



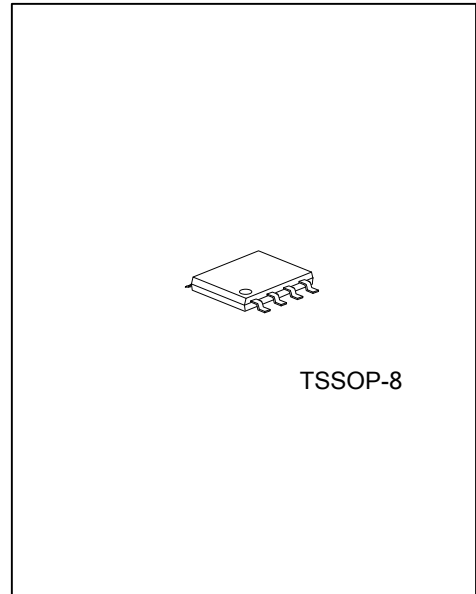
## U74AHC2G32

CMOS IC

### DUAL 2-INPUT OR GATE

#### DESCRIPTION

The **U74AHC2G32** is a high speed Si-gate CMOS device.  
The **U74AHC2G32** provides two 2-input OR gates.



#### FEATURES

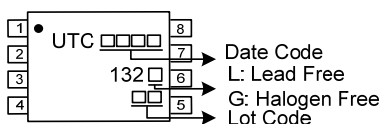
- \* Symmetrical output impedance
- \* High noise immunity
- \* Low power dissipation
- \* Balanced propagation delays
- \* Multiple package options
- \* Specified from -40 °C to +125 °C

#### ORDERING INFORMATION

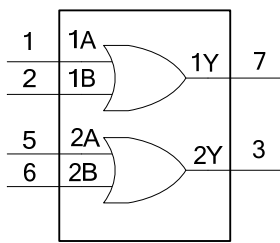
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC2G32L-P08-R	U74AHC2G32G-P08-R	TSSOP-8	Tape Reel

<p>U74AHC2G32G-P08-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) P08: TSSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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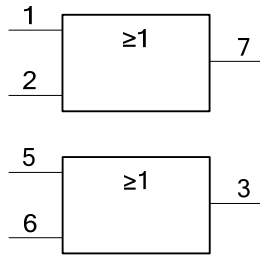
#### MARKING



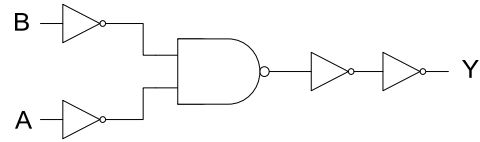
■ FUNCTIONAL DIAGRAM



LOGIC SYMBOL

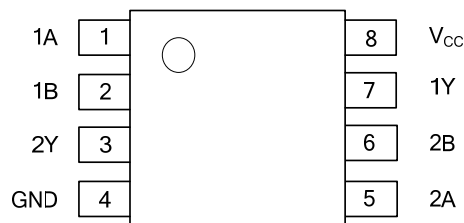


IEC LOGIC SYMBOL



LOGIC DIAGRAM (one gate)

■ PIN CONFIGURATION



■ PIN CONFIGURATION

PIN No	SYMBOL	DESCRIPTION
1, 5	1A, 2A	Data input
2, 6	1B, 2B	Data input
4	GND	Ground (0V)
7, 3	1Y, 2Y	Data output
8	V <sub>CC</sub>	Supply voltage

■ FUNCTION TABLE

Input		Output
nA	nB	nY
L	L	L
L	H	H
H	L	H
H	H	H

H=HIGH voltage level; L=LOW voltage level.



### ■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$		-0.5		+7.0	V
Input Voltage	$V_I$		-0.5		+7.0	V
Input Clamping Current	$I_{IK}$	$V_I < -0.5V$	-20			mA
Output Clamping Current	$I_{OK}$	$V_O < -0.5V$ or $V_O > V_{CC} + 0.5V$			±20	mA
Output Current	$I_O$	$V_O = -0.5V \sim (V_{CC} + 0.5V)$			±25	mA
Supply Current	$I_{CC}$				75	mA
Ground Current	$I_{GND}$		-75			mA
Power Dissipation	$P_D$				250	mW
Storage Temperature	$T_{STG}$		-65		+150	°C

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

### ■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$		2	5	5.5	V
Input Voltage	$V_I$		0		5.5	V
Output Voltage	$V_O$		0		$V_{CC}$	V
Input Transition Rise and Fall Rate	$\Delta t/\Delta V$	$V_{CC} = 3.3V \pm 0.3V$			100	ns/V
		$V_{CC} = 5V \pm 0.5V$			20	
Ambient Temperature	$T_A$		-40	+25	+125	°C

Note: Voltages are referenced to GND (ground=0V).

### ■ ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ C$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-level Input Voltage	$V_{IH}$	$V_{CC} = 2V$	1.5			V
		$V_{CC} = 3V$	2.1			
		$V_{CC} = 5.5V$	3.85			
Low-level Input Voltage	$V_{IL}$	$V_{CC} = 2V$			0.5	V
		$V_{CC} = 3V$			0.9	
		$V_{CC} = 5.5V$			1.65	
Output Voltage HIGH-Level	$V_{OH}$	$V_{CC} = 2V, I_{OH} = -50\mu A$	1.9	2.0		V
		$V_{CC} = 3V, I_{OH} = -50\mu A$	2.9	3.0		
		$V_{CC} = 4.5V, I_{OH} = -50\mu A$	4.4	4.5		
		$V_{CC} = 3V, I_{OH} = -4mA$	2.58			
		$V_{CC} = 4.5V, I_{OH} = -8mA$	3.94			
Output Voltage LOW-Level	$V_{OL}$	$V_{CC} = 2V, I_{OL} = 50\mu A$		0	0.1	V
		$V_{CC} = 3V, I_{OL} = 50\mu A$		0	0.1	
		$V_{CC} = 4.5V, I_{OL} = 50\mu A$		0	0.1	
		$V_{CC} = 3V, I_{OL} = 4mA$			0.36	
		$V_{CC} = 4.5V, I_{OL} = 8mA$			0.36	
Input Leakage Current	$I_I$	$V_{CC} = 0$ to $5.5V, V_I = 5.5V$ or GND			±0.1	μA
Quiescent Supply Current	$I_{CC}$	$V_{CC} = 5.5V, V_I = V_{CC}$ or GND, $I_{OUT} = 0$			1	μA

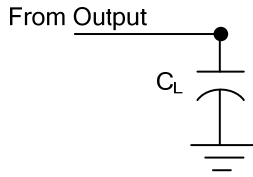
■ SWITCHING CHARACTERISTICS ( $t_r = t_f \leq 3\text{ns}$ ,  $T_A = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Propagation delay from input (nA, nB) to output (nY)	$t_{PLH} / t_{PHL}$	$V_{CC}=3\sim 3.6\text{V}$	$C_L=15\text{pF}$		4.4	7.9	ns
			$C_L=50\text{pF}$		6.3	11.4	ns
		$V_{CC}=4.5\sim 5.5\text{V}$	$C_L=15\text{pF}$		3.2	5.5	ns
			$C_L=50\text{pF}$		4.6	7.5	ns

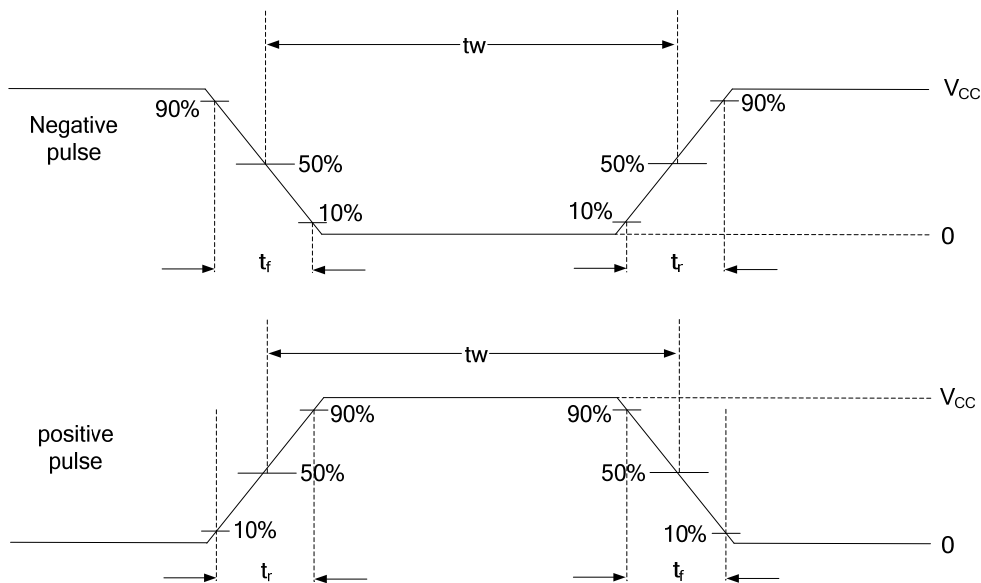
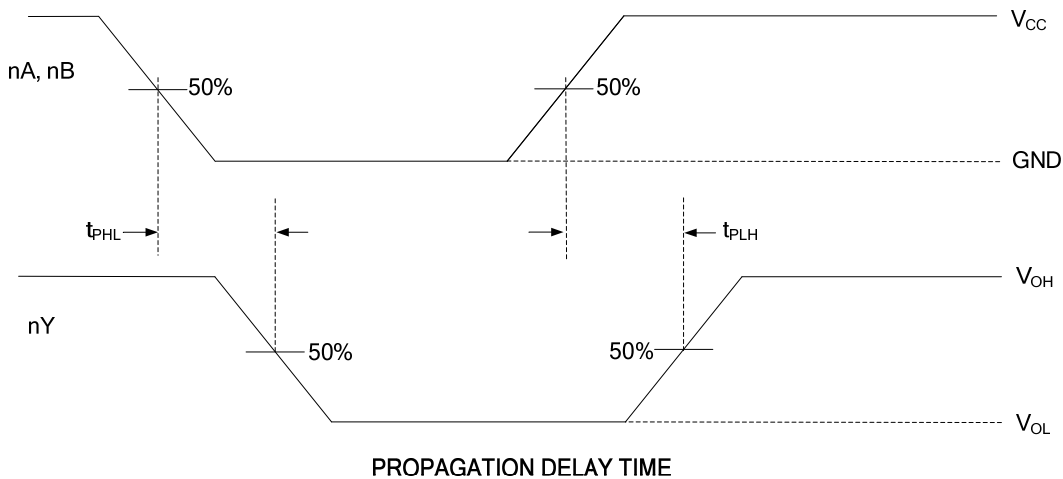
■ CAPACITIVE CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	$C_I$			1.5	10	pF
Power Dissipation Capacitance	$C_{PD}$	per buffer; $C_L=50\text{pF}$ ; $f_i=1\text{MHz}$ ; $V_I=GND$ to $V_{CC}$		16		pF

## ■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT



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