

| $\begin{aligned} & \text { 욱 } \\ & 0 \\ & 0 \\ & \underset{\sim}{\sim} \\ & \underset{\sim}{4} \end{aligned}$ | Pin Descriptions |  |  |
| :---: | :---: | :---: | :---: |
|  |  | Pin Names | Description |
|  |  | $\begin{aligned} & \hline \overline{\mathrm{OE}}_{\mathrm{n}} \\ & \mathrm{I}_{0}-\mathrm{I}_{15} \\ & \overline{\mathrm{O}}_{0}-\overline{\mathrm{O}}_{15} \\ & \hline \end{aligned}$ | Output Enable Inputs <br> Inputs <br> 3-STATE Outputs |

## Truth Table

| Inputs |  |  |  |  |  | Outputs |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Byte1 $\overline{\mathrm{OE}}_{1}$ | $[0: 7]$ $\overline{\mathrm{OE}}_{2}$ | Byte2 $\mathrm{OE}_{3}$ | $\overline{\mathrm{OE}}_{4}$ | $l_{0}-I_{7} I_{8}-l_{15}$ |  | $\overline{\mathrm{O}}_{0}-\overline{\mathrm{O}}_{7} \overline{\mathrm{O}}_{8}-\overline{\mathrm{O}}_{15}$ |  |
| L | L | L | L | H | H | L | L |
| H | X | L | L | X | L | Z | H |
| X | H | L | L | X | H | Z | L |
| L | L | H | X | L | X | H | Z |
| L | L | X | H | H | X | L | Z |
| H | H | H | H | X | X | Z | Z |
| L | L | L | L | L | L | H | H |

$\mathrm{H}=$ HIGH Voltage Level
L LOW Voltage Level
X = Immaterial
$Z=$ High Impedance

## Logic Diagram



Absolute Maximum Ratings(Note 1)

Storage Temperature
Ambient Temperature under Bias Junction Temperature under Bias $\mathrm{V}_{\mathrm{CC}}$ Pin Potential to Ground Pin Input Voltage (Note 2)
Input Current (Note 2)
Voltage Applied to Output
in HIGH State (with $\mathrm{V}_{\mathrm{CC}}=0 \mathrm{~V}$ )
Standard Output
3-STATE Output
Current Applied to Output
in LOW State (Max)
ESD Last Passing Voltage (Min)
$-65^{\circ} \mathrm{C}$ to $+150^{\circ} \mathrm{C}$
$-55^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$
$-55^{\circ} \mathrm{C}$ to $+150^{\circ} \mathrm{C}$
-0.5 V to +7.0 V
-0.5 V to +7.0 V
-30 mA to +5.0 mA

$$
\begin{gathered}
-0.5 \mathrm{~V} \text { to } \mathrm{V}_{\mathrm{CC}} \\
-0.5 \mathrm{~V} \text { to }+5.5 \mathrm{~V}
\end{gathered}
$$

## Recommended Operating Conditions

| Free Air Ambient Temperature | $0^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| :--- | ---: |
| Supply Voltage | +4.5 V to +5.5 V |

Note 1: Absolute maximum ratings are values beyond which the device may be damaged or have its useful life impaired. Functional operation under these conditions is not implied.
Note 2: Either voltage limit or current limit is sufficient to protect inputs.

## DC Electrical Characteristics

| Symbol | Parameter | Min | Typ | Max | Units | $\mathrm{V}_{\text {cc }}$ | Conditions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{V}_{\mathrm{H}}$ | Input HIGH Voltage | 2.0 |  |  | V |  | Recognized as a HIGH Signal |
| $\mathrm{V}_{\mathrm{IL}}$ | Input LOW Voltage |  |  | 0.8 | V |  | Recognized as a LOW Signal |
| $\mathrm{V}_{C D}$ | Input Clamp Diode Voltage |  |  | -1.2 | V | Min | $\mathrm{I}_{\mathrm{I}}=-18 \mathrm{~mA}$ |
| $\mathrm{V}_{\mathrm{OH}}$ | Output HIGH Voltage | $\begin{aligned} & \hline 2.4 \\ & 2.0 \end{aligned}$ |  |  | V | Min | $\begin{aligned} & \mathrm{I}_{\mathrm{OH}}=-3 \mathrm{~mA} \\ & \mathrm{I}_{\mathrm{OH}}=-15 \mathrm{~mA} \end{aligned}$ |
| $\mathrm{V}_{\text {OL }}$ | Output LOW Voltage |  |  | 0.55 | V | Min | $\mathrm{I}_{\mathrm{OL}}=64 \mathrm{~mA}$ |
| $\mathrm{I}_{\mathrm{IH}}$ | Input HIGH Current |  |  | 5.0 | $\mu \mathrm{A}$ | Max | $\mathrm{V}_{\text {IN }}=2.7 \mathrm{~V}$ |
| $\mathrm{I}_{\mathrm{BVI}}$ | Input HIGH Current <br> Breakdown Test |  |  | 7.0 | $\mu \mathrm{A}$ | Max | $\begin{aligned} & \mathrm{V}_{\mathrm{IN}}=7.0 \mathrm{~V} \\ & \left(\overline{\mathrm{OE}}_{\mathrm{n}}\right) \end{aligned}$ |
| ILL | Input LOW Current |  |  | -120 | $\mu \mathrm{A}$ | Max | $\mathrm{V}_{\text {IN }}=0.5 \mathrm{~V}$ |
| Ios | Output Short-Circuit Current | -100 |  | -225 | mA | Max | $\mathrm{V}_{\text {OUT }}=0 \mathrm{~V}$ |
| $\mathrm{I}_{\text {OH }}$ | Output Leakage Current |  | 0 | 20 | $\mu \mathrm{A}$ | Max | $\mathrm{V}_{\text {OUT }}=2.7 \mathrm{~V}$ |
| ${ }_{\text {OzL }}$ | Output Leakage Current |  | 0 | -20 | $\mu \mathrm{A}$ | Max | $\mathrm{V}_{\text {OUT }}=0.5 \mathrm{~V}$ |
| $\mathrm{I}_{\text {CEX }}$ | Output HIGH Leakage Current |  |  | 50 | $\mu \mathrm{A}$ | Max | $\mathrm{V}_{\text {OUT }}=\mathrm{V}_{\text {CC }}$ |
| $\mathrm{V}_{\text {ID }}$ | Input Leakage Test | 4.75 |  |  | V | 0.0 | $\mathrm{I}_{\mathrm{ID}}=1.9 \mu \mathrm{~A}$ <br> All Other Pins Grounded |
| $\overline{\mathrm{IOD}}$ | Output Circuit Leakage Current |  |  | 3.75 | $\mu \mathrm{A}$ | 0.0 | $V_{I O D}=150 \mathrm{mV}$ <br> All Other Pins Grounded |
| Izz | Bus Drainage Test |  |  | 100 | $\mu \mathrm{A}$ | 0.0 | $\mathrm{V}_{\text {OUT }}=5.25 \mathrm{~V}$ |
| $\mathrm{I}_{\text {CCH }}$ | Power Supply Current |  | 14 | 20 | mA | Max | $\mathrm{V}_{\mathrm{O}}=\mathrm{HIGH}$ |
| ${ }^{\text {CCL }}$ | Power Supply Current |  | 75 | 92 | mA | Max | $\mathrm{V}_{\mathrm{O}}=$ LOW |
| $\mathrm{I}_{\text {ccz }}$ | Power Supply Current |  | 38 | 50 | mA | Max | $\mathrm{V}_{\mathrm{O}}=$ HIGH Z |
| $\mathrm{C}_{\text {IN }}$ | Input Capacitance |  | 8 |  | pF | 5.0 |  |

## AC Electrical Characteristics

| Symbol | Parameter | $\begin{gathered} \mathrm{T}_{\mathrm{A}}=+25^{\circ} \mathrm{C} \\ \mathrm{~V}_{\mathrm{CC}}=+5.0 \mathrm{~V} \\ \mathrm{C}_{\mathrm{L}}=50 \mathrm{pF} \end{gathered}$ |  |  | $\begin{gathered} \mathrm{T}_{\mathrm{A}}=\mathbf{0}^{\circ} \mathrm{C} \text { to }+70^{\circ} \mathrm{C} \\ \mathrm{~V}_{\mathrm{CC}}=+5.0 \mathrm{~V} \\ \mathrm{C}_{\mathrm{L}}=50 \mathrm{pF} \end{gathered}$ |  | Units |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Min | Typ | Max | Min | Max |  |
|  | Propagation Delay <br> In to $\overline{\mathrm{On}}$ | $\begin{aligned} & 1.0 \\ & 1.0 \end{aligned}$ | $\begin{aligned} & \hline 2.8 \\ & 2.0 \end{aligned}$ | $\begin{aligned} & \hline 4.3 \\ & 4.3 \end{aligned}$ | $\begin{aligned} & 1.0 \\ & 1.0 \end{aligned}$ | $\begin{aligned} & \hline 4.3 \\ & 4.3 \end{aligned}$ | ns |
| $\begin{aligned} & \hline \mathrm{t}_{\text {PZH }} \\ & \mathrm{t}_{\text {PZL }} \end{aligned}$ | Output Enable Time | $\begin{aligned} & \hline 3.4 \\ & 3.4 \end{aligned}$ |  | $\begin{aligned} & \hline 11.6 \\ & 11.6 \end{aligned}$ | $\begin{aligned} & \hline 3.4 \\ & 3.4 \end{aligned}$ | $\begin{aligned} & \hline 11.6 \\ & 11.6 \end{aligned}$ | ns |
| $\begin{aligned} & \overline{\mathrm{t}_{\text {PHZ }}} \\ & \mathrm{t}_{\mathrm{PLLZ}} \end{aligned}$ | Output Disable Time | $\begin{aligned} & \hline 1.8 \\ & 1.8 \end{aligned}$ | $\begin{aligned} & 4.0 \\ & \hline 4.4 \end{aligned}$ | $\begin{aligned} & \hline 6.6 \\ & 6.6 \end{aligned}$ | $\begin{aligned} & \hline 1.8 \\ & 1.8 \end{aligned}$ |  | ns |

Extended AC Characteristics

| Symbol | Parameter | $\begin{gathered} \mathrm{T}_{\mathrm{A}}=0^{\circ} \mathrm{C} \text { to }+70^{\circ} \mathrm{C} \\ \mathrm{~V}_{\mathrm{CC}}=+5.0 \mathrm{~V} \\ \mathrm{C}_{\mathrm{L}}=50 \mathrm{pF} \end{gathered}$ <br> 16 Outputs Switching (Note 4) | $\begin{gathered} \mathrm{T}_{\mathrm{A}}=0^{\circ} \mathrm{C} \text { to }+70^{\circ} \mathrm{C} \\ \mathrm{~V}_{\mathrm{CC}}=+5.0 \mathrm{~V} \\ \mathrm{C}_{\mathrm{L}}=250 \mathrm{pF} \\ \text { (Note } 5 \text { ) } \end{gathered}$ | Units |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Min Max | Min Max |  |
| $\begin{aligned} & \hline \mathrm{t}_{\mathrm{PLH}} \\ & \mathrm{t}_{\mathrm{PHL}} \end{aligned}$ | Propagation Delay In to $\bar{O} n$ | 1.0 6.0 <br> 1.0 6.0 | 3.2 8.2 <br> 3.2 8.2 | ns |
| $\begin{aligned} & \hline \mathrm{t}_{\mathrm{PZH}} \\ & \mathrm{t}_{\mathrm{PZL}} \end{aligned}$ | Output Enable Time | 3.4 14.5 <br> 3.4 14.5 |  | ns |
| $\begin{aligned} & \hline \mathrm{t}_{\mathrm{PHZ}} \\ & \mathrm{t}_{\mathrm{PLZ}} \end{aligned}$ | Output Disable Time | 1.8 6.6 <br> 1.8 6.6 |  | ns |
| $\mathrm{t}_{\mathrm{OSHL}}$ <br> (Note 3) | Pin-to-Pin Skew for HL Transitions | 1.4 |  | ns |
| tosLh <br> (Note 3) | Pin-to-Pin Skew for LH Transitions | 1.6 |  | ns |
| $\mathrm{t}_{\mathrm{OST}}$ <br> (Note 3) | Pin-to-Pin Skew for HL/LH Transitions | 3.0 |  | ns |

Note 3. Skew is defined as the absolute value of the difference between the actual propagation delays for any two outputs of the same device. The specirication applies to any outputs switching HIGH-to-LOW (toshl), LOW-to-HIGH, (tosLh), or HIGH-to-LOW and/or LOW-to-HIGH, (tost). Specifications guaranteed with all outputs switching in phase. This specification is guaranteed but not tested.

Note 4: This specification is guaranteed but not tested. The limits apply to propagation delays for all paths described switching in phase, i.e., all LOW-to-HIGH, HIGH-to-LOW, 3-STATE-to-HIGH, etc

Note 5: These specifications guaranteed but not tested. The limits represent propagation delays with 250 pF load capacitors in place of the 50 pF load capacitors in the standard AC load. This specification pertains to single output switching only.

Physical Dimensions inches (millimeters) unless otherwise noted


Physical Dimensions inches (millimeters) unless otherwise noted (Continued)




Fairchild does not assume any responsibility for use of any circuitry described, no circuit patent licenses are implied and Fairchild reserves the right at any time without notice to change said circuitry and specifications.

## LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.
