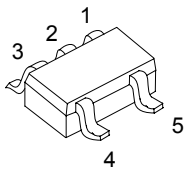
U74AHCT1G86

CMOS IC

2-INPUT EXCLUSIVE-OR GATE



SOT-353

*Pb-free plating product number:
U74AHCT1G86L

■ DESCRIPTION

The U74AHCT1G86 is a 2-input EXCLUSIVE-OR gate, it provides the Function Y=A⊕B.

■ FEATURES

* Low Power Dissipation: I_{CC}=1.0μA(Max)
* High Speed: tpd=5ns(Typ)
* High Noise Immunity

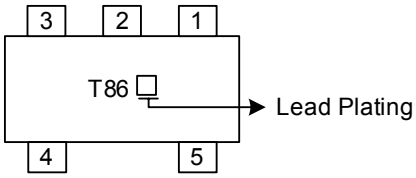
■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead Free Plating		
U74AHCT1G86-AL5-R	U74AHCT1G86L-AL5-R	SOT-353	Tape Reel

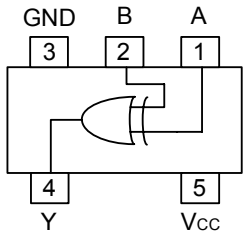
U74AHCT1G86L-AL5-R
(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) R: Tape Reel
(2) AL5: SOT-353
(3) L: Lead Free Plating, Blank: Pb/Sn

■ MARKING



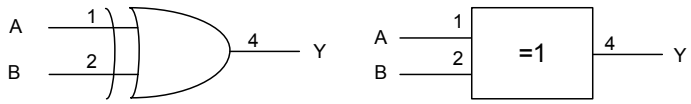
■ PIN CONFIGURATION



■ 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 RATING (unless otherwise specified)(Note 1)

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
Output Current	I_{OUT}	±25	mA
V_{CC} or GND Current	I_{CC}	±50	mA
Power Dissipation	P_D	200	mW
Storage Temperature	T_{STG}	-65 ~ +150	℃

Note 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.
2. 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
High-Level Output Current	I_{OH}				-8	mA
Low-Level Output Current	I_{OL}				8	mA
Input Transition Rise or Fall Rate	dt/dv	V_{CC}=5.0+0.5V			20	ns/V
Operating Temperature	T_A		-40		85	℃

■ STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	T_A=25℃			-40~85℃		UNIT
			MIN	TYP	MAX	MIN	MAX	
High-Level Input Voltage	V_{IH}		2.0			2.0		V
Low-Level Input Voltage	V_{IL}				0.8		0.8	V
High-Level Output Voltage	V_{OH}	V_{CC}=4.5V, I_{OH}=-50μA	4.4	4.5		4.4		V
		V_{CC}=4.5V, I_{OH}=-8mA	3.94			3.8		
Low-Level Output Voltage	V_{OL}	V_{CC}=4.5V, I_{OL}=50μA			0.1		0.1	V
		V_{CC}=4.5V, I_{OL}=8mA			0.36		0.44	
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=5.5V, V_{IN}=V_{CC} or GND			±0.1		±1	μA
Quiescent Supply Current	I_{CC}	V_{CC}=5.5V, V_{IN}=V_{CC} or GND I_{OUT}=0			1		10	μA
Additional Quiescent Supply Current	Δ I_{CC}	V_{CC}=5.5V, V_{IN}=3.4V;other input at V_{CC} or GND; I_{OUT}=0			1.35		1.5	mA
Input Capacitance	C_{IN}	V_{IN}=V_{CC} or GND		4	10		10	pF

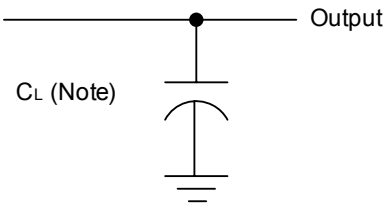
■ DYNAMIC CHARACTERISTICS (t_R, t_F≤3ns;)

PARAMETER	SYMBOL	V_{CC}(V)	T_A=25°C			-40~85°C		UNIT
			MIN	TYP	MAX	MIN	MAX	
Propagation delay from input (A or B) to output(Y)	t_{PLH}	V_{CC}=5±0.5V, C_L=15pF		5	6.9	1	8	ns
	t_{PHL}			5	6.9	1	8	
	t_{PLH}	V_{CC}=5±0.5V, C_L=15pF		5.5	7.9	1	9	
	t_{PHL}			5.5	7.9	1	9	

■ OPERATING CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	Cpd	No load, f=1MHz		18		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.