

# XC74WL241ASR



## CMOS Logic

### ◆CMOS Logic Dual Bus Buffer

(Noninverted 3-state outputs)

◆Operating Voltage Range : 2V ~ 5.5V

◆High Speed Operations :  $t_{pd} = 3.8\text{ns}$  TYP

◆Low Power Consumption :  $2\mu\text{A}$  (max)

◆MSOP-8B Package

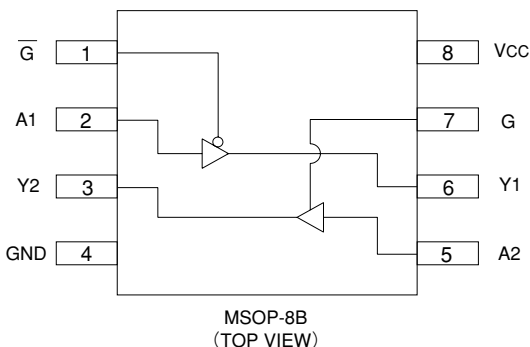
### ■Description

XC74WL241ASR is Dual Bus Buffer manufactured using silicon gate CMOS processes. The small quiescent 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.

### ■Pin Configuration



### ■Applications

- Palmtops
- Digital Equipment

### ■Features

**High Speed Operations** :  $t_{pd} = 3.8\text{ns}$  TYP ( $V_{CC} = 5\text{V}$ )

**Operating Voltage Range**: 2V ~ 5.5V

**Low Power Consumption**:  $2\mu\text{A}$  (max)

**Small Package** : MSOP-8B

### ■Functions

INPUT			OUTPUT
$\overline{\text{G}}$	G	A	Y
L	H	H	H
L	H	L	L
H	L	X	Z

H = High Level

L = Low Level

X = Don't care

Z = High Impedance

### ■Absolute Maximum Ratings

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

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 <sub>IK</sub>	-20	mA
Output Diode Current	I <sub>OK</sub>	±20	mA
Switch Output Current	I <sub>OUT</sub>	±25	mA
VCC, GND Current	I <sub>CC</sub> , I <sub>GND</sub>	±50	mA
Power Dissipation ( $T_a = 25^\circ\text{C}$ )	P <sub>d</sub>	300	mW
Storage Temperature	T <sub>stg</sub>	-65~+150	°C

Note : Voltage is all Ground standardized.

## Recommended Operating Conditions

PARAMETER	SYMBOL	CONDITIONS	UNITS
Supply Voltage	VCC	2~5.5	V
Input Voltage	VIN	0~5.5	V
Output Voltage	VOUT	0~VCC	V
Operating Temperature	Topr	−40~+85	°C
Input Rise and Fall Time	tr, tf	0~200 (VCC=3.3V)	ns
		0~100 (VCC=5V)	

## DC Electrical Characteristics

PARAMETER	SYMBOL	VCC (V)	CONDITIONS	Ta=25°C			Ta=−40~85°C		UNITS
				MIN	TYP	MAX	MIN	MAX	
Input Voltage	VIH	2.0		1.5	—	—	1.5	—	V
		3.0		2.1	—	—	2.1	—	
		5.5		3.85	—	—	3.85	—	
	VIL	2.0		—	—	0.5	—	0.5	V
		3.0		—	—	0.9	—	0.9	
		5.5		—	—	1.65	—	1.65	
Output Voltage	VOH	2.0	VIN=VIH	IOH=−50 $\mu$ A	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		IOH=−4mA	2.58	—	—	2.48	
		4.5		IOH=−8mA	3.94	—	—	3.80	
	VOL	2.0	VIN=VIL	IOL=50 $\mu$ A	—	—	0.1	—	V
		3.0			—	—	0.1	—	
		4.5			—	—	0.1	—	
		3.0		IOL=4mA	—	—	0.36	—	
		4.5		IOL=8mA	—	—	0.36	—	
3 State Off-Leak Current	IOZ	5.0	VIN=VIL or VIH, VOUT=VCC or GND	−0.25	—	0.25	−2.50	2.50	$\mu$ A
Input Current	IIN	0~5.5	VIN=VCC or GND	−0.1	—	0.1	−1.0	1.0	$\mu$ A
Quiscent Supply Current	ICC	5.5	VIN=VCC or GND	—	—	2.0	—	20.0	$\mu$ A

## Switching Electrical Characteristics

(tr=tf=3ns)

PARAMETER	SYMBOL	CONDITIONS		Ta=25℃			Ta=−40~85℃		UNITS		
		CL	VCC (V)	MIN	TYP	MAX	MIN	MAX			
Propagation Delay Time	tPLH	15pF	3.3		—	5.6	8	1	9.5	ns	
			5.0		—	3.8	5.5	1	6.5		
		50pF	3.3		—	8.1	11.5	1	13	ns	
			5.0		—	5.3	7.5	1	8.5		
	tPHL	15pF	3.3		—	5.6	8	1	9.5	ns	
			5.0		—	3.8	5.5	1	6.5		
		50pF	3.3		—	8.1	11.5	1	13	ns	
			5.0		—	5.3	7.5	1	8.5		
Output Enable Time	tZL	15pF	3.3	RL=1kΩ	—	5.4	8	1	9.5	ns	
			5.0		—	3.6	5.1	1	6		
		50pF	3.3		—	7.9	11.5	1	13		ns
			5.0		—	5.1	7.1	1	8		
	tZH	15pF	3.3	RL=1kΩ	—	5.4	8	1	9.5	ns	
			5.0		—	3.6	5.1	1	6		
		50pF	3.3		—	7.9	11.5	1	13		ns
			5.0		—	5.1	7.1	1	8		
Output Disable Time	tLZ	50pF	3.3	RL=1kΩ	—	9.5	13.2	1	15	ns	
			5.0		—	6.1	8.8	1	10		
	tHZ	50pF	3.3	RL=1kΩ	—	9.5	13.2	1	15	ns	
			5.0		—	6.1	8.8	1	10		
Output Pin Skew (Note)	tosLH	50pF	3.3		—	—	1.5	—	1.5	ns	
			5.0		—	—	1	—	1		
	tosHL	50pF	3.3		—	—	1.5	—	1.5	ns	
			5.0		—	—	1	—	1		
Input Capacitance	CIN	—	—		—	4	10	—	10	pF	
Output Capacitance	COUT	—	—		—	6	—	—	—	pF	
Power Dissipation Capacitance	Cpd	—	—		—	17	—	—	—	pF	

Note: tosLH and tosHL are the guaranteed parameters.

tosLH = | tPLHm - tPHLn |, tosHL = | tPHLm - tPLLn |

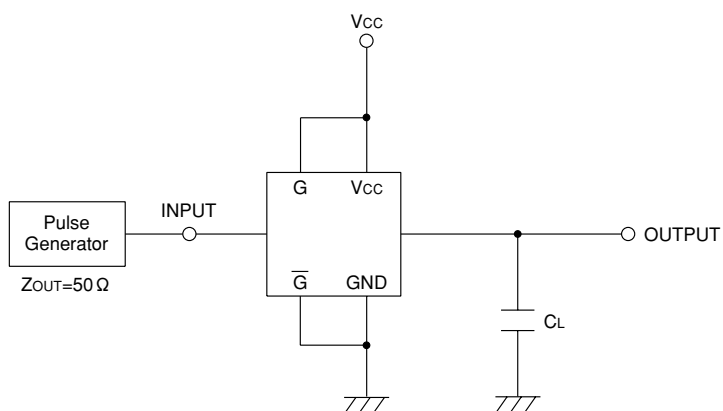
## Noise Characteristics

(tr=tf=3ns)

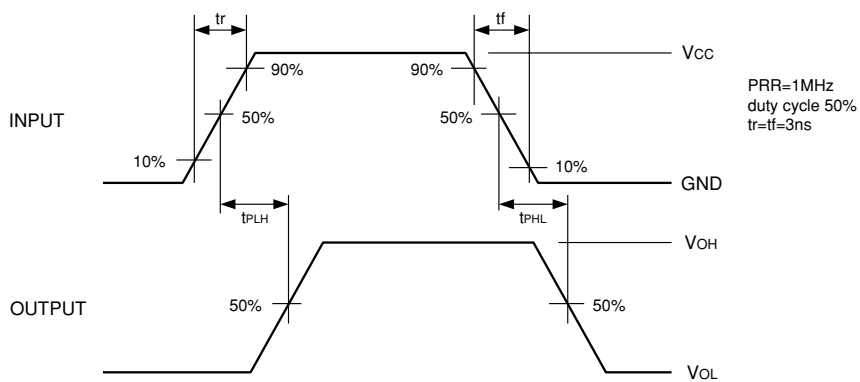
PARAMETER	SYMBOL	CONDITIONS			Ta=25℃			UNITS
		CL	VCC(V)		MIN	TYP	MAX	
Not functioning output maximum dynamic VOL	VOLP	50pF	5.0		—	0.5	0.8	V
Not functioning output minimum dynamic VOL	VOLV	50pF	5.0		−0.8	−0.5	—	V
Minimum dynamic VIH	VIHD	50pF	5.0		—	—	3.5	V
Maximum dynamic VIL	VILD	50pF	5.0		—	—	1.5	V

## ■ Propagation Delay Time

### ■ Typical Application Circuit

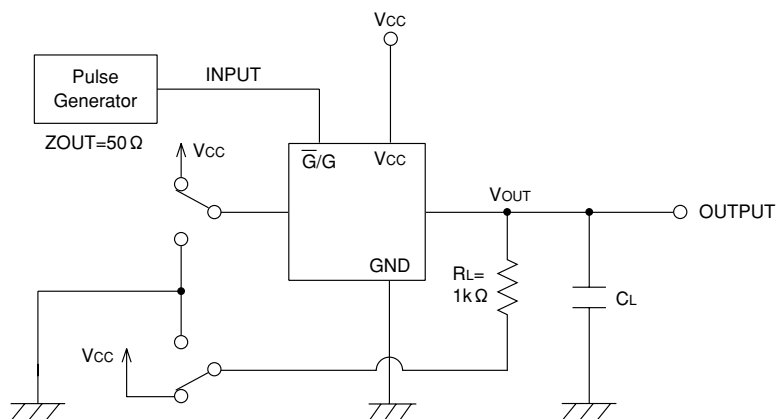


### ■ Waveforms



## ■ Output Enable Time, Output Disable Time

### ■ Typical Application Circuit



### ■ Waveforms

