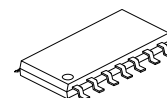


**U74AHC32****CMOS IC****QUADRUPLE 2-INPUT
POSITIVE-OR GATES****DESCRIPTION**

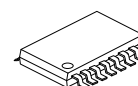
The UTC **U74AHC32** are quadruple 2-input positive-or gates which provides the function $Y=A+B$ in positive logic.

FEATURES

- * Operate from 2V to 5.5V
- * Max t_{PD} of 7.5ns at 5 V
- * Low Power Dissipation: $I_{CC}=2.0\mu A(\text{Max.})$



SOP-14



TSSOP-14

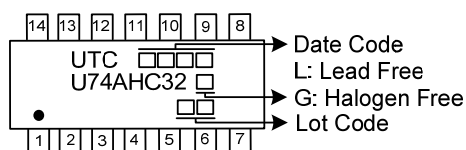
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC32L-S14-R	U74AHC32G-S14-R	SOP-14	Tape Reel
U74AHC32L-P14-R	U74AHC32G-P14-R	TSSOP-14	Tape Reel

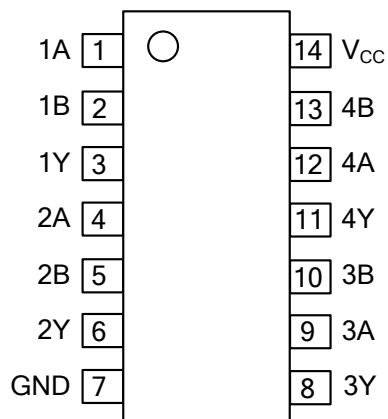
U74AHC32G-S14-R

- (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

MARKING

■ PIN CONFIGURATION



■ FUNCTION TABLE

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

Note: H: HIGH voltage level; L: LOW voltage level.

■ 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
Continuous 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.

■ THERMAL DATA

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

■ 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}	High or Low State	0		V_{CC}	V
High-Level Output Current	I_{OH}	$V_{CC}=2V$			-50	μA
		$V_{CC}=3.3V\pm0.3V$			-4	mA
		$V_{CC}=5V\pm0.5V$			-8	mA
Low-Level Output Current	I_{OL}	$V_{CC}=2V$			50	μA
		$V_{CC}=3.3V\pm0.3V$			4	mA
		$V_{CC}=5V\pm0.5V$			8	mA
Input Rise or Fall Times	$\frac{\Delta t}{\Delta V}$	$V_{CC}=3.3V\pm0.3V$			100	ns/V
		$V_{CC}=5V\pm0.5V$			20	ns/V
Operating Temperature	T_A		-40		+125	°C

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
High-Level Output Voltage	V_{OH}	$V_{CC}=2.0V$	$I_{OH}=-50\mu A$	1.9	2.0		V
		$V_{CC}=3.0V$		2.9	3.0		V
		$V_{CC}=4.5V$		4.4	4.5		V
		$V_{CC}=3.0V$	$I_{OH}=-4mA$	2.58			V
		$V_{CC}=4.5V$	$I_{OH}=-8mA$	3.94			V
Low-Level Output Voltage	V_{OL}	$V_{CC}=2.0V$	$I_{OL}=50\mu A$			0.1	V
		$V_{CC}=3.0V$				0.1	V
		$V_{CC}=4.5V$				0.1	V
		$V_{CC}=3.0V$	$I_{OL}=4mA$			0.36	V
		$V_{CC}=4.5V$	$I_{OL}=8mA$			0.36	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=0$ to $5.5V$	$V_{IN}=5.5V$ or GND			± 0.1	μA
Quiescent Supply Current	I_Q	$V_{CC}=5.5V$	$V_{IN}=V_{CC}$ or GND $I_{OUT}=0$			2	μA
Input Capacitance	C_{IN}	$V_{CC}=5.0V$	$V_{IN}=V_{CC}$ or GND		2	10	pF

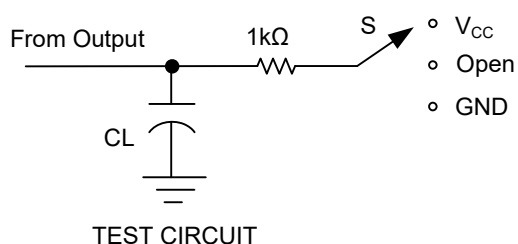
■ SWITCHING CHARACTERISTICS (see TEST CIRCUIT AND WAVEFORMS)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Propagation delay from input (A or B) to output(Y)	t_{PLH} / t_{PHL}	$V_{CC}=3.3V \pm 0.3V$	$C_L=15 pF$		5.5	7.9	ns
			$C_L=50 pF$		8	11.4	ns
		$V_{CC}=5.0V \pm 0.5V$	$C_L=15 pF$		3.8	5.5	ns
			$C_L=50 pF$		5.3	7.5	ns

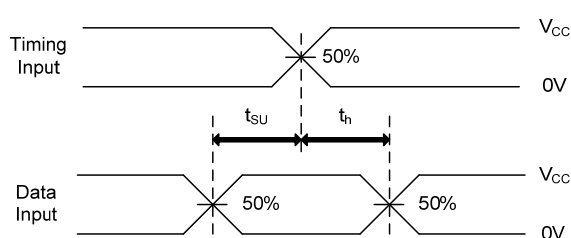
■ OPERATING CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	No load, $f=1MHz$, $V_{CC}=5V$		14		pF

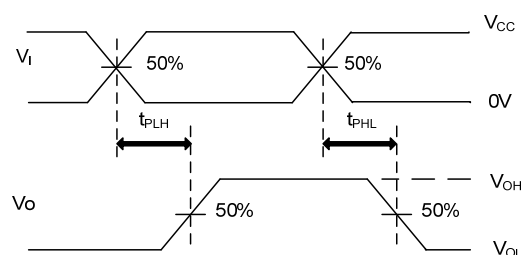
■ TEST CIRCUIT AND WAVEFORMS



TEST	S
t _{PLH} /t _{PHL}	Open
t _{PHZ} /t _{PZH}	GND
t _{PLZ} /t _{PZL}	V _{CC}



SETUP TIME AND HOLD TIME



PROPAGATION DELAY TIMES

Note: C_L includes probe and jig capacitance.
 PRR ≤ 1MHz, Z_O = 50Ω, t_R ≤ 3ns, t_F ≤ 3ns.

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