

# XC74WL126ASR



## CMOS Logic

- ◆CMOS Logic Dual Bus Buffer
- ◆Operating Voltage Range : 2V ~ 5.5V
- ◆High Speed Operations :  $t_{pd} = 5.6\text{ns}$  TYP
- ◆Low Power Consumption :  $2\mu\text{A}$  (max)
- ◆MSOP-8B Package

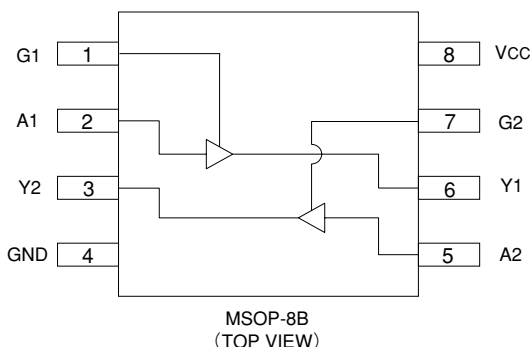
## Description

XC74WL126ASR 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** :  $t_{pd} = 5.6\text{ns}$  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 |
|-------|---|--------|
| G     | A | Y      |
| H     | H | H      |
| H     | L | L      |
| 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                                 | $-0.5 \sim +6.0$         | V                |
| Input Voltage                                  | VIN                                 | $-0.5 \sim +6.0$         | V                |
| Output Voltage                                 | VOU                                 | $-0.5 \sim V_{CC} + 0.5$ | V                |
| Input Diode Current                            | I <sub>IK</sub>                     | -20                      | mA               |
| Output Diode Current                           | I <sub>OK</sub>                     | $\pm 20$                 | mA               |
| Switch Output Current                          | I <sub>OUT</sub>                    | $\pm 25$                 | mA               |
| VCC, GND Current                               | I <sub>CC</sub> , I <sub>IGND</sub> | $\pm 50$                 | mA               |
| Power Dissipation ( $T_a = 25^\circ\text{C}$ ) | P <sub>d</sub>                      | 300                      | mW               |
| Storage Temperature                            | T <sub>stg</sub>                    | $-65 \sim +150$          | $^\circ\text{C}$ |

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 μA | 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 μA  | —    | —    | 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 | −2.5        | 2.5  | μA    |
| Input Current            | IIN    | 0~5.5   | VIN=VCC or GND                  | −0.1       | —    | 0.1  | −1.0        | 1.0  | μA    |
| Quiscent Supply Current  | ICC    | 5.5     | VIN=VCC or GND                  | —          | —    | 2.0  | —           | 20.0 | μA    |

## Switching Electrical Characteristics

(tr=tf=3ns)

| PARAMETER                     | SYMBOL | VCC (V) | CONDITIONS | Ta=25°C |     |      | Ta=-40~85°C |     | UNITS |
|-------------------------------|--------|---------|------------|---------|-----|------|-------------|-----|-------|
|                               |        |         |            | MIN     | TYP | MAX  | MIN         | MAX |       |
| Propagation Delay Time        | tPLH   | 3.3     | CL=15pF    | —       | 5.6 | 8    | 1           | 9.5 | ns    |
|                               |        | 5.0     |            | —       | 3.8 | 5.5  | 1           | 6.5 |       |
|                               |        | 3.3     | CL=50pF    | —       | 8.1 | 11.5 | 1           | 13  | ns    |
|                               |        | 5.0     |            | —       | 5.3 | 7.5  | 1           | 8.5 |       |
|                               | tPHL   | 3.3     | CL=15pF    | —       | 5.6 | 8    | 1           | 9.5 | ns    |
|                               |        | 5.0     |            | —       | 3.8 | 5.5  | 1           | 6.5 |       |
|                               |        | 3.3     | CL=50pF    | —       | 8.1 | 11.5 | 1           | 13  | ns    |
|                               |        | 5.0     |            | —       | 5.3 | 7.5  | 1           | 8.5 |       |
| Output Enable Time            | tZL    | 3.3     | RL=1kΩ     | —       | 5.4 | 8    | 1           | 9.5 | ns    |
|                               |        | 5.0     | CL=15pF    | —       | 3.6 | 5.1  | 1           | 6   |       |
|                               |        | 3.3     | RL=1kΩ     | —       | 7.9 | 11.5 | 1           | 13  | ns    |
|                               |        | 5.0     | CL=50pF    | —       | 5.1 | 7.1  | 1           | 8   |       |
|                               | tZH    | 3.3     | RL=1kΩ     | —       | 5.4 | 8    | 1           | 9.5 | ns    |
|                               |        | 5.0     | CL=15pF    | —       | 3.6 | 5.1  | 1           | 6   |       |
|                               |        | 3.3     | RL=1kΩ     | —       | 7.9 | 11.5 | 1           | 13  | ns    |
|                               |        | 5.0     | CL=50pF    | —       | 5.1 | 7.1  | 1           | 8   |       |
| Output Disable Time           | tLZ    | 3.3     | RL=1kΩ     | —       | 9.5 | 13.2 | 1           | 15  | ns    |
|                               |        | 5.0     | CL=50pF    | —       | 6.1 | 8.8  | 1           | 10  |       |
|                               | tHZ    | 3.3     | RL=1kΩ     | —       | 9.5 | 13.2 | 1           | 15  | ns    |
|                               |        | 5.0     | CL=50pF    | —       | 6.1 | 8.8  | 1           | 10  |       |
| Output Pin Skew<br>(Note)     | tosLH  | 3.3     | CL=50pF    | —       | —   | 1.5  | —           | 1.5 | ns    |
|                               |        | 5.0     |            | —       | —   | 1    | —           | 1   |       |
|                               | tosHL  | 3.3     | CL=50pF    | —       | —   | 1.5  | —           | 1.5 | ns    |
|                               |        | 5.0     |            | —       | —   | 1    | —           | 1   |       |
| Input Capacitance             | CIN    | —       |            | —       | 4   | 10   | —           | 10  | pF    |
| Output Capacitance            | COU    | —       |            | —       | 6   | —    | —           | —   | pF    |
| Power Dissipation Capacitance | Cpd    | —       |            | —       | 14  | —    | —           | —   | pF    |

Note: tosLH and tosHL are the guaranteed parameters.

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

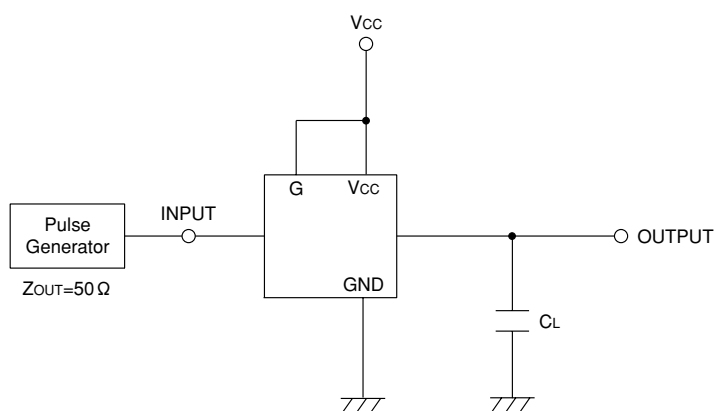
## Noise Characteristics

(tr=tf=3ns)

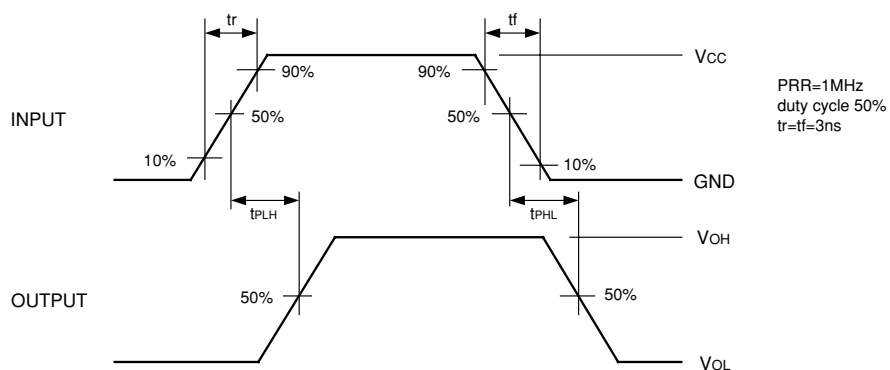
| PARAMETER                                  | SYMBOL | CONDITIONS |        | Ta=25°C |      |     | UNITS |
|--------------------------------------------|--------|------------|--------|---------|------|-----|-------|
|                                            |        | CL         | VCC(V) | MIN     | TYP  | MAX |       |
| Not functioning output maximum dynamic VOL | VOLP   | 50pF       | 5.0    | —       | 0.3  | 0.8 | V     |
| Not functioning output minimum dynamic VOL | VOLV   | 50pF       | 5.0    | —0.8    | —0.3 | —   | 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

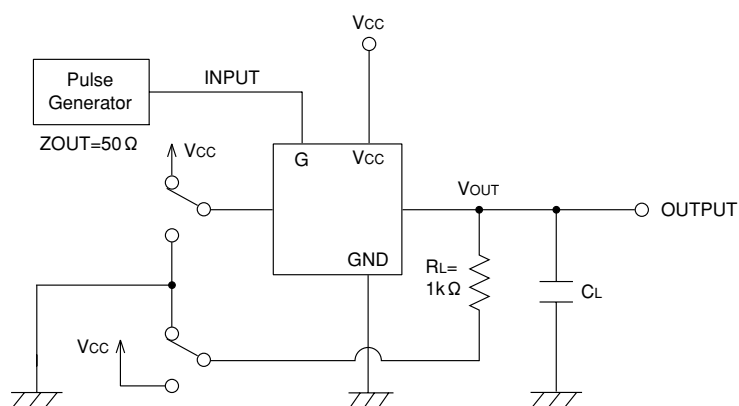


### ■ Waveforms



## ■ Output Enable Time, Output Disable Time

### ■ Typical Application Circuit



### ■ Waveforms

