# XC74UL32AA

TOREX

*CMOS Logic*

**◆CMOS 2-Input OR Gate**
**◆High Speed Operation : tpd=3.8ns TYP**
**◆Operating Voltage Range : 2V~5.5V**
**◆Low Power Consumption : 1μA (max)**

## ■General Description

The XC74UL32AA is a 2-input CMOS 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 XC74UL32AA is integrated into mini molded, SSOT-25 and SOT-25 packages, high density mounting is possible.

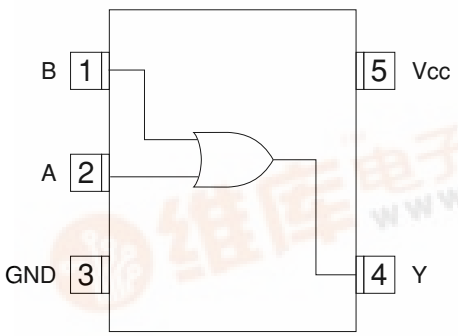
## ■Applications

●Palmtops
●Digital Equipment

## ■Features

**High Speed Operation** : tpd=3.8ns 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 | L |
| L | H | H |
| H | L | H |
| H | H | H |

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 | Vcc(V) | 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 |
| Output Current | IOH | 3.0 | -4 | mA |
| | | 4.5 | -8 | |
| | IOL | 3.0 | 4 | |
| | | 4.5 | 8 | |
| Input Rise and Fall Time | tr, tf | 3.3 | 0 ~ 100 | ns |
| | | 5.0 | 0 ~ 20 | |

## ■DC Electrical Characteristics

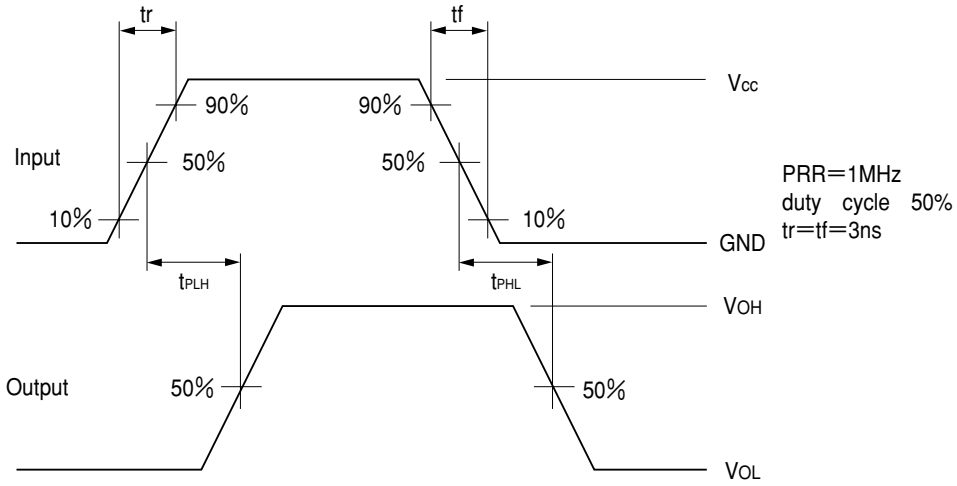
| PARAMETER | SYMBOL | Vcc(V) | CONDITIONS | | Ta=25°C MIN | Ta=25°C TYP | Ta=25°C MAX | Ta=-40~85°C MIN | Ta=-40~85°C MAX | UNITS |
|---|---|---|---|---|---|---|---|---|---|---|
| Input Voltage | VIH | 2.0 | | | 1.5 | - | - | 1.5 | - | V |
| | | 3.0 | | | 2.1 | - | - | 2.1 | - | |
| | | 5.5 | | | 3.85 | - | - | 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 or VIL | IOH=-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 | | IOH=-4mA | 2.58 | - | - | 2.48 | - | |
| | | 4.5 | | IOH=-8mA | 3.94 | - | - | 3.80 | - | |
| | VOL | 2.0 | VIN=VIH | IOL=50μA | - | - | 0.1 | - | 0.1 | V |
| | | 3.0 | | | - | - | 0.1 | - | 0.1 | |
| | | 4.5 | | | - | - | 0.1 | - | 0.1 | |
| | | 3.0 | | IOL=4mA | - | - | 0.36 | - | 0.44 | |
| | | 4.5 | | IOL=8mA | - | - | 0.36 | - | 0.44 | |
| Input Current | IIN | 5.5 | VIN=Vcc or GND | | -0.1 | - | 0.1 | -1.0 | 1.0 | μA |
| Quiescent Supply Current | ICC | 5.5 | VIN=Vcc or GND, IOUT=0μA | | - | - | 1.0 | - | 10.0 | |

## ■Switching Electrical Characteristics

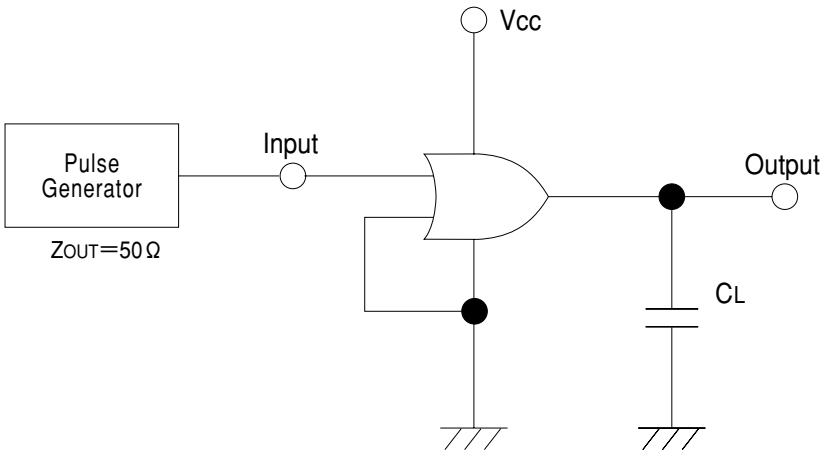
tr=tf=3ns

| PARAMETER | SYMBOL | CL | Vcc(V) | CONDITIONS | Ta=25°C MIN | Ta=25°C TYP | Ta=25°C MAX | Ta=-40~85°C MIN | Ta=-40~85°C MAX | UNITS |
|---|---|---|---|---|---|---|---|---|---|---|
| Propagation Delay Time | tPLH | 15pF | 3.3 | | - | 5.5 | 7.9 | 1.0 | 9.5 | ns |
| | | | 5.0 | | - | 3.8 | 5.5 | 1.0 | 6.5 | |
| | | 50pF | 3.3 | | - | 8 | 11.4 | 1.0 | 13 | ns |
| | | | 5.0 | | - | 5.3 | 7.5 | 1.0 | 8.5 | |
| | tPHL | 15pF | 3.3 | | - | 5.5 | 7.9 | 1.0 | 9.5 | ns |
| | | | 5.0 | | - | 3.8 | 5.5 | 1.0 | 6.5 | |
| | | 50pF | 3.3 | | - | 8 | 11.4 | 1.0 | 13 | ns |
| | | | 5.0 | | - | 5.3 | 7.5 | 1.0 | 8.5 | |
| Input Capacitance | CIN | - | 5.0 | VIN=Vcc or GND | - | 2 | 10 | - | 10 | pF |
| Power Dissipation Capacitance | Cpd | No Load, f=1MHz | | | - | 8.9 | - | - | - | pF |

## ■Waveforms




## ■Typical Application Circuit




Note: Open output when measuring supply current