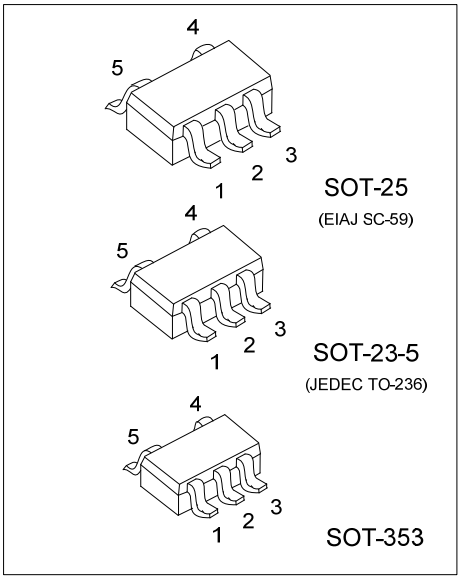
U74AHCT1G02

CMOS IC

2-INPUT NOR GATE



■ DESCRIPTION

The **U74AHCT1G02** is a single 2-input NOR gate which provides the Function.

■ FEATURES

* Operation Voltage Range: 4.5~5.5V
* Low Power Dissipation
* High noise immunity
*Balanced propagation delays

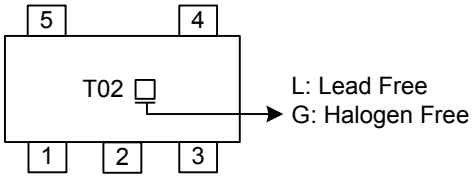
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74AHCT1G02L-AE5-R	U74AHCT1G02G-AE5-R	SOT-23-5	Tape Reel
U74AHCT1G02L-AF5-R	U74AHCT1G02G-AF5-R	SOT-25	Tape Reel
U74AHCT1G02L-AL5-R	U74AHCT1G02G-AL5-R	SOT-353	Tape Reel

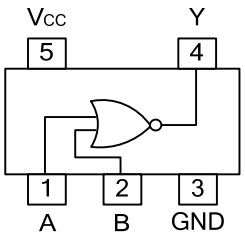
U74AHCT1G02G-AE5-R
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) AE5: SOT-23-5, AF5: SOT-25, AL5: SOT-353
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



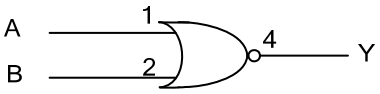
■ PIN CONFIGURATION



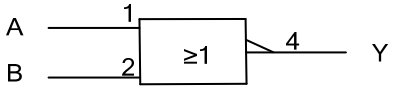
■ FUNCTION TABLE

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

■ LOGIC DIAGRAM (positive logic)



Logic symbol



IEC logic symbol

■ ABSOLUTE MAXIMUM RATINGS (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
Input Clamp Current	I_{IK}	±20	mA
Output Clamp Current	I_{OK}	±20	mA
Continuous Output Current	I_{OUT}	±25	mA
V_{CC} or GND Current	I_{CC}	±50	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 (T_A=25°C, unless otherwise specified)

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
Operating Temperature	T_A		-40		+125	°C

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

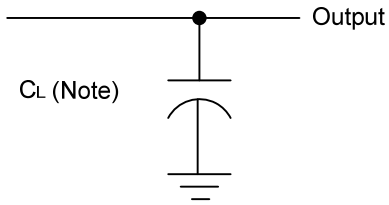
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V_{IH}	V_{CC}=4.5V~5.5V	2.0			V
Low-Level Input Voltage	V_{IL}	V_{CC}=4.5V~5.5V			0.8	V
High-Level Output Voltage	V_{OH}	V_{CC}=4.5V, V_{IN}=V_{IH} or V_{IL}, I_{OH}=-50μA	4.4	4.5		V
		V_{CC}=4.5V, V_{IN}=V_{IH} or V_{IL}, I_{OH}=-8mA	3.94			
Low-Level Output Voltage	V_{OL}	V_{CC}=4.5V, V_{IN}=V_{IH} or V_{IL}, I_{OL}=50μA		0	0.1	V
		V_{CC}=4.5V, V_{IN}=V_{IH} or V_{IL}, I_{OL}=8mA			0.36	V
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=5.5V, V_{IN}=V_{IH} or V_{IL}			±0.1	μA
Quiescent Supply Current	I_Q	V_{CC}=5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0			1	μA
Additional Quiescent Supply Current	ΔI_Q	V_{CC}=5.5V, V_{IN} = 3.4 V; other inputs at V_{CC} or GND, I_{OUT}=0			1.35	mA
Input Capacitance	C_{IN}			1.5	10	pF

Note: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation.

■ SWITCHING CHARACTERISTICS (Input signal: P_{RR} ≤ 1MHZ, Z_O=50Ω, t_R ≤ 3ns, t_F ≤ 3ns.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Times	t_{PLH}/ t_{PHL}	V_{CC}=4.5V~5.5V, C_L=15pF		3.5	5.5	ns
		V_{CC}=4.5V~5.5V, C_L=50pF		4.9	7.5	ns

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.

Fig.1 Load circuitry for switching times.

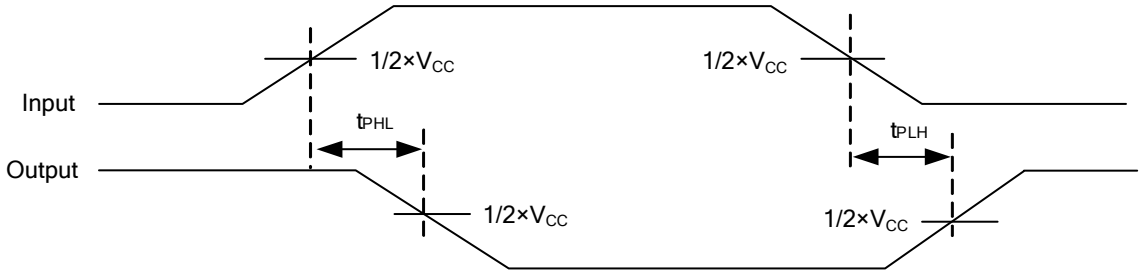


Fig. 2 Propagation delay from input(A and B) to output(Y)