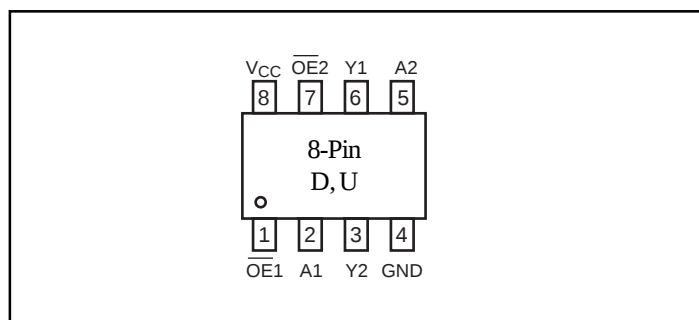


Features

- High-Speed: $t_{PD} = 2.6\text{ns}$ typical into 50pF @ $5\text{V } V_{CC}$
- Broad Operating Range: $V_{CC} = 1.65\text{V} - 5.5\text{V}$
- Power down high-impedance inputs/outputs
- High Output Drive: $\pm 24\text{mA}$ at $3\text{V } V_{CC}$
- Available Packages:
 - 8-pin space saving US8 (D)
 - 8-pin space saving MSOP (U)

Pinout



Pin Description

Pin Names	Description
$\overline{OE}n$	Enable Inputs for Outputs
A_n	Inputs
Y_n	Outputs

Function Table

Inputs		Output
$\overline{OE}$	A_n	Y_n
L	L	L
L	H	H
H	L	Z
H	H	Z

Note:

H = HIGH Logic Level

L = LOW Logic Level

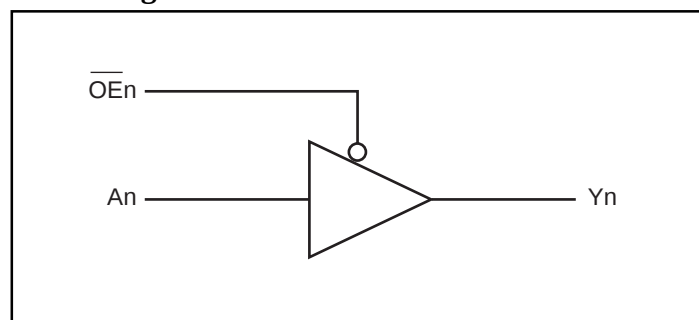
Z = 3-State

Description

The PI74STX2G125 is a dual buffer with 3-state outputs that operate over the 1.65V to $5.5\text{V } V_{CC}$ operating range.

Pericom's PI74STX series of products are produced using the Company's advanced submicron technology.

Block Diagram



Recommended Operating Conditions⁽¹⁾

Parameter	Condition	Min.	Max.	Units
Supply Voltage (V_{CC})		1.65	5.5	V
Input Voltage (V_{IN})		0	5.5	
Output Voltage (V_{OUT})		0	V_{CC}	
Operating Temperature		-40	85	°C
Input Rise and Fall Time (t_r, t_f)	$V_{CC} = 1.8\text{V}, 2.5\text{V}, \pm 0.2\text{V}$	0	20	ns/V
	$V_{CC} = 3.3\text{V}, \pm 0.3\text{V}$	0	10	
	$V_{CC} = 5.0\text{V}, \pm 0.5\text{V}$	0	5	

Note:

1. Unused inputs must be held HIGH or LOW. They may not float.

Absolute Maximum Ratings

Supply Voltage (V_{CC})	–0.5V to +7V	DC Output Current (I_{OUT})	±50mA
DC Input Voltage (V_{IN})	–0.5V to +7V	DC V_{CC} /GND Current (I_{CC}/I_{GND})	±50mA
DC Output Voltage (V_{OUT})	–0.5V to +7V	Storage Temperature (T_{STG})	–65°C to +150°C
DC Input Diode Current (I_{IK})	–50mA to 20mA	Junction Lead Temperature (I_{OS})	260°C
DC Output Diode Current (I_{OK})	–50mA to 20mA	Power Dissipation - MSOP	300mW
		- US8	200mW

Note:

Absolute maximum ratings are DC values beyond which the device may be damaged or have its useful life impaired. The datasheet specifications should be met, without exception, to ensure that the system design is reliable over its power supply, temperature, and output/input loading variables. Pericom does not recommend operation outside datasheet specifications.

DC Electrical Characteristics (Over supply voltage and operating temperature ranges, unless otherwise specified)

Symbol	Parameter	V_{CC} (V)	Conditions	$T_A = +25^\circ\text{C}$			$T_A = -40 \text{ to } +85^\circ\text{C}$		Units
				Min.	Typ.	Max.	Min.	Max.	
V_{IH}	HIGH Level Input Voltage	1.65-1.95 2.3-5.5		0.75 V_{CC} 0.7 V_{CC}			0.75 V_{CC} 0.7 V_{CC}		V
V_{IL}	LOW Level Input Voltage	1.65-1.95 2.3-5.5				0.25 V_{CC} 0.3 V_{CC}		0.25 V_{CC} 0.30 V_{CC}	
V_{OH}	HIGH Level Output Voltage	1.65	$V_{IN} = V_{IL}$ $I_{OH} = -100\mu\text{A}$	1.55	1.65		1.55		
		2.3		2.2	2.3		2.2		
		3.0		2.9	3.0		2.9		
		4.5		4.4	4.5		4.4		
		1.65	$I_{OH} = -4\text{mA}$ $I_{OH} = -8\text{mA}$ $I_{OH} = -16\text{mA}$ $I_{OH} = -24\text{mA}$ $I_{OH} = -32\text{mA}$	1.29	1.51		1.29		
		2.3		1.9	2.12		1.9		
		3.0		2.4	2.71		2.4		
		3.0		2.3	2.55		2.3		
		4.5		3.8	4.06		3.8		
		1.65	$V_{IN} = V_{IH}$ $I_{OL} = 100\mu\text{A}$		0.0	0.1		0.1	
V_{OL}	LOW Level Output Voltage	2.3			0.0	0.1		0.1	
		3.0			0.0	0.1		0.1	
		4.5			0.0	0.1		0.1	
		1.65			0.06	0.24		0.24	
		2.3			0.10	0.3		0.3	
		3.0			0.18	0.4		0.4	
		3.0			0.27	0.55		0.55	
		4.5			0.30	0.55		0.55	
I_{IN}	Input Leakage Current	0-5.5	$V_{IN} = 5.5\text{V}, \text{GND}$			±0.1		±1.0	μA
I_{OZ}	3-State Output Leakage	1.65-5.5	$V_{IN} = V_{IH}$ or V_{IL} $V_{OUT} = 0$ or 5.5V			±0.5		±5	
I_{OFF}	Power Off Leakage Current	0.0	V_{IN} or $V_{OUT} = 5.5\text{V}$			1		10	
I_{CC}	Quiescent Supply Current	1.65-5.5	$V_{IN} = 5.5\text{V}, \text{GND}$			1		10	

AC Electrical Characteristics

Symbol	Parameter	V _{CC} (V)	Conditions	T _A = +25°C			T _A = -40 to +85°C		Units	Fig. No.
				Min.	Typ.	Max.	Min.	Max.		
t _{PLH} , t _{PHL}	Propagation Delay, An to Yn	1.8 ±0.15 2.5 ±0.2 3.3 ±0.3 5.0 ±0.5	C _L = 15pF, R _D = 1Mohm, S ₁ = Open	2.0 1.0 0.8 0.5		12.0 7.5 5.2 4.5	2.0 1.0 0.8 0.5	13.0 8.0 5.5 4.8	ns	1 3
t _{PLH} , t _{PHL}	Propagation Delay, An to Yn	3.3 ±0.3 5.0 ±0.5	C _L = 50pF, R _D = 500ohm, S ₁ = Open	1.2 0.8		5.7 5.0	1.2 0.8	6.0 5.3		1 3
t _{OSLH} , t _{OSHL}	Output to Output Skew ⁽²⁾	3.3 ±0.3 5.0 ±0.5	C _L = 50pF R _D = 500ohm S ₁ = Open			1.0 0.8		1.0 0.8		1 3
t _{PZL} , t _{PZH}	Output Enable Time	1.8 ±0.15 2.5 ±0.2 3.3 ±0.3 5.0 ±0.5	C _L = 50pF, R _D = 500ohm, R _U = 500, S ₁ = GND for t _{PZH} S ₁ = V _{IN} for t _{PZL} V _{IN} = 2 x V _{CC}	3.0 1.8 1.2 0.8		14.0 8.5 6.2 5.5	3.0 1.8 1.2 0.8	15.0 9.0 6.5 5.8		1 3
t _{PLZ} , t _{PHZ}	Output Disable Time	1.8 ±0.15 2.5 ±0.2 3.3 ±0.3 5.0 ±0.5	C _L = 50pF, R _D = 500ohm, R _U = 500ohm, S ₁ = GND for t _{PHZ} S ₁ = V _{IN} for t _{PLZ} V _{IN} = 2 x V _{CC}	2.5 1.5 0.8 0.3		12.0 8.0 5.7 4.7	2.5 1.5 0.8 0.3	13.0 8.5 6.0 5.0		1 3
C _{IN} , C _{OUT}	Input Capacitance Output Capacitance	0 5.0			2.4 4.8				pF	
C _{PD}	Power Dissipation Capacitance ⁽³⁾	3.3 5.0			15 20					2

Notes:

2. Parameter guaranteed by design.

$$t_{OSLH} = |t_{PLHmax} - t_{PLHmin}|$$

$$t_{OSHL} = |t_{PHLmax} - t_{PHLmin}|$$

3. C_{PD} is defined as the value of the internal equivalent capacitance which is derived from dynamic operating current consumption (I_{CCD}) at no output loading and operating at 50% duty cycle (see Figure 2). C_{PD} is related to I_{CCD} dynamic operating current by the expression: I_{CCD} = (C_{PD})(V_{CC})(f_{IN}) + (I_{CC} static).

AC Loading and Waveforms

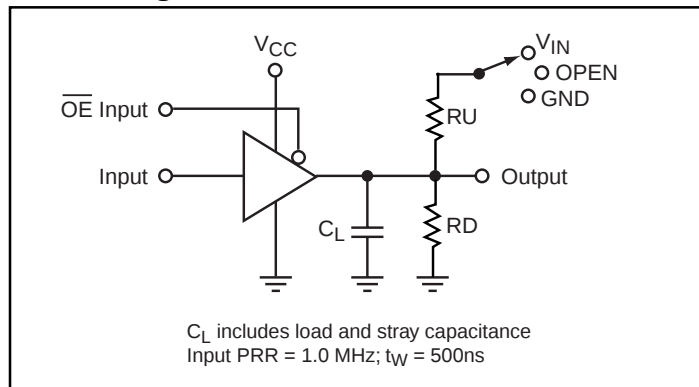


Figure 1. AC Test Circuit

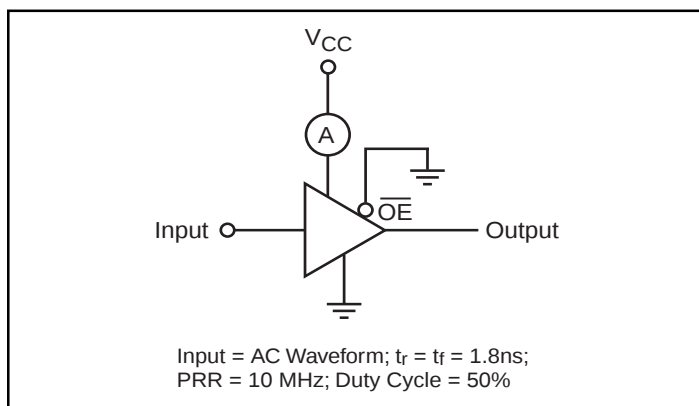


Figure 2. I_{CCD} Test Circuit

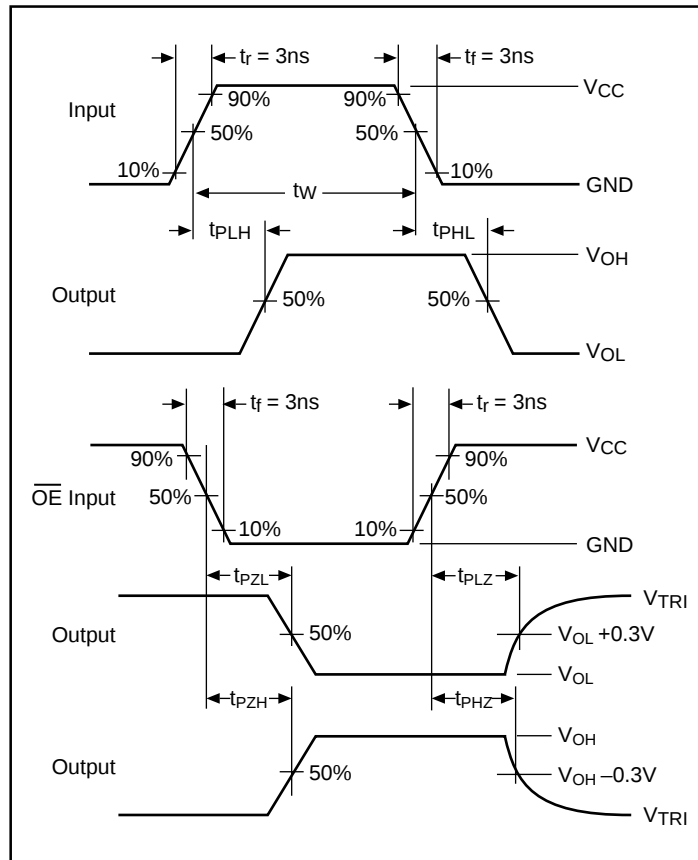
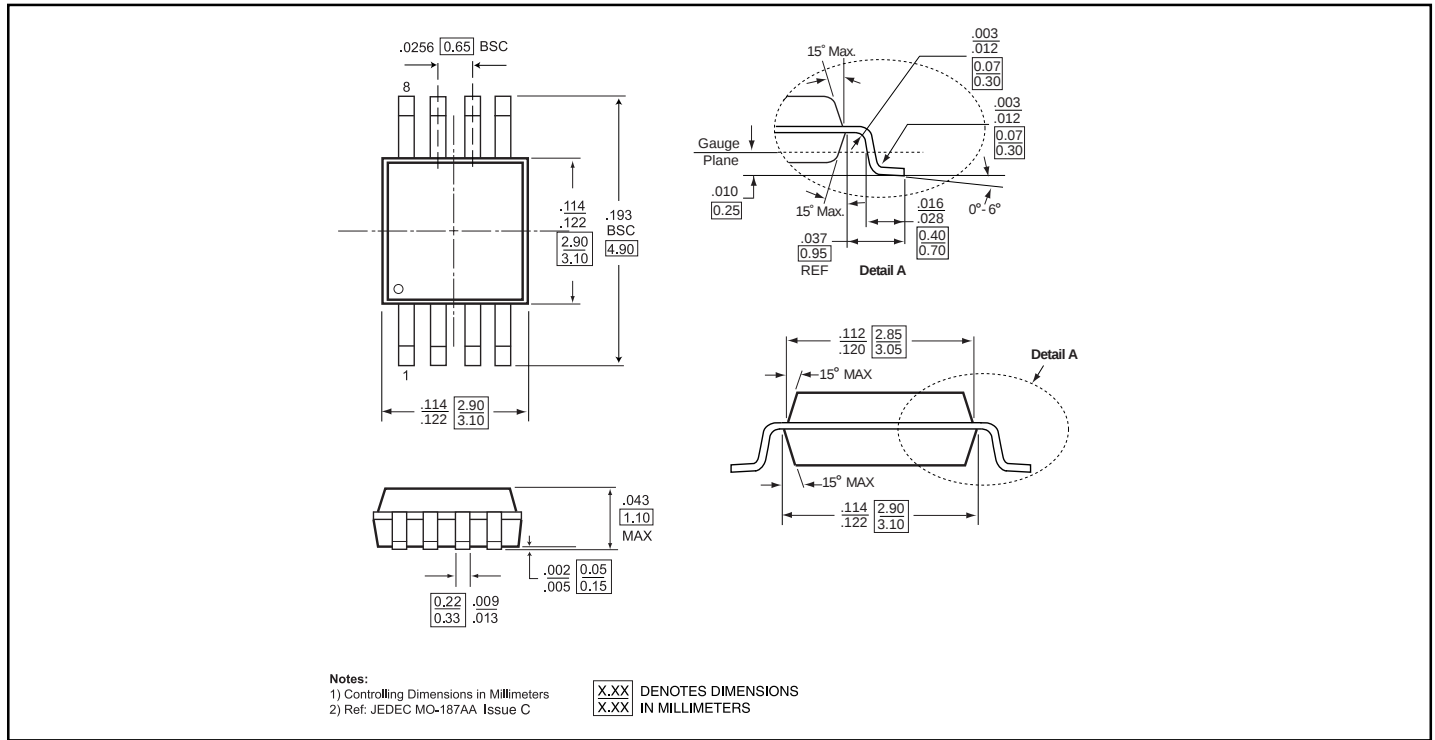
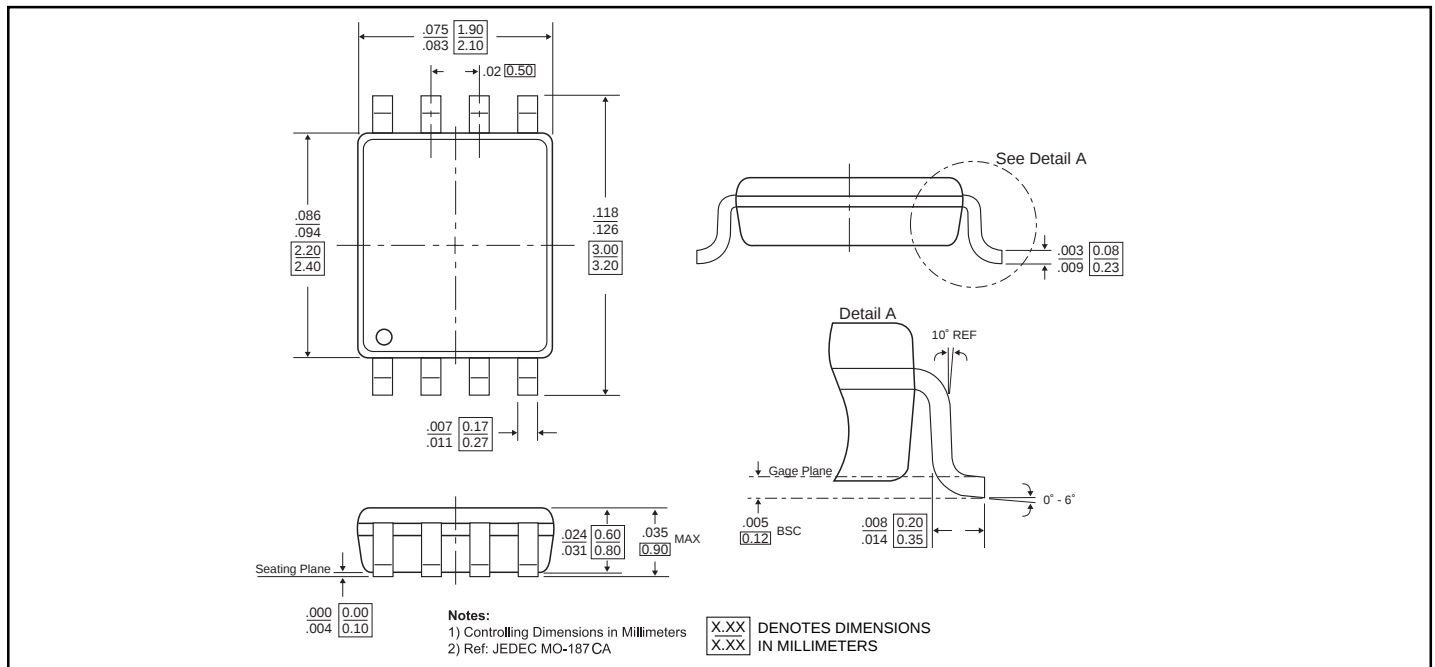


Figure 3. AC Waveforms

8-Pin MSOP (U) Package



8-Pin US8(D) Package



Ordering Information

Part	Pin-Package	Top Marking	Operating Range
PI74STX2G125UX	8-Pin - MSOP	74STX, 2G125	-40°C to 85°C
PI74STX2G125DX	8-Pin - US8	STX, 2G25	-40°C to 85°C

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