



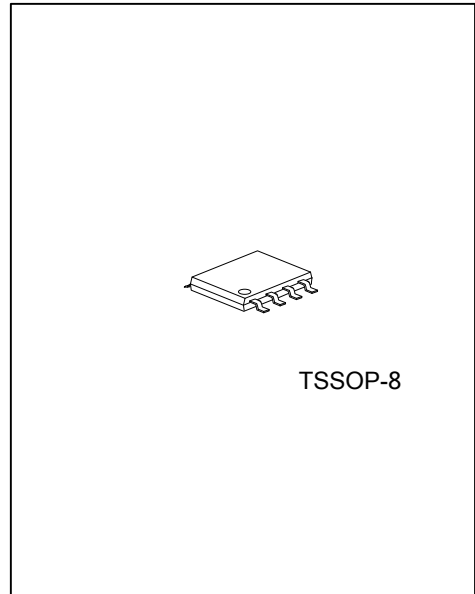
U74AHC2G02

CMOS IC

DUAL 2-INPUT NOR GATE

DESCRIPTION

The **U74AHC2G32** is a high speed Si-gate CMOS device.
The **U74AHC2G32** provides two 2-input NOR gates.



FEATURES

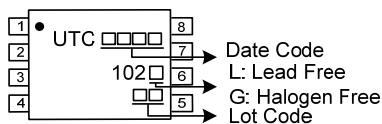
- * Symmetrical output impedance
- * High noise immunity
- * Low power dissipation
- * Balanced propagation delays
- * Multiple package options
- * Specified from -40 °C to +125 °C

ORDERING INFORMATION

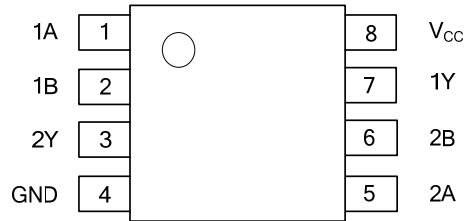
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC2G02L-P08-R	U74AHC2G02G-P08-R	TSSOP-8	Tape Reel

<p>U74AHC2G02G-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



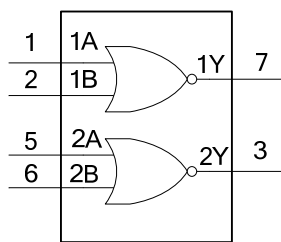
■ PIN CONFIGURATION



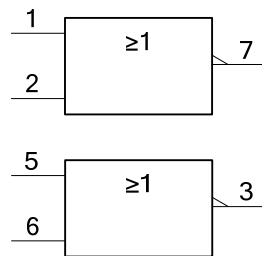
■ PIN CONFIGURATION

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 _{CC}	Supply voltage

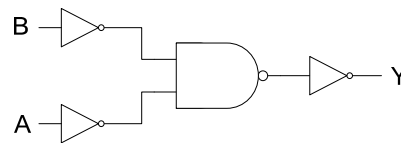
■ FUNCTIONAL DIAGRAM



LOGIC SYMBOL



IEC LOGIC SYMBOL



LOGIC DIAGRAM (one gate)

■ FUNCTION TABLE

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

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}				50	mA
Ground Current	I_{GND}		-50			mA
Power Dissipation	P_D				300	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}	$V_{CC} = 2V, I_{OL} = 50\mu A$			0.1	V
		$V_{CC} = 3V, I_{OL} = 50\mu A$			0.1	
		$V_{CC} = 4.5V, I_{OL} = 50\mu A$			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

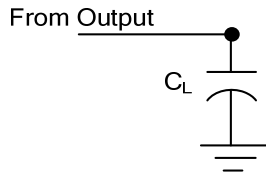
■ SWITCHING CHARACTERISTICS ($t_r = t_f \leq 3\text{ns}$, $T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Propagation delay from input (nA, nB) to output (nY)	t_{PLH} / t_{PHL}	$V_{CC}=3.3\pm 0.3\text{V}$	$C_L=15\text{pF}$		5.6	7.9	ns
			$C_L=50\text{pF}$		8.1	11.4	ns
		$V_{CC}=5\pm 0.5\text{V}$	$C_L=15\text{pF}$		3.6	5.5	ns
			$C_L=50\text{pF}$		5.1	7.5	ns

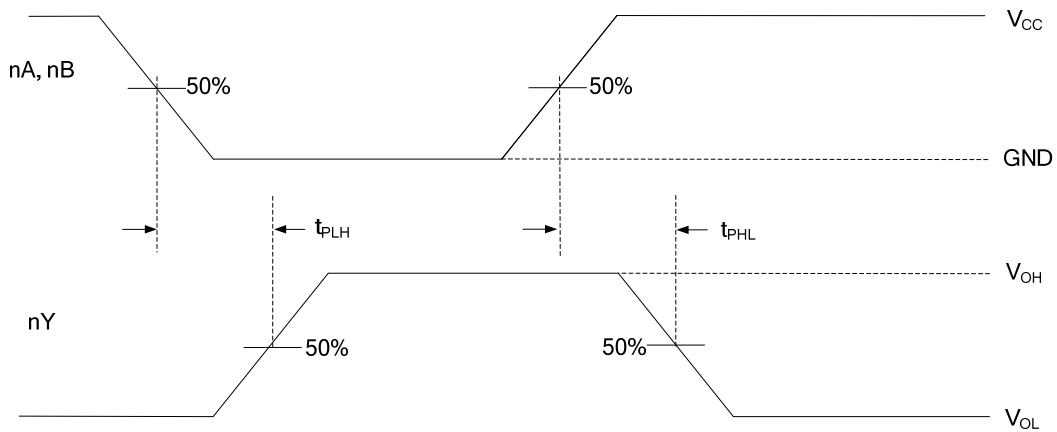
■ CAPACITIVE CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C_i			4	10	pF
Power Dissipation Capacitance	C_{PD}	No load, $f_i=1\text{MHz}$		15		pF

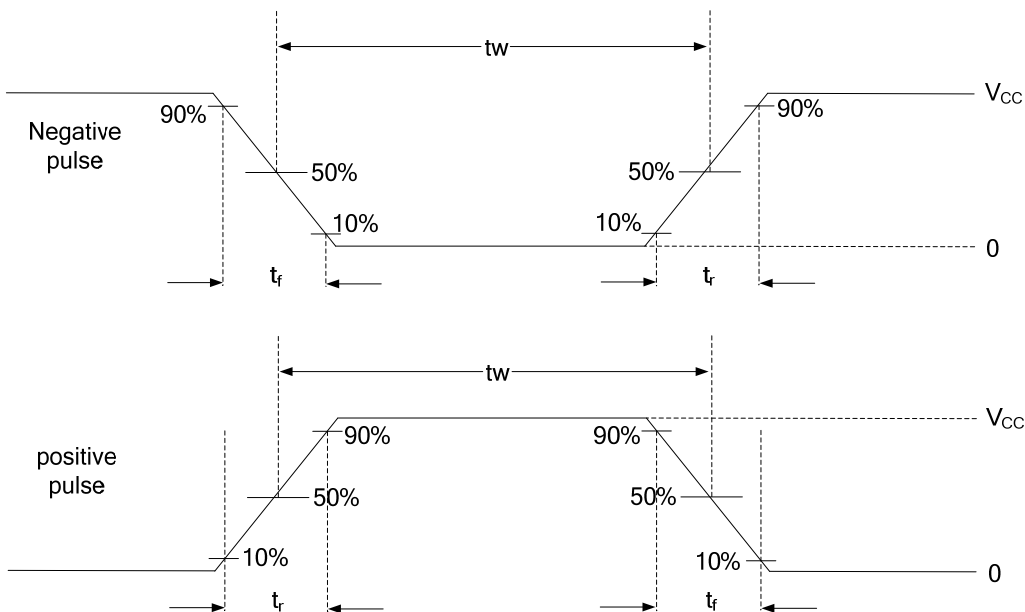
■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT



PROPAGATION DELAY TIME



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