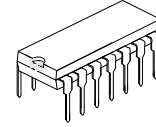


**U74HC32****CMOS IC****QUADRUPLE 2-INPUT
POSITIVE-OR GATES****DESCRIPTION**

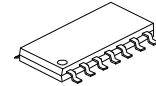
The UTC **U74HC32** devices contain four independent 2-input OR gates. They perform the Boolean function $Y = \overline{A} \bullet \overline{B}$ or $Y = A + B$ in positive logic.

FEATURES

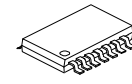
- * Wide Operating Voltage Range of 2.0V ~ 6.0V
- * Low Power Consumption, 2μA Max I_{cc}
- * ±5.2mA Output Drive at 5V
- * Low Input Current of 1μA Max



DIP-14



SOP-14U



TSSOP-14U

ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HC32L-D14-T	U74HC32G-D14-T	DIP-14	Tube
U74HC32L-UEA-R	U74HC32G-UEA-R	SOP-14U	Tape Reel
U74HC32L-UEB-R	U74HC32G-UEB-R	TSSOP-14U	Tape Reel

U74HC32G-D14-T

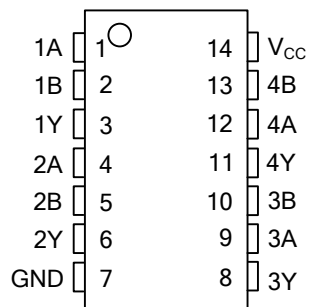
- (1) Packing Type
- (2) Package Type
- (3) Green Package

- (1) T: Tube, R: Tape Reel
- (2) D14: DIP-14, UEA: SOP-14U, UEB: TSSOP-14U
- (3) G: Halogen Free and Lead Free, L: Lead Free

MARKING

DIP-14	SOP-14U / TSSOP-14U
14 13 12 11 10 9 8 UTC □□□□ U74HC32□ □□ 1 2 3 4 5 6 7 → Date Code → L: Lead Free → G: Halogen Free → Lot Code	14 13 12 11 10 9 8 UTC □□□□ U74HC32□ □□ 1 2 3 4 5 6 7 → Date Code → L: Lead Free → G: Halogen Free → Lot Code

■ 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}	-0.5 ~ 7	V
Input Clamp Current (Note 2)	$I_{IK} (V_{IN} < 0 \text{ or } V_{IN} > V_{CC})$	± 20	mA
Output Clamp Current (Note 2)	$I_{OK} (V_{OUT} < 0 \text{ or } V_{OUT} > V_{CC})$	± 20	mA
Continuous Output Current	$I_O (V_{OUT} = 0 \sim V_{CC})$	± 25	mA
Continuous Current Through	$V_{CC} \text{ or } GND$	± 50	mA
Storage Temperature	T_{STG}	-65 ~ +150	°C

Notes: 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.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2	4.5	6	V
Input Voltage	V_{IN}		0		V_{CC}	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input transition Rise/Fall Time	dt/dv	$V_{CC}=4.5V$			500	ns
Operating Temperature	T_A		-40		+125	°C

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

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Ambient to Junction	DIP-14	75	°C/W
	SOP-14U	95	°C/W
	TSSOP-14U	120	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A=25^\circ\text{C}$			$T_A=-40\sim+125^\circ\text{C}$			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V_{IH}	$V_{CC}=2V$	1.4			1.5			V
		$V_{CC}=4.5V$	3			3.15			V
		$V_{CC}=6V$	4.2			4.2			V
Low- Level Input Voltage	V_{IL}	$V_{CC}=2V$			0.7			0.5	V
		$V_{CC}=4.5V$			1.5			1.35	V
		$V_{CC}=6V$			2			1.8	V
High-Level Output Voltage	V_{OH}	$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OH}=-20\mu A$	4.4	4.5		4.4			V
		$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OH}=-5.2mA$	3.98	4.3		3.84			V
		$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=20\mu A$		0.001	0.1			0.1	V
Low-level Input Voltage	V_{OL}	$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=5.2mA$		0.18	0.26			0.33	V
		$V_{CC}=4.5V, V_{IN}=V_{IH} \text{ or } V_{IL}, I_{OL}=5.2mA$		0.18	0.26			0.33	V
Input Current	I_{IN}	$V_{CC}=6V, V_{IN}=V_{CC} \text{ or } 0$			± 0.1			± 1	μA
Quiescent Supply Current	I_{CC}	$V_{CC}=6V, V_{IN}=V_{CC} \text{ or } 0, I_{OUT}=0$			2			20	μA

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

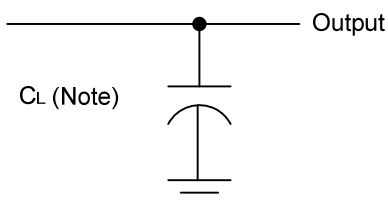
■ **SWITCHING CHARACTERISTICS OVER RECOMMENDED OPERATING FREE-AIR TEMPERATURE RANGE** ($C_L=50$ pF, $T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A=25^\circ\text{C}$			$T_A=-40\sim+125^\circ\text{C}$			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay from A or B to Y	t_{PD}	$V_{CC}=2\text{V}$			43			125	ns
		$V_{CC}=4.5\text{V}$			18			25	ns
		$V_{CC}=6\text{V}$			15			23	ns
Output Rise and Fall Time to Y	t_T	$V_{CC}=2\text{V}$			33			95	ns
		$V_{CC}=4.5\text{V}$			19			22	ns
		$V_{CC}=6\text{V}$			17			19	ns

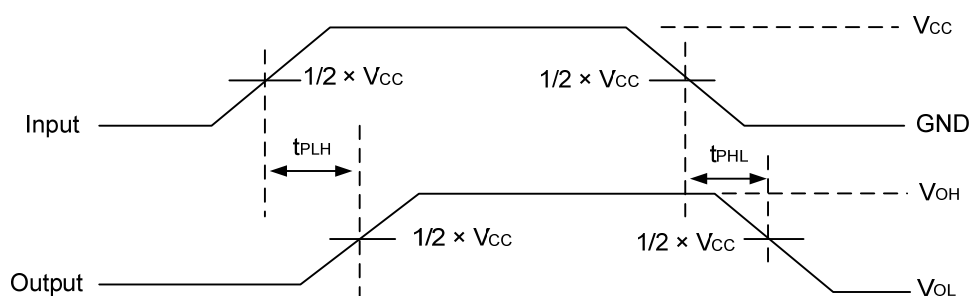
■ **OPERATING CHARACTERISTICS** ($f=10\text{MHz}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance Per Gate	C_{PD}	No load		20		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: CL includes probe and jig capacitance.



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