



U74AHC2G02

CMOS IC

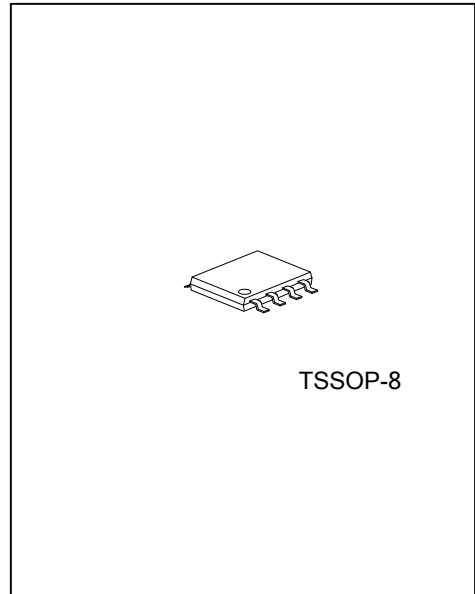
DUAL 2-INPUT NOR GATE

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

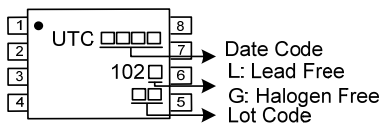


ORDERING INFORMATION

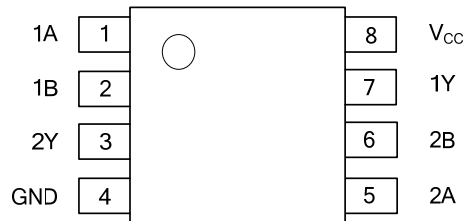
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHC2G02L-P08-R	U74AHC2G02G-P08-R	TSSOP-8	Tape Reel

<p>U74AHC2G02G-P08-R</p>	<p>(1) Packing Type (1) R: Tape Reel</p> <p>(2) Package Type (2) P08: TSSOP-8</p> <p>(3) Green Package (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



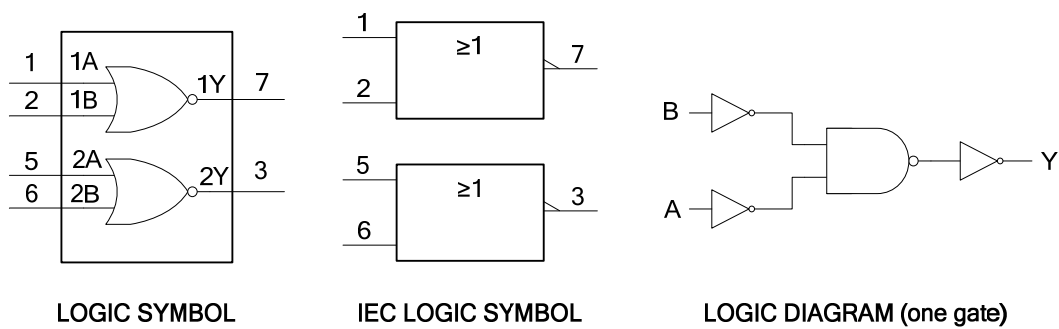
■ PIN CONFIGURATION



■ 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



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

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 ~ (V _{CC} +0.5V)			±25	mA
Supply Current	I _{CC}				75	mA
Ground Current	I _{GND}		-75			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 (T_A=25°C, unless otherwise specified)

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	Δt/ΔV	V _{CC} =3.3V±0.3V			100	ns/V
		V _{CC} =5V±0.5V			20	
Ambient Temperature	T _A		-40		+125	°C

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

■ ELECTRICAL CHARACTERISTICS (T_A=25°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
		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
Output Voltage HIGH-Level	V _{OH}	V _{CC} =2V, I _{OH} =-50μA	1.9	2.0		V
		V _{CC} =3V, I _{OH} =-50μA	2.9	3.0		V
		V _{CC} =4.5V, I _{OH} =-50μA	4.4	4.5		V
		V _{CC} =3V, I _{OH} =-4mA	2.58			V
		V _{CC} =4.5V, I _{OH} =-8mA	3.94			V
Output Voltage LOW-Level	V _{OL}	V _{CC} =2V, I _{OL} =50μA			0.1	V
		V _{CC} =3V, I _{OL} =50μA			0.1	V
		V _{CC} =4.5V, I _{OL} =50μA			0.1	V
		V _{CC} =3V, I _{OL} =4mA			0.36	V
		V _{CC} =4.5V, I _{OL} =8mA			0.36	V
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

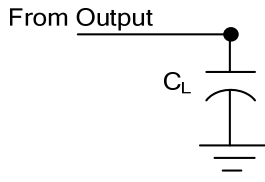
■ SWITCHING CHARACTERISTICS ($t_r = t_f \leq 3\text{ns}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

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

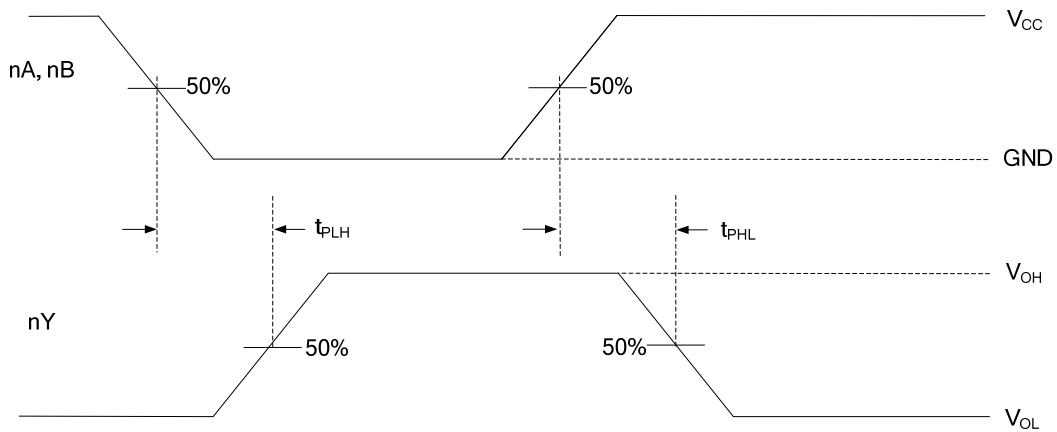
■ CAPACITIVE CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

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

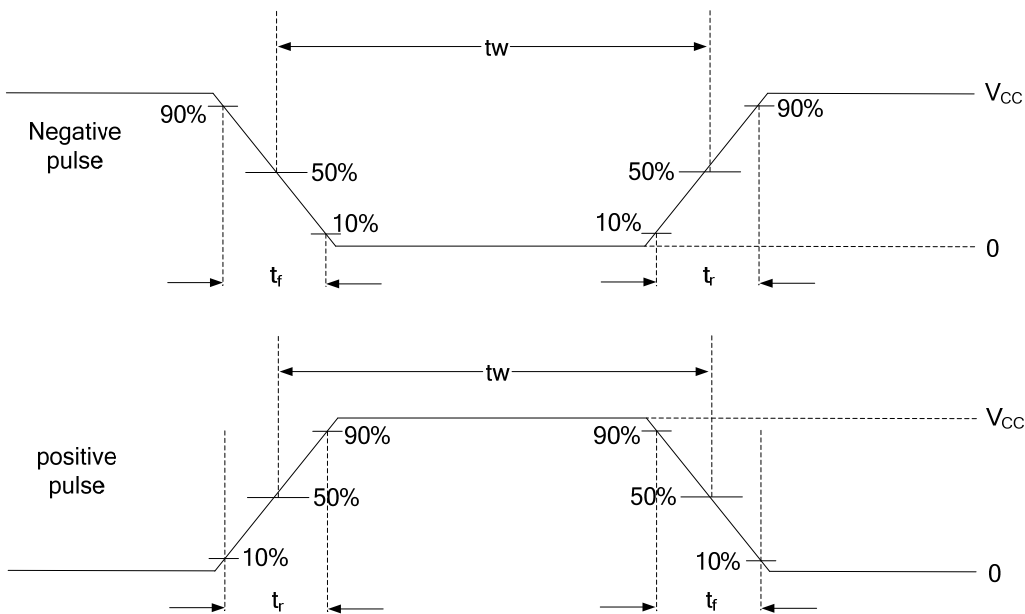
■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT



PROPAGATION DELAY TIME



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