XC74WL02AASR

ETR1312_001

CMOS Logic

■GENERAL DESCRIPTION

XC74WL02AASR is dual 2-input NOR Gate manufactured using silicon gate CMOS processes. The small supply current, which is one of the features of the CMOS logic, gives way to high speed operations which enables LS-TTL.
With wave forming buffers connected internally, stabilized output can be achieved as the series offers high noise immunity.
As the series is integrated into a mini molded, MSOP-8B package, high density mounting is possible.

■APPLICATIONS

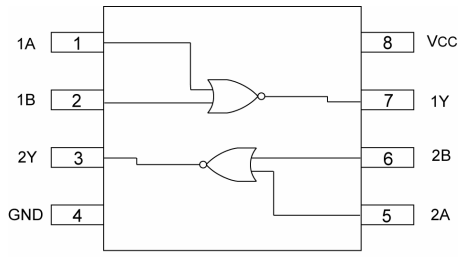
●Palmtops

●Digital equipment

■FEATURES

High Speed Operations : tpd = 2.65ns (TYP.) (VCC=5V)
Operating Voltage Range : 2V ~ 5.5V
Low Power Consumption: 1μA (MAX.)@Ta=25℃
CMOS Logic Dual 2-Input NOR Gate
Small Package : MSOP-8B

■PIN CONFIGURATION



MSOP-8B
(TOP VIEW)

■FUNCTIONS

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

H=High level
L=Low level

■ABSOLUTE MAXIMUM RATINGS

Ta=-40℃~85℃

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
Switch Output Current	IOUT	±25	mA
VCC,GND Current	ICC,IGND	±50	mA
Power Dissipation (Ta = 25℃)	Pd	300	mW
Storage Temperature Range	Tstg	-65~+150	℃

Note : Voltage is all ground standardized.

■RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	UNITS
Supply Voltage	V_{CC}	2~5.5	V
Input Voltage	V_{IN}	0~5.5	V
Output Voltage	V_{OUT}	0~ VCC	V
Operating Temperature Range	Topr	-40~+85	℃
Input Rise and Fall Time	tr,tf	0～200（VCC=3.3V）	ns
		0～100（VCC=5V）	

■DC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS		Ta=25℃			Ta=-40℃~85℃		UNITS
		VCC(V)		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_{IL}	1.9	2.0	–	1.9	–	V
		3.0	I_{OH}=-50μA	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_{IL} or V_{IH}	–	–	0.1	–	0.1	V
		3.0	I_{OL}=50μA	–	–	0.1	–	0.1	
		4.5		–	–	0.1	–	0.1	
		3.0	I_{OL}=4mA	–	–	0.36	–	0.44	
		4.5	I_{OL}=8mA	–	–	0.36	–	0.44	
Input Current	I_{IN}	0～5.5	V_{IN}=V_{CC} or GND	-0.1	–	0.1	-1.0	1.0	μA
Static Supply Current	I_{CC}	5.5	V_{IN}=V_{CC} or GND,I_{OUT}=0μA	–	–	1.0	–	10.0	μA

■SWITCHING ELECTRICAL CHARACTERISTICS

(tr=tf=3ns)

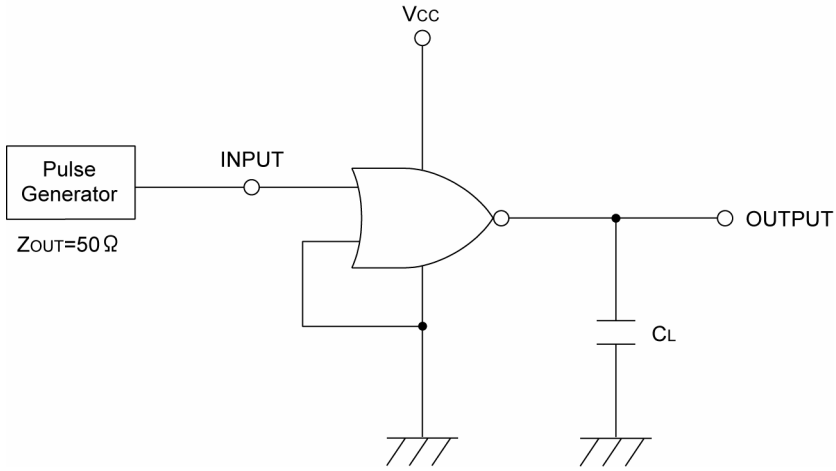
PARAMETER	SYMBOL			CONDITIONS	Ta=25℃			Ta=-40℃~85℃		UNITS
		C_L	V_{CC}(V)		MIN.	TYP.	MAX.	MIN.	MAX.	
Delay Time	tPLH	15pF	3.3		–	3.9	7.9	1.0	9.5	ns
			5.0		–	2.7	5.5	1.0	6.5	
		50pF	3.3		–	5.5	11.4	1.0	13	ns
			5.0		–	3.9	7.5	1.0	8.5	
	tPHL	15pF	3.3		–	3.5	7.9	1.0	9.5	ns
			5.0		–	2.6	5.5	1.0	6.5	
		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	Cpd	No Load, f=1MHz			–	9.7	–	–	–	pF

■NOISE CHARACTERISTICS

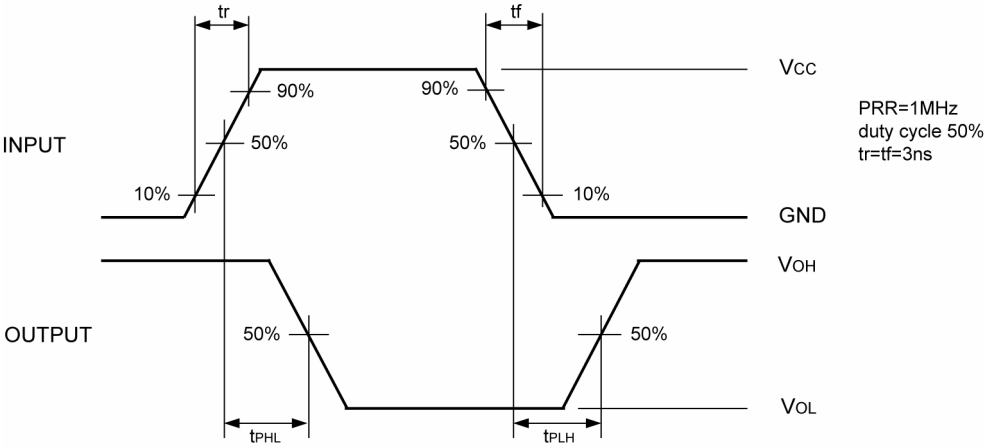
(tr=tf=3ns)

PARAMETER	SYMBOL			CONDITIONS	Ta=25℃			UNITS
		C_L	V_{CC}(V)		MIN.	TYP.	MAX.	
Non Functional Output Maximum Dynamic V_{OL}	V_{OLP}	50pF	5.0		—	0.3	0.8	V
Non Functional Output Minimum Dynamic V_{OL}	V_{OLV}	50pF	5.0		-0.8	-0.3	—	V
Minimum Dynamic V_{IH}	V_{IHD}	50pF	5.0		—	—	3.5	V
Maximum Dynamic V_{IL}	V_{ILD}	50pF	5.0		—	—	1.5	V

■TEST CIRCUIT



■WAVEFORM



PRR=1MHz
duty cycle 50%
tr=tf=3ns

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