

XC74UL02AA



CMOS Logic

◆CMOS 2-Input NOR Gate

◆High Speed Operation : tpd=2.65ns TYP

◆Operating Voltage Range : 2V~5.5V

◆Low Power Consumption : 1μA (max)

■General Description

The XC74UL02AA is a 2-input CMOS NOR 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 XC74UL02AA is integrated into mini molded, SSOT-25 and SOT-25 packages, high density mounting is possible.

■Applications

- Palmtops
- Digital Equipment

■Features

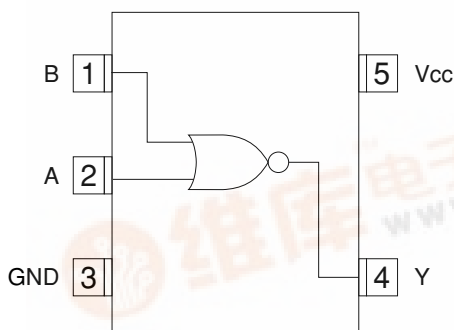
High Speed Operation : tpd=2.65ns TYP

Operating Voltage Range: 2V~5.5V

Low Power Consumption: 1μA (max)

Ultra Small Package : SSOT-25 and SOT-25

■Pin Configuration



SSOT-25/SOT-25
(TOP VIEW)

■Function

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

H=High level, L=Low level

■Absolute Maximum Ratings

Ta=-40°C~85°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	Iik	-20	mA
Output Diode Current	Iok	±20	mA
Output Current	IOUT	±25	mA
Vcc, GND Current	ICC, IGND	±50	mA
Continuous Total Power Dissipation (Ta=55°C)	Pd	150	mW

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

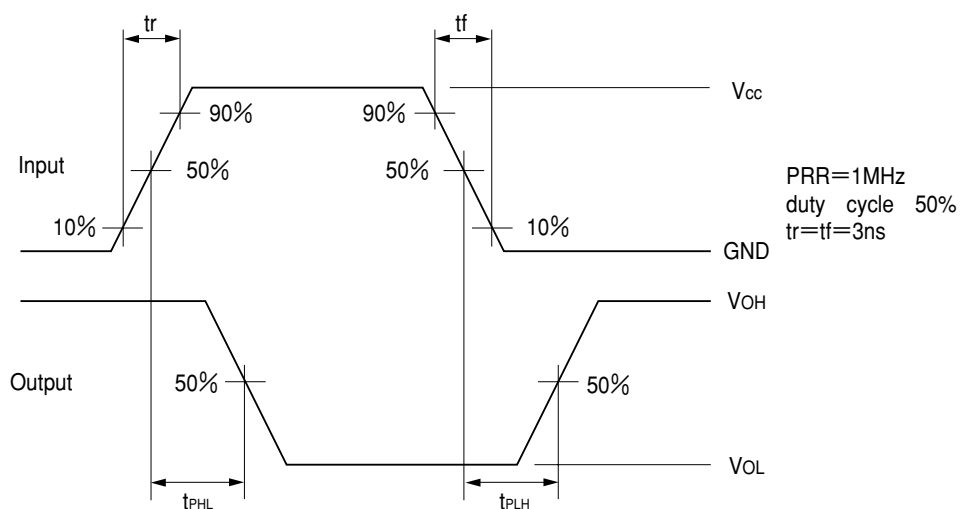
PARAMETER	SYMBOL	V _{CC} (V)		CONDITIONS	Ta=25°C			Ta=-40-85°C		UNITS	
					MIN	TYP	MAX	MIN	MAX		
Input Voltage	V _{IH}	2.0			1.5	-	-	1.5	-	V	
		3.0			2.1	-	-	2.1	-		
		5.5			3.85	-	-	3.85	-		
	V _{IL}	2.0			-	-	0.5	-	0.5	V	
		3.0			-	-	0.9	-	0.9		
		5.5			-	-	1.65	-	1.65		
Output Voltage	V _{OH}	2.0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

Switching Electrical Characteristics

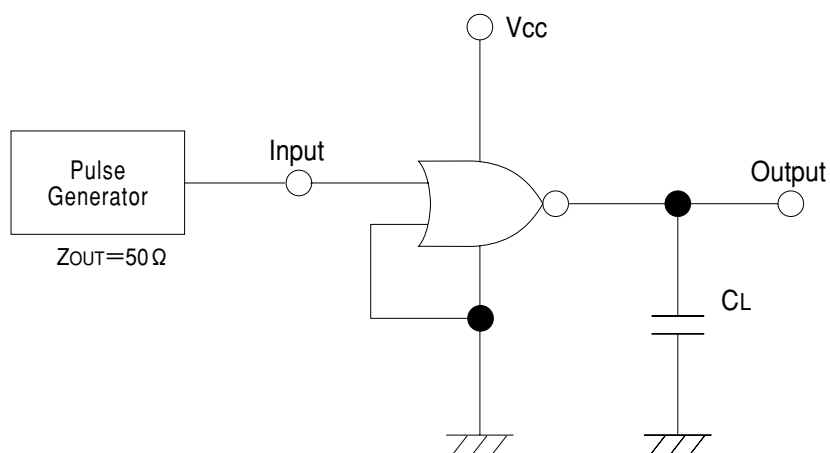
PARAMETER	SYMBOL	C _L	V _{CC} (V)	CONDITIONS	Ta=25°C			Ta=-40~85°C		UNITS
					MIN	TYP	MAX	MIN	MAX	
Propagation Delay Time	t _{PLH}	15pF	3.3		-	3.9	7.9	1.0	9.5	ns
			5.0		-	2.7	5.5	1.0	6.5	
		50pF	3.3		-	5.5	11.4	1.0	13	ns
			5.0		-	3.9	7.5	1.0	8.5	
	t _{PHL}	15pF	3.3		-	3.5	7.9	1.0	9.5	ns
			5.0		-	2.6	5.5	1.0	6.5	
		50pF	3.3		-	4.9	11.4	1.0	13	ns
			5.0		-	3.6	7.5	1.0	8.5	
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			-	9.7	-	-	-	pF

t_r=t_f=3ns

Waveforms



Typical Application Circuit



Note: Open output when measuring supply current