



U74HC32

CMOS IC

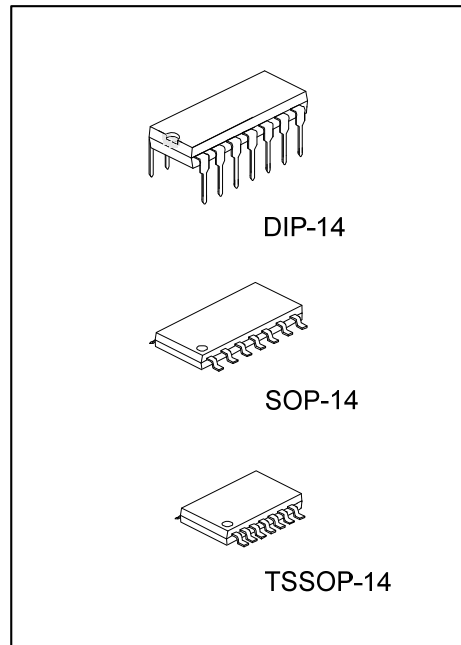
QUADRUPLE 2-INPUT POSITIVE-OR GATES

DESCRIPTION

The UTC **U74HC32** devices contain four independent 2-input OR gates. They perform the Boolean function $Y = \overline{A \cdot B}$ or $Y = A + B$ in positive logic.

FEATURES

- * Wide Operating Voltage Range of 1.0V ~ 7.0V
- * Low Power Consumption, 20µA Max I_{CC}
- * ±20mA Output Drive at 5V
- * Low Input Current of 1µA Max

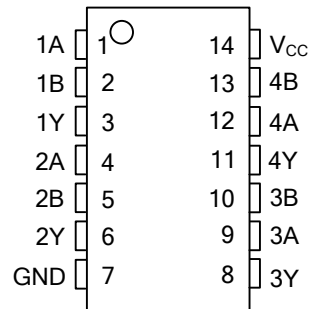


ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free Plating	Halogen Free		
U74HC32L-D14-T	U74HC32G-D14-T	DIP-14	Tube
U74HC32L-S14-T	U74HC32G-S14-T	SOP-14	Tube
U74HC32L-S14-R	U74HC32G-S14-R	SOP-14	Tape Reel
U74HC32L-P14-T	U74HC32G-P14-T	TSSOP-14	Tube
U74HC32L-P14-R	U74HC32G-P14-R	TSSOP-14	Tape Reel

<p>U74HC32L-D14-R</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) R: Tape Reel, T: Tube (2) D14: DIP-14, S14: SOP-14, P14: TSSOP-14 (3) L: Lead Free Plating, G: Halogen Free</p>
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■ PIN CONFIGURATION



■ LOGIC DIAGRAM (Positive Logic)



■ FUNCTION TABLE (Each Inverter)

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

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage Range	V_{CC}	1.0~7.0	V
Input Clamp Current (Note 1)	$I_{IK} (V_{IN} < 0 \text{ or } V_{IN} > V_{CC})$	± 20	mA
Output Clamp Current (Note 1)	$I_{OK} (V_{OUT} < 0 \text{ or } V_{OUT} > V_{CC})$	± 20	mA
Continuous Output Current	$I_O (V_{OUT} = 0 \sim V_{CC})$	± 25	mA
Continuous Current Through	V_{CC} or GND	± 50	mA
Storage Temperature	T_{STG}	-65 ~ +150	°C

Note : 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.
 2. 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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Ambient to Junction	SOP-14	86	°C /W
	DIP-14	80	°C /W
	TSSOP-14	113	°C /W

■ RECOMMENDED OPERATING CONDITIONS ($T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2	4.5	6	V
High-Level Input Voltage	V_{IH}	$V_{CC} = 2 \text{ V}$	1.4			V
		$V_{CC} = 4.5 \text{ V}$	3			V
		$V_{CC} = 6 \text{ V}$	4.2			V
Low- Level Input Voltage	V_{IL}	$V_{CC} = 2 \text{ V}$			0.7	V
		$V_{CC} = 4.5 \text{ V}$			1.5	V
		$V_{CC} = 6 \text{ V}$			2	V
Input Voltage	V_{IN}		0		V_{CC}	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input transition Rise/Fall Time	dt/dv	$V_{CC} = 4.5 \text{ V}$			500	ns
Ambient Operating Temperature	T_{OPR}		-40		85	°C

Note: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation.

■ ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$, unless otherwise noted)

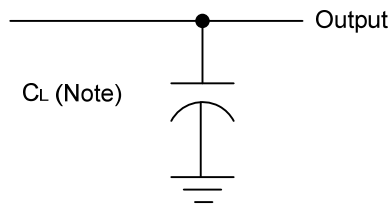
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Output Voltage	V_{OH}	$V_{CC} = 4.5\text{V}, V_{IN} = V_{IH} \text{ or } V_{IL}, I_{OH} = -20\mu\text{A}$	4.4	4.5		V
		$V_{CC} = 4.5\text{V}, V_{IN} = V_{IH} \text{ or } V_{IL}, I_{OH} = -4\text{mA}$	3.98	4.3		
Low-level Input Voltage	V_{OL}	$V_{CC} = 4.5\text{V}, V_{IN} = V_{IH} \text{ or } V_{IL}, I_{OL} = 20\mu\text{A}$		0.001	0.1	V
		$V_{CC} = 4.5\text{V}, V_{IN} = V_{IH} \text{ or } V_{IL}, I_{OL} = 4\text{mA}$		0.18	0.26	
Input Current	I_{IN}	$V_{CC} = 6\text{V}, V_{IN} = V_{CC} \text{ or } 0$		± 0.1	± 100	nA
Quiescent Supply Current	I_{CC}	$V_{CC} = 6\text{V}, V_{IN} = V_{CC} \text{ or } 0, I_{OUT} = 0$			20	μA
Operating Characteristics						
Power Dissipation Capacitance Per Gate	C_{PD}	No load		20		pF

Note: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation.

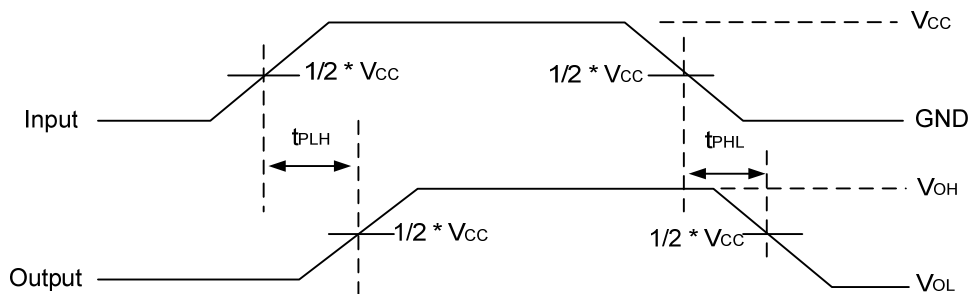
- SWITCHING CHARACTERISTICS OVER RECOMMENDED OPERATING FREE-AIR TEMPERATURE RANGE ($T_a = 25^\circ\text{C}$, $C_L = 50\text{ pF}$, unless otherwise specified)

PARAMETER	SYMBOL	FROM(INPUT)	TO(OUTPUT)	V_{CC}	MIN	TYP	MAX	UNIT
Propagation Delay from A or B to Y	t_{PD}	A or B	Y	2V			43	ns
				4.5V			18	
				6V			15	
Output Rise and Fall Time	t_T		Y	2V			33	ns
				4.5V			19	
				6V			17	

■ TEST CIRCUIT AND WAVEFORMS



Note: CL includes probe and jig capacitance.



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