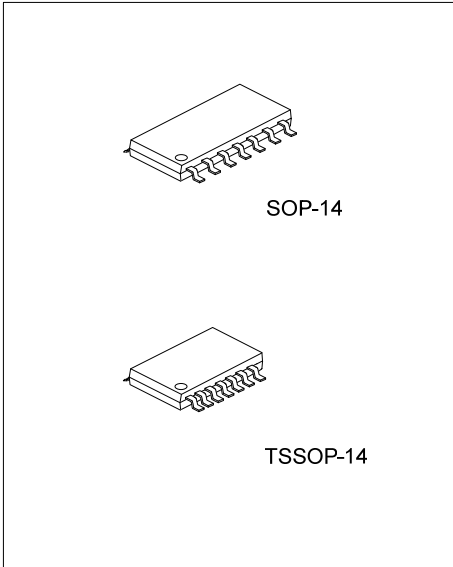




# U74AHC126

**CMOS IC**

## QUADRUPLE BUS BUFFER GATES WITH 3-STATE OUTPUTS



■ DESCRIPTION

The **U74HC126** is a quadruple bus buffer gate with 3-state outputs and 4 channels.

■ FEATURES

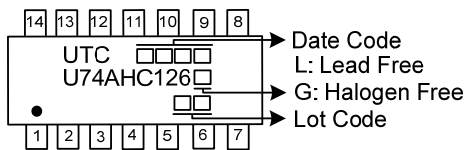
- \* Operate from 2V to 5.5V
- \* Max  $t_{pd}$  of 5.5ns at 5 V( $CL=15pF$ )
- \* Typical  $V_{IH} < 2.1V$  at  $V_{CC}=3V, T_a=25^\circ C$
- \* Typical  $V_{IL} > 0.9V$  at  $V_{CC}=3V, T_a=25^\circ C$

■ ORDERING INFORMATION

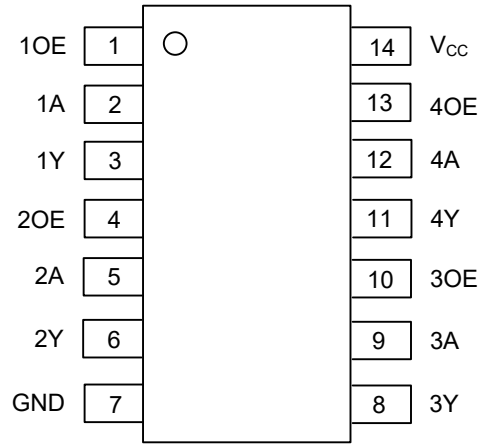
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC126L-S14-R	U74AHC126G-S14-R	SOP-14	Tape Reel
U74AHC126L-P14-R	U74AHC126G-P14-R	TSSOP-14	Tape Reel

<p>U74AHC126G-S14-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) S14: SOP-14, P14: TSSOP-14</li> <li>(3) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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■ MARKING



■ PIN CONFIGURATION

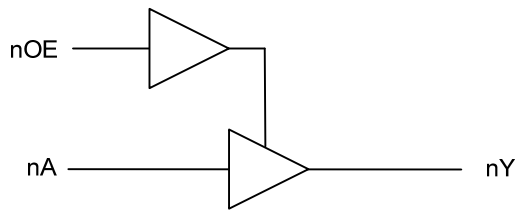


■ FUNCTION TABLE

INPUTS(OE)	INPUTS(A)	OUTPUT(Y)
H	L	L
H	H	H
L	X	Z

Note: H: HIGH voltage level L: LOW voltage level Z: high impedance X: don't care

■ LOGIC DIAGRAM



■ 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	$V_{OUT}$	-0.5 ~ $V_{CC} + 0.5$	V
$V_{CC}$ or GND Current	$I_{CC}$	±50	mA
Output Current	$I_{OUT}$	±25	mA
Input Clamp Current	$I_{IK}$	-20	mA
Output Clamp Current	$I_{OK}$	±20	mA
Storage Temperature	$T_{STG}$	-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 (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$		2		5.5	V
High-Level Input Voltage	$V_{IH}$	$V_{CC}=2V$	1.5			V
		$V_{CC}=3V$	2.1			V
		$V_{CC}=5.5V$	3.85			V
Low-Level Input Voltage	$V_{IL}$	$V_{CC}=2V$			0.5	V
		$V_{CC}=3V$			0.9	V
		$V_{CC}=5.5V$			1.65	V
Input Voltage	$V_{IN}$		0		5.5	V
Output Voltage	$V_{OUT}$		0		$V_{CC}$	V
High-Level Input Current	$I_{OH}$	$V_{CC}=2V$			-50	μA
		$V_{CC}=3.3V \pm 0.3V$			-4	mA
		$V_{CC}=5V \pm 0.5V$			-8	mA
Low-Level Input Current	$I_{OL}$	$V_{CC}=2V$			50	μA
		$V_{CC}=3.3V \pm 0.3V$			4	mA
		$V_{CC}=5V \pm 0.5V$			8	mA
Input Transition Rise or Fall rate	$\Delta t/\Delta V$	$V_{CC}=3.3V \pm 0.3V$			100	ns/V
		$V_{CC}=5V \pm 0.5V$			20	ns/V
Operating Temperature	$T_A$		-40		+125	°C

■ THERMAL DATA

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

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage High-Level	$V_{OH}$	$V_{CC}=2V, I_{OH}=-50\mu A$	1.9	2		V
		$V_{CC}=3V, I_{OH}=-50\mu A$	2.9	3		V
		$V_{CC}=4.5V, I_{OH}=-50\mu A$	4.4	4.5		V
		$V_{CC}=3V, I_{OH}=-4mA$	2.58			V
		$V_{CC}=4.5V, I_{OH}=-8mA$	3.94			V
Output Voltage Low-Level	$V_{OL}$	$V_{CC}=2V, I_{OL}=50\mu A$			0.1	V
		$V_{CC}=3V, I_{OL}=50\mu A$			0.1	V
		$V_{CC}=4.5V, I_{OL}=50\mu A$			0.1	V
		$V_{CC}=3V, I_{OL}=4mA$			0.36	V
		$V_{CC}=4.5V, I_{OL}=8mA$			0.36	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=0V\sim 5.5V, V_{IN}=V_{CC}$ or GND			$\pm 100$	nA
Output Off-State Current	$I_{OZ}$	$V_{CC}=5.5V, V_{OUT}=V_{CC}$ or GND			$\pm 250$	nA
Quiescent Supply Current	$I_Q$	$V_{CC}=5.5V, V_{IN}=V_{CC}$ or GND, $I_{OUT}=0$			4	$\mu A$
Input Capacitance	$C_i$	$V_{CC}=5V$		4	10	pF

■ SWITCHING CHARACTERISTICS ( $C_L=15pF$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From Input A to Output Y	$t_{PLH}/t_{PHL}$	$V_{CC}=3.3V\pm 0.3V$	1		9.5	ns
		$V_{CC}=5V\pm 0.5V$	1		6.5	ns
Propagation Delay From Input OE to Output Y	$t_{PZH}/t_{PZL}$	$V_{CC}=3.3V\pm 0.3V$	1		9.5	ns
		$V_{CC}=5V\pm 0.5V$	1		6	ns
Propagation Delay From Input OE to Output Y	$t_{PHZ}/t_{PLZ}$	$V_{CC}=3.3V\pm 0.3V$	1		11.5	ns
		$V_{CC}=5V\pm 0.5V$	1		8	ns

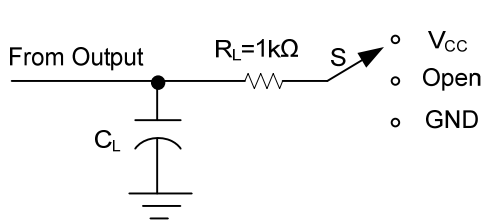
■ SWITCHING CHARACTERISTICS ( $C_L=50pF$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay From Input A to Output Y	$t_{PLH}/t_{PHL}$	$V_{CC}=3.3V\pm 0.3V$	1		13	ns
		$V_{CC}=5V\pm 0.5V$	1		8.5	ns
Propagation Delay From Input OE to Output Y	$t_{PZH}/t_{PZL}$	$V_{CC}=3.3V\pm 0.3V$	1		13	ns
		$V_{CC}=5V\pm 0.5V$	1		8	ns
Propagation Delay From Input OE to Output Y	$t_{PHZ}/t_{PLZ}$	$V_{CC}=3.3V\pm 0.3V$	1		15	ns
		$V_{CC}=5V\pm 0.5V$	1		10	ns

■ OPERATING CHARACTERISTICS (Unless otherwise specified)

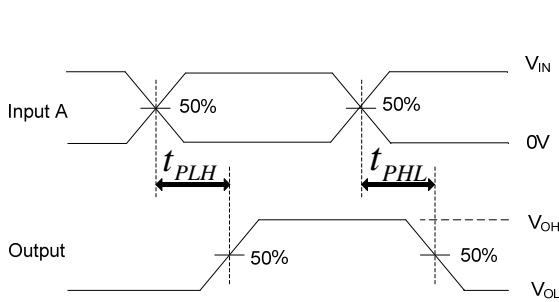
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	$C_{PD}$	No Load, $f=1MHz$		14		pF

## ■ TEST CIRCUIT AND WAVEFORMS

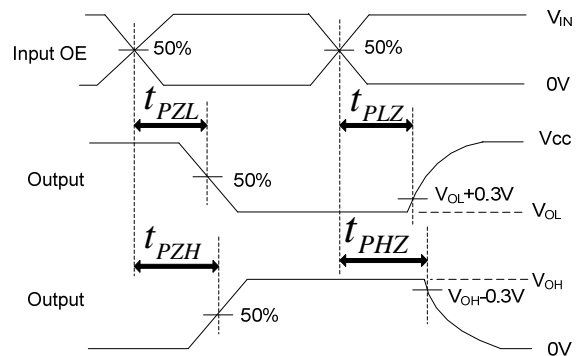


TEST CIRCUIT

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



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

Note:  $C_L$  includes probe and jig capacitance.

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

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