



U74AHCT1G32

CMOS IC

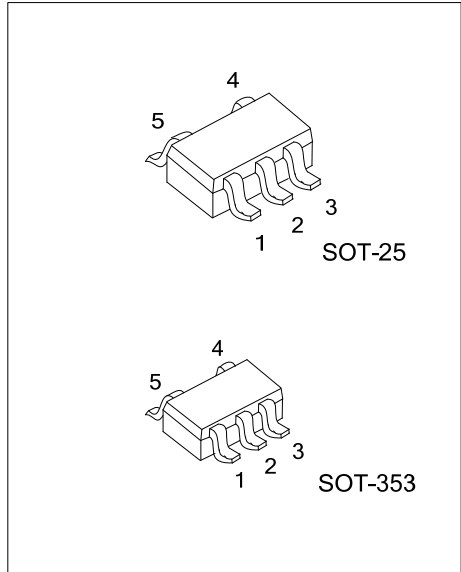
SINGLE 2-INPUT POSITIVE-OR GATE

DESCRIPTION

The UTC **U74AHCT1G32** is a single 2-input positive-or gate, which provides the function $Y=A+B$ in positive logic.

FEATURES

- * Inputs are TTL voltage compatible
- * Operate from 4.5V to 5.5V
- * Max t_{PD} of 8ns @ 5V

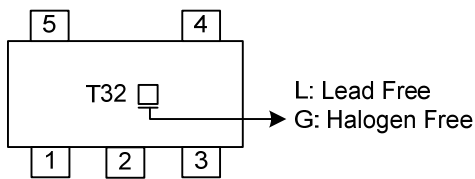


ORDERING INFORMATION

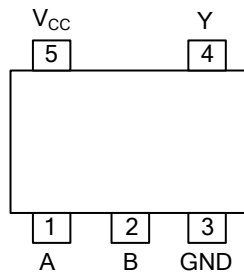
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHCT1G32L-AF5-R	U74AHCT1G32G-AF5-R	SOT-25	Tape Reel
U74AHCT1G32L-AL5-R	U74AHCT1G32G-AL5-R	SOT-353	Tape Reel

<p>U74AHCT1G32G-AF5-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AF5: SOT-25, AL5: SOT-353</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	---

MARKING



■ PIN CONFIGURATION

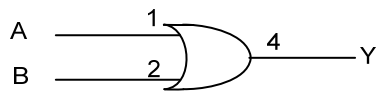


■ FUNCTION TABLE

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

Note: H: high voltage level; L: low voltage level.

■ LOGIC DIAGRAM



Logic symbol

■ ABSOLUTE MAXIMUM RATING (T_A=25°C, 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
Operating Temperature	T _{OPR}	-40 ~ +125	°C
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 (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V _{CC}		4.5		5.5	V
Input Voltage	V _{IN}		0		5.5	V
Output Voltage	V _{OUT}		0		V _{CC}	V
High-level Input Voltage	V _{IH}		2			V
Low-level Input Voltage	V _{IL}				0.8	V
High-level Output Current	I _{OH}				-8	mA
Low-level Output Current	I _{OL}				8	mA
Input Transition Rise or Fall Rate	Δt/ΔV				20	ns/V

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Output Voltage	V _{OH}	V _{CC} =4.5V, I _{OH} =-50μA	4.4	4.5		4.4			V
		V _{CC} =4.5V, I _{OH} =-8mA	3.94			3.7			
Low-Level Output Voltage	V _{OL}	V _{CC} =4.5V, I _{OL} =50μA			0.1			0.1	V
		V _{CC} =4.5V, I _{OL} =8mA			0.36			0.55	
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0~5.5V, V _{IN} =5.5V or GND			±0.1			±2.0	μA
Quiescent Supply Current	I _Q	V _{CC} =5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0			1			40	μA
Additional Quiescent Supply Current	ΔI _Q	V _{CC} =5.5V, One input at 3.4V, Other inputs at V _{CC} or GND			1.35			1.5	mA

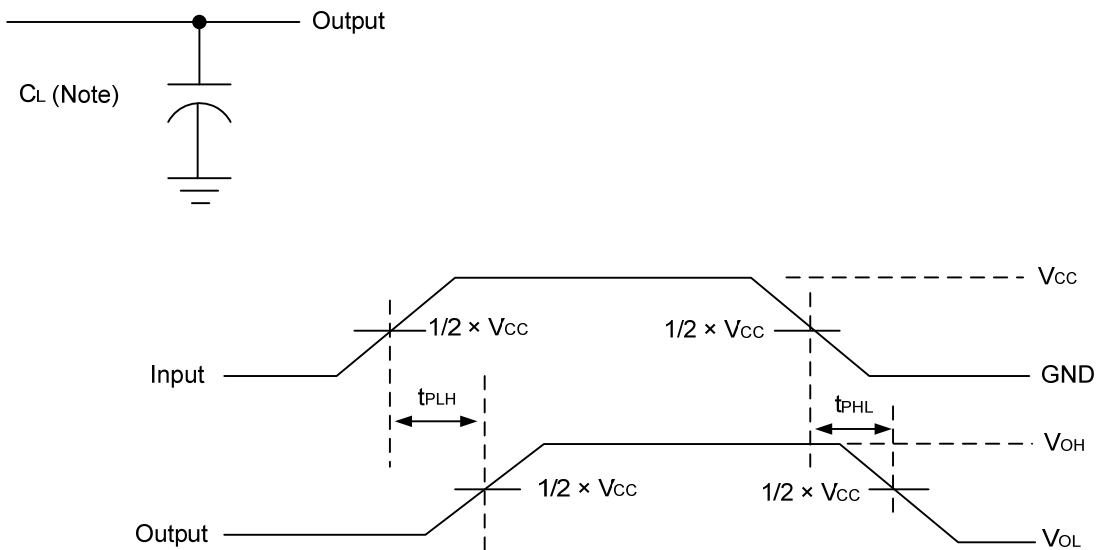
■ DYNAMIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay Time Input(A or B) to Output(Y)	t _{PLH}	V _{CC} =5V±0.5V, C _L =15pF		5	7.9	1		9	ns
	t _{PHL}			5	7.9	1		9	ns
	t _{PLH}	V _{CC} =5V±0.5V, C _L =50pF		5.5	8.9	1		10	ns
	t _{PHL}			5.5	8.9	1		10	ns

■ OPERATING CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _I	V _{CC} =4.5V, V _{IN} =V _{CC} or GND		2	10	pF
Power Dissipation Capacitance	C _{PD}	V _{CC} =5V, f=1MHz, No load		11.5		pF

■ TEST CIRCUIT AND WAVEFORMS



- Notes: 1. C_L includes probe and jig capacitance.
 2. All input pulses are supplied by generators having the following characteristics: $P_{RR} \leq 1\text{MHz}$, $Z_O = 50\Omega$, $t_R \leq 3\text{ns}$, $t_F \leq 3\text{ns}$.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.