

XC74UL86AA



CMOS Logic

- ◆ CMOS 2-Input Exclusive-OR Gate
- ◆ High Speed Operation : $t_{pd}=3.1ns$ TYP
- ◆ Operating Voltage Range : 2V~5.5V
- ◆ Low Power Consumption : $1\mu A$ (max)

General Description

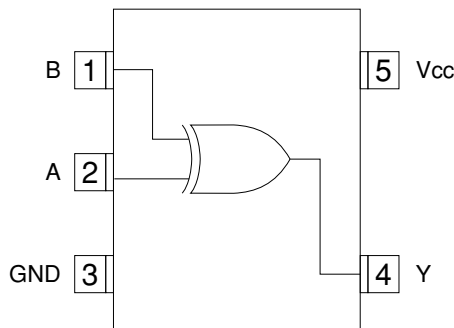
The XC74UL86AA is a 2-input CMOS exclusive-OR gate, manufactured using silicon gate CMOS fabrication.

CMOS low power circuit operation makes high speed LS-TTL operations achievable.

With a wave forming buffer connected internally, stabilized output can be achieved as the circuit offers high noise immunity.

As the XC74UL86AA is integrated into mini molded, SSOT-25 and SOT-25 packages, high density mounting is possible.

Pin Configuration



SSOT-25/SOT-25
(TOP VIEW)

Applications

- Palmtops
- Digital Equipment

Features

High Speed Operation : $t_{pd}=3.1ns$ TYP

Operating Voltage Range: 2V~5.5V

Low Power Consumption: $1\mu A$ (max)

Ultra Small Package : SSOT-25 and SOT-25

Function

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

H=High level, L=Low level

Absolute Maximum Ratings

$T_a=-40^{\circ}C\sim 85^{\circ}C$

PARAMETER	SYMBOL	RATINGS	UNITS
Power Supply Voltage	VCC	-0.5 ~ +6.0	V
Input Voltage	VIN	-0.5 ~ +6.0	V
Output Voltage	VOUT	-0.5 ~ VCC +0.5	V
Input Diode Current	I _{IK}	-20	mA
Output Diode Current	I _{OK}	±20	mA
Output Current	I _{OUT}	±25	mA
VCC ,GND Current	I _{CC} ,I _{GND}	±50	mA
Continuous Total Power Dissipation (Ta=55°C)	P _d	150	mW
Storage Temperature	T _{stg}	-65 ~ +150	°C

Note: Voltage is all Ground standardized.

Recommended Operating Conditions

PARAMETER	SYMBOL	V _{CC} (V)	CONDITIONS	UNITS
Supply Voltage	V _{CC}	-	2 ~ 5.5	V
Input Voltage	V _{IN}	-	0 ~ 5.5	V
Output Voltage	V _{OUT}	-	0 ~ V _{CC}	V
Operating Temperature	T _{opr}	-	-40 ~ +85	°C
Output Current	I _{OH}	3.0	-4	mA
		4.5	-8	
	I _{OL}	3.0	4	
		4.5	8	
Input Rise and Fall Time	t _r , t _f	3.3	0 ~ 100	ns
		5.0	0 ~ 20	

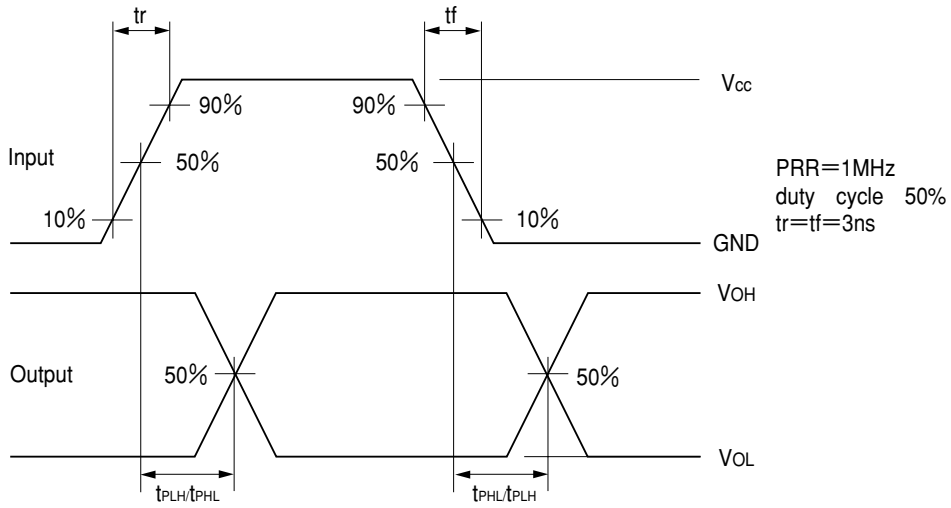
DC Electrical Characteristics

PARAMETER	SYMBOL	V _{CC} (V)	CONDITIONS	T _a =25°C			T _a =-40~85°C		UNITS	
				MIN	TYP	MAX	MIN	MAX		
Input Voltage	V _{IH}	2.0		1.5	-	-	1.5	-	V	
		3.0		2.1	-	-	2.1	-		
		5.5		3.85	-	-	3.85	-		
	V _{IL}	2.0		-	-	0.5	-	0.5	V	
		3.0		-	-	0.9	-	0.9		
		5.5		-	-	1.65	-	1.65		
Output Voltage	V _{OH}	2.0	V _{IN} =V _{IH} or V _{IL}	I _{OH} =-50μA	1.9	2.0	-	1.9	-	V
		3.0			2.9	3.0	-	2.9	-	
		4.5		4.4	4.5	-	4.4	-		
		3.0		I _{OH} =-4mA	2.58	-	-	2.48	-	
		4.5			I _{OH} =-8mA	3.94	-	-	3.80	
		V _{OL}		2.0		V _{IN} =V _{IH}	I _{OL} =50μA	-	-	
	3.0		-	-	0.1			-	0.1	
	4.5		I _{OL} =4mA	-	-		0.36	-	0.44	
	3.0			I _{OL} =8mA	-		-	0.36	-	0.44
	4.5		-		-		0.36	-	0.44	
	Input Current		I _{IN}	5.5	V _{IN} =V _{CC} or GND		-0.1	-	0.1	-1.0
	Quiescent Supply Current	I _{CC}	5.5	V _{IN} =V _{CC} or GND, I _{OUT} =0μA	-	-	1.0	-	10.0	

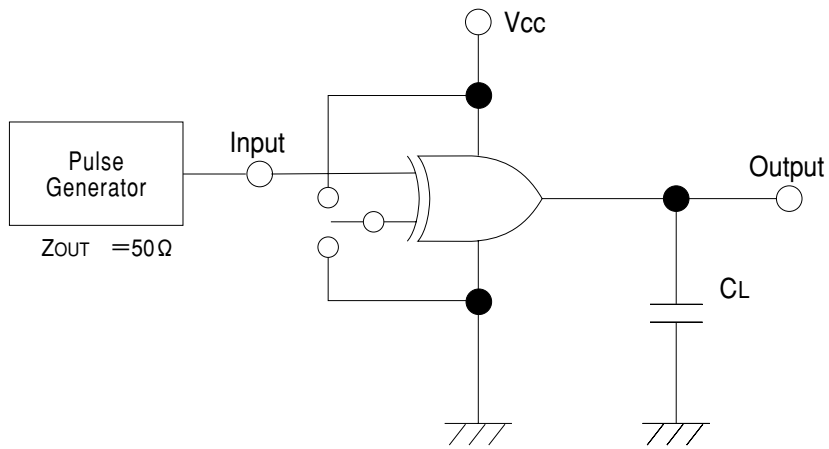
Switching Electrical Characteristics

PARAMETER	SYMBOL	C _L	V _{CC} (V)	CONDITIONS	T _a =25°C			T _a =-40~85°C		UNITS
					MIN	TYP	MAX	MIN	MAX	
Propagation Delay Time	t _{PLH}	15pF	3.3	V _{IN} =V _{CC} or GND	-	4.4	11	1	13	ns
			5.0		-	3.3	6.8	1	8	
		50pF	3.3		-	6.1	14.5	1	16.5	ns
			5.0		-	4.4	8.8	1	10	
	t _{PHL}	15pF	3.3		-	4	11	1	13	ns
			5.0		-	2.9	6.8	1	8	
		50pF	3.3		-	5.6	14.5	1	16.5	ns
			5.0		-	4.1	8.8	1	10	
Input Capacitance	C _{IN}	-	5.0	V _{IN} =V _{CC} or GND	-	4	10	-	10	pF
Power Dissipation Capacitance	C _{pd}	No Load, f=1MHz			-	12	-	-	-	pF

Waveforms



Typical Application Circuit



Note: Open output when measuring supply current