $V_{OUT} = V_{CC}$ or GND, $V_{CC} = 5.5V$			±0.25	μA
Quiescent Supply Current	I_Q	$V_{IN} = V_{CC}$ or GND, $I_{OUT} = 0$, $V_{CC} = 5.5V$			1	μA
Input Capacitance	C_{IN}			1.5	10	pF

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

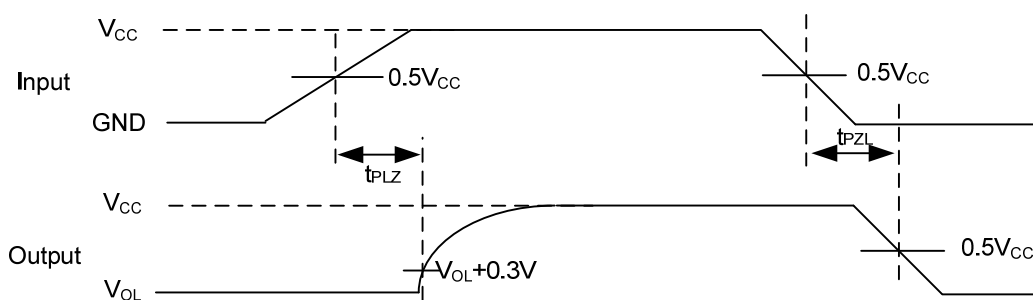
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From Input(A) To Output(Y)	t_{PZL}	$V_{CC} = 3.3 \pm 0.3 V$		3.5	5.6	ns
		$C_L = 15 pF$				
	t_{PLZ}	$V_{CC} = 3.3 \pm 0.3 V$		5.0	8.0	
		$C_L = 50 pF$				
Propagation Delay From Input(A) To Output(Y)	t_{PZL}	$V_{CC} = 5 \pm 0.5 V$		2.5	3.9	ns
		$C_L = 15 pF$				
	t_{PLZ}	$V_{CC} = 5 \pm 0.5 V$		3.6	5.5	
		$C_L = 50 pF$				

■ TEST CIRCUIT AND WAVEFORMS



TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{CC}

Test circuit for measuring propagation delay



Waveforms showing the Input(A) to Output(Y) propagation delays.

Note: C_L includes probe and jig capacitance.

All input pulses are supplied by generators having the following characteristics: PRR $\leq 1\text{MHz}$, $Z_o = 50\Omega$, $t_r \leq 3\text{ns}$, $t_f \leq 3\text{ns}$.

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