



U74AHCT2G08

CMOS IC

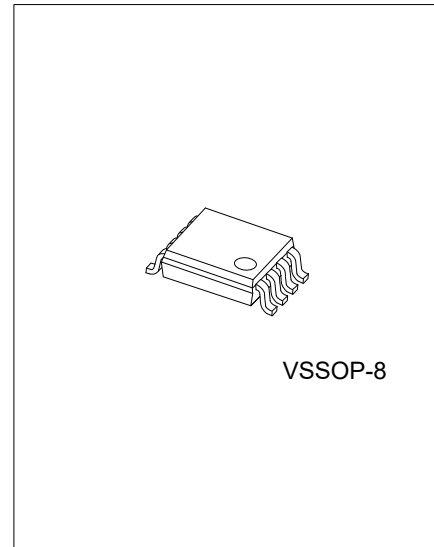
SINGLE BUS BUFFER GATE WITH 3-STATE OUTPUT

DESCRIPTION

The UTC **U74AHCT2G08** is a dual 2-input AND gate with ~~overvoltage tolerant inputs~~, that can be used as a level translator in mixed-voltage environments.

FEATURES

- * Operation Voltage Range: 4.5 ~ 5.5V
- * Symmetrical output impedance
- * Balanced propagation delays
- * High noise immunity
- * CMOS low power dissipation

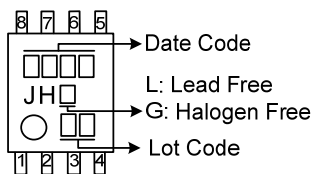


ORDERING INFORMATION

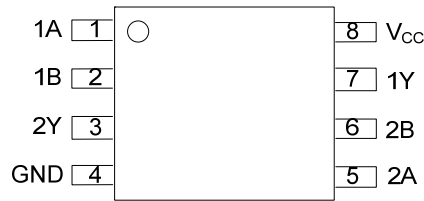
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHCT2G08L-V08-R	U74AHCT2G08G-V08-R	VSSOP-8	Tape Reel

<p>U74AHCT2G08G-V08-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) V08: VSSOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ PIN CONFIGURATION



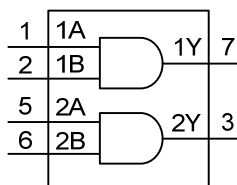
■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1, 5	1A, 2A	Data input
2, 6	1B, 2B	Data input
4	GND	Ground (0V)
3, 7	2Y, 1Y	Data output
8	V _{cc}	Supply voltage

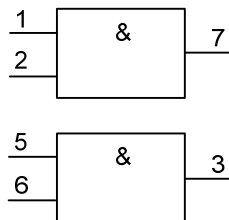
■ FUNCTION TABLE (each gate)

INPUT		OUTPUT
A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

■ FUNCTION TABLE (positive logic)

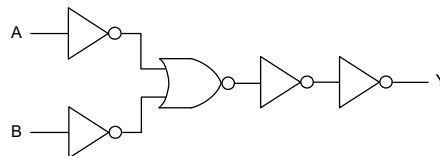


Logic symbol



IEC logic symbol

■ LOGIC DIAGRAM (LOGIC SYMBOL)



■ ABSOLUTE MAXIMUM RATING (Unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V _{CC}		-0.5 ~ +7	V
Input Voltage	V _{IN}		-0.5 ~ +7	V
V _{CC} or GND Current	I _{CC}		±75	mA
Continuous Output Current	I _O	-0.5V < V _{OUT} < V _{CC} +0.5V	±25	mA
Input Clamp Current	I _{IK}	V _{IN} < -0.5V	-20	mA
Output Clamp Current	I _{OK}	V _{OUT} < -0.5V or V _{OUT} > +0.5V	±20	mA
Ground Current	I _{GND}		-75	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.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	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
Input Transition Rise or Fall Rate	Δt/ΔV				20	ns/V
Operating Temperature	T _A		-40		+125	°C

■ STATIC CHARACTERISTICS (T_A=25°C Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V _{IH}	V _{CC} =4.5V~5.5V	2.0			V
Low-Level Input Voltage	V _{IL}	V _{CC} =4.5V~5.5V			0.8	V
High-Level Output Voltage	V _{OH}	V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OH} =-50μA	4.4	4.5		V
		V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OH} =-8.0mA	3.94			V
Low-Level Output Voltage	V _{OL}	V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OL} =50μA		0	0.1	V
		V _{CC} =4.5V, V _I =V _{IH} or V _{IL} , I _{OL} =8.0mA			0.36	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0V~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} =0A			1	μA
Additional Quiescent Supply Current	ΔI _{CC}	V _{CC} =5.5V, One input at 3.4V, Other input at V _{CC} or GND			1.35	mA

■ DYNAMIC CHARACTERISTICS

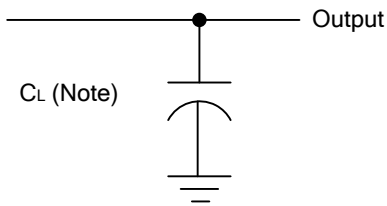
(Input: t_R, t_F ≤ 3ns; P_{RR} ≤ 1MHz, T_A=25°C, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Propagation Delay From Inputs (nA, nB) to Output (nY)	t _{PLH} / t _{PHL}	V _{CC} =4.5V~5.5V	C _L =15pF			9.2	ns
			C _L =50pF			10.9	ns

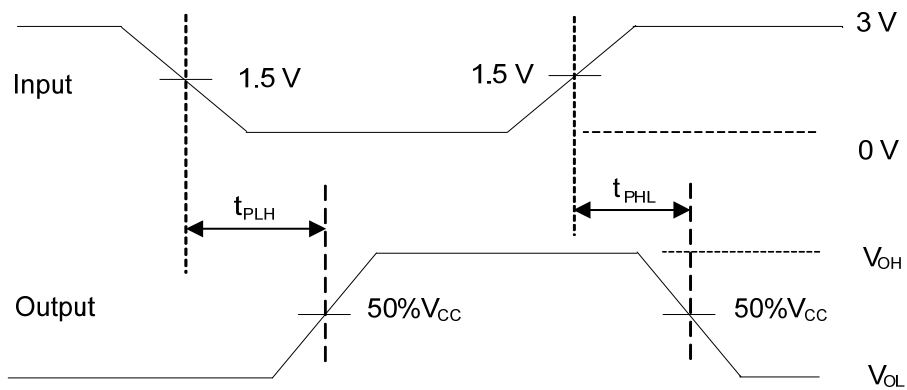
■ OPERATING CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _{IN}	V _{CC} =5V, V _{IN} =V _{CC} or GND			10	pF
Power Dissipation Capacitance	C _{PD}	V _{CC} =5V, f=1MHz, No load		17		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: CL includes probe and jig capacitance.



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