



U74ACT86

CMOS IC

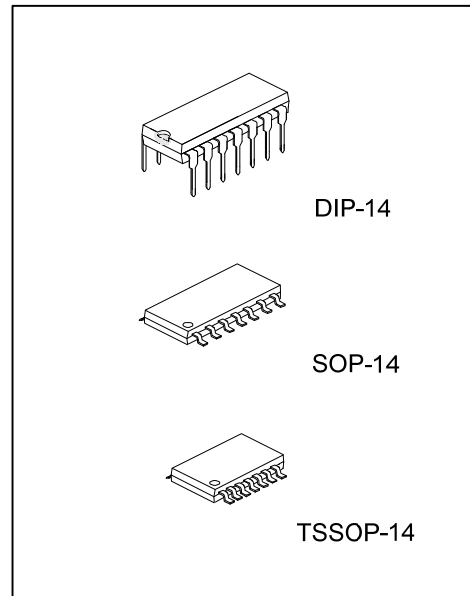
QUAD EXCLUSIVE OR GATE

DESCRIPTION

The **U74ACT86** consists of four EXCLUSIVE OR GATE it provides the function $Y=A\oplus B$, the device is designed to interface directly High Speed CMOS systems with TTL, NMOS and CMOS output voltage levels.

FEATURES

- * Operation voltage range: 4.5~5.5V
- * Low power dissipation: $I_{CC}=2\mu A(\text{Max})$
- * High noise immunity
- * Compatible with TTL output

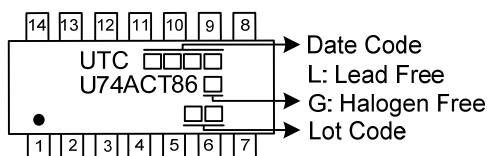


ORDERING INFORMATION

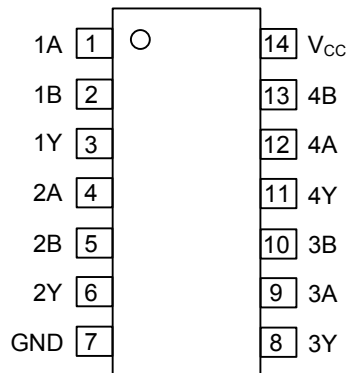
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74ACT86L-D14-T	U74ACT86G-D14-T	DIP-14	Tube
U74ACT86L-S14-R	U74ACT86G-S14-R	SOP-14	Tape Reel
U74ACT86L-P14-R	U74ACT86G-P14-R	TSSOP-14	Tape Reel

<p>U74ACT86G-D14-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) D14: DIP-14, S14: SOP-14, P14: TSSOP-14</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



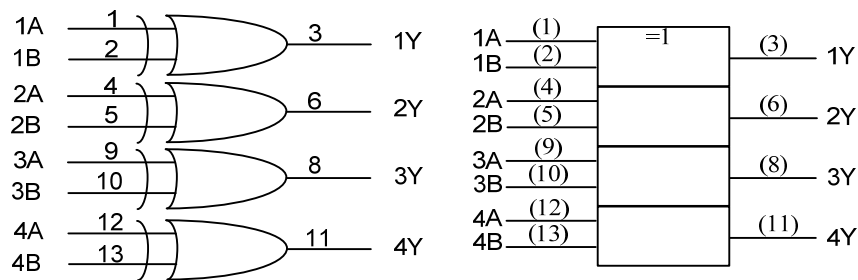
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

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

■ LOGIC DIAGRAM (positive logic)



■ 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 ~ V _{CC} +0.5	V
DC Output Voltage	V _{OUT}	-0.5 ~ V _{CC} +0.5	V
Input Clamp Current (V _{IN} <0)	I _{IK}	±20	mA
Output Clamp Current (V _{OUT} <0)	I _{OK}	±20	mA
Output Current	I _{OUT}	±50	mA
V _{CC} or GND Current	I _{CC}	±200	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	RATING	UNIT
Supply Voltage	V _{CC}	4.5 ~ 5.5	V
Input Voltage	V _{IN}	0 ~ V _{CC}	V
Output Voltage	V _{OUT}	0 ~ V _{CC}	V
Input Transition Rise or Fall Rate	Δt/Δv	8	ns/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	1.5		V
Low-Level Input Voltage	V _{IL}	V _{CC} =4.5V~5.5V		1.5	0.8	V
High-Level Output Voltage	V _{OH}	V _{CC} =4.5V	I _{OH} =-24mA	3.86		V
			I _{OH} =-50μA	4.4	4.49	V
		V _{CC} =5.5V	I _{OH} =-24mA	4.86		V
			I _{OH} =-50μA	5.4	5.49	V
Low-Level Output Voltage	V _{OL}	V _{CC} =4.5V	I _{OL} =24mA		0.36	V
			I _{OL} =50μA	0.001	0.1	V
		V _{CC} =5.5V	I _{OL} =24mA		0.36	V
			I _{OL} =50μA	0.001	0.1	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =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} =0			2	μA
Additional Quiescent Supply Current Per Input Pin	ΔI _Q	V _{CC} =5.5V, V _{IN} =3.4V; other input at V _{CC} or GND; I _{OUT} =0		0.6		mA
Input Capacitance	C _{IN}	V _{CC} =5.0V, V _{IN} =V _{CC} or GND		5		pF

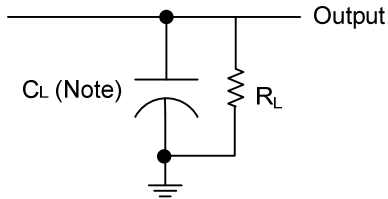
■ DYNAMIC CHARACTERISTIC (input t_R = t_F = 3ns, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Propagation Delay Time	t _{PLH} / t _{PHL}	V _{CC} = 5.0V±0.5V, C _L = 50pF, R _L = 500Ω	1.5	5.0	9.5	ns

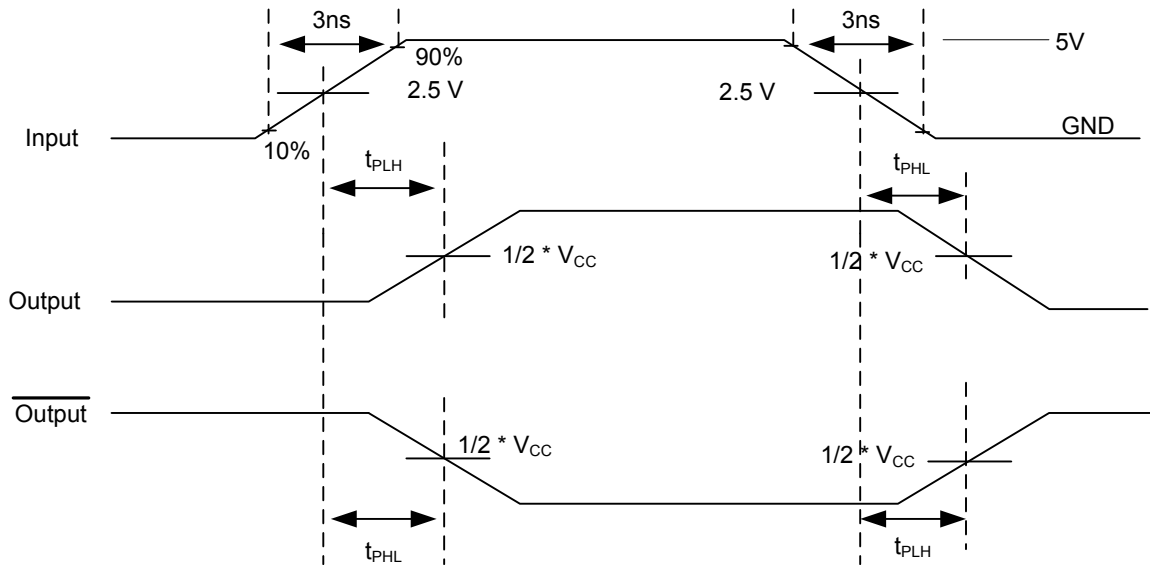
■ OPERATING CHARACTERISTIC (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C _{PD}	V _{CC} = 5.0V		30		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.



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