

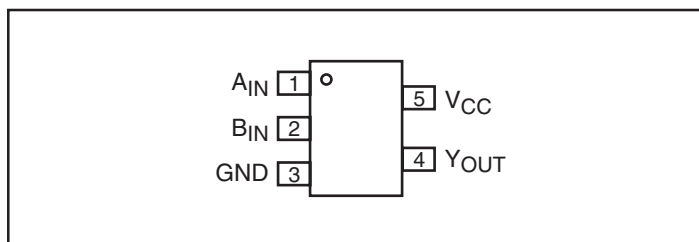
Features

- High-speed: $t_{PD} = 1.8\text{ns}$ typical
- Broad operating range: $V_{CC} = 1.8\text{V} - 3.6\text{V}$
- Power down high-impedance inputs/outputs
- High output drive: $\pm 24\text{mA}$ at $3\text{V } V_{CC}$
- Packaging: (Pb-free & Green available)
 - 5-pin SOT23
 - 5-pin SC70

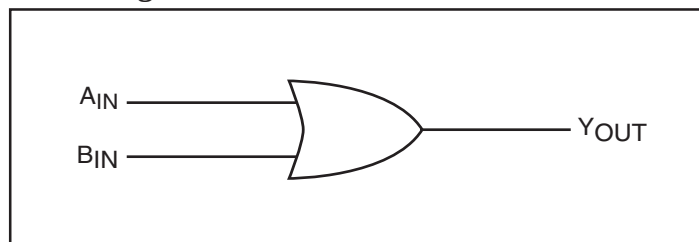
Description

The PI74ST1G32 is a 2-input OR gate that operates over the 1.8V to 3.6V V_{CC} operating range.

Pinout



Block Diagram



Pin Description

Pin Names	Description
A_{IN}	Input
B_{IN}	Input
Y_{OUT}	Output

Function Table

Inputs		Output
A_{IN}	B_{IN}	Y_{OUT}
L	L	L
L	H	H
H	L	H
H	H	H

Notes:

H = HIGH Logic Level
 L = LOW Logic Level

Recommended Operating Conditions⁽¹⁾

Parameter	Condition	Min.	Max.	Units
Supply Voltage (V_{CC})		1.8	3.6	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	

Notes:

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

Absolute Maximum Ratings

Supply Voltage (V_{CC})	.....	-0.5V to +4V
DC Input Voltage (V_{IN})	.....	-0.5V to +6V
DC Output Voltage (V_{OUT})	.....	-0.5V to +6V
DC Input Diode Current (I_{IK})	.....	-50mA to 20mA
DC Output Diode Current (I_{OK})	.....	-50mA to 20mA
DC Output Current (I_{OUT})	.....	±50mA
DC V_{CC} /GND Current (I_{CC}/I_{GND})	.....	±50mA
Storage Temperature (T_{STG})	.....	-65°C to +150°C
Junction Lead Temperature (IOS)	.....	200°C
Power Dissipation SOT23	.....	200mW
SC70	.....	150mW

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°C			T _A = −40°C to +85°C		Units		
					Min.	Typ.	Max.	Min.	Max.			
V _{IH}	HIGH Level Input Voltage	1.8 2.3-3.6			0.75V _{CC} 0.70V _{CC}			0.75V _{CC} 0.70V _{CC}		V		
V _{IL}	LOW Level Input Voltage	1.8 2.3-3.6					0.25V _{CC} 0.30V _{CC}		0.25V _{CC} 0.30V _{CC}			
V _{OH}	HIGH Level Output Voltage	1.8 2.3 3.0	V _{IN} = V _{IH}	I _{OH} = −100μA	1.7 2.2 2.9	1.79 2.29 2.99		1.7 2.2 2.9				
		2.3 3.0 3.0				I _{OH} = −8mA I _{OH} = −16mA I _{OH} = −24mA	1.9 2.4 2.3	2.13 2.71 2.55			1.9 2.4 2.3	
V _{OL}	LOW Level Output Voltage	1.8 2.3 3.0	V _{IN} = V _{IL}	I _{OL} = 100μA		0.01 0.01 0.00	0.1 0.1 0.1		0.1 0.1 0.1			
		2.3 3.0 3.0				I _{OL} = 8mA I _{OL} = 16mA I _{OL} = 24mA		0.10 0.18 0.28	0.3 0.4 0.55			0.3 0.4 0.55
I _{IN}	Input Leakage Current	0-3.6	V _{IN} = 5.5V, GND		−1		1	−1	1	μA		
I _{OFF}	Power Off Leakage Current	0.0	V _{IN} or V _{OUT} = 5.5V		−1		1	−1	1			
I _{CC}	Quiescent Supply Current	1.8-3.6	V _{IN} = 5.5V, GND				2.0		20			

AC Electrical Characteristics

Symbol	Parameter	V _{CC} (V)	Conditions	T _A = +25°C			T _A = -40°C to +85°C		Units	Fig. No.
				Min.	Typ.	Max.	Min.	Max.		
t _{PLH} , t _{PHL}	Propagation Delay	1.8 2.5 ±0.2 3.3 ±0.3	C _L = 15pF, R _L = 1MΩ	2.0 0.8 0.5	3.0 1.8 1.2	4.9 3.5 2.8	2.0 0.8 0.5	5.5 3.7 3.0	ns	1 3
t _{PLH} , t _{PHL}	Propagation Delay	3.3 ±0.3	C _L = 50pF, R _L = 500Ω	1.5	2.8	3.8	1.5	4.1		1 3
C _{IN}	Input Capacitance	V _{IN} = 0			4				pF	
C _{PD} ⁽¹⁾	Power Dissipation Capacitance	3.3			20					2

Notes:

1. 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

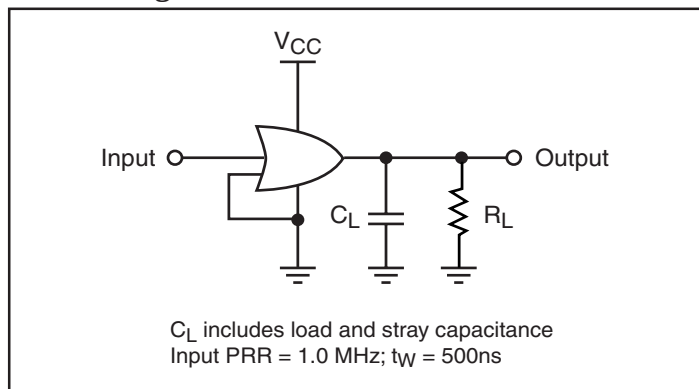


Figure 1. AC Test Circuit

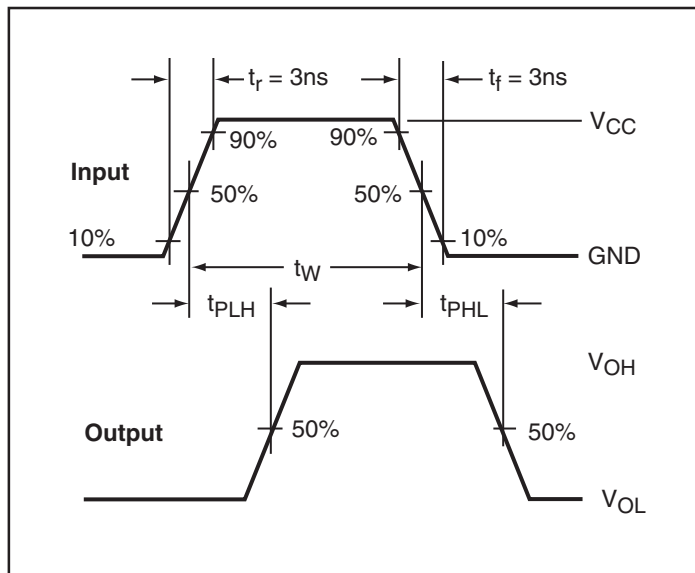


Figure 3. AC Waveforms

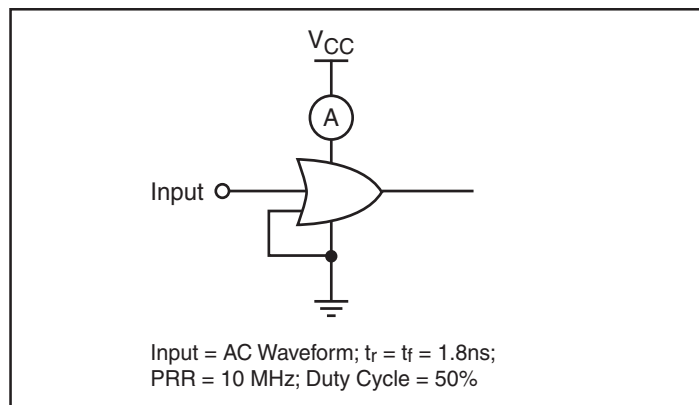
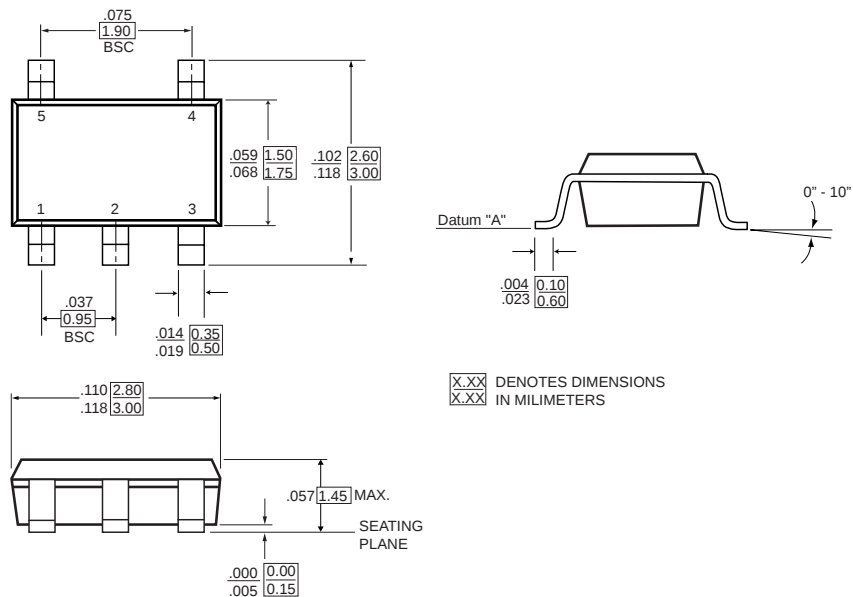
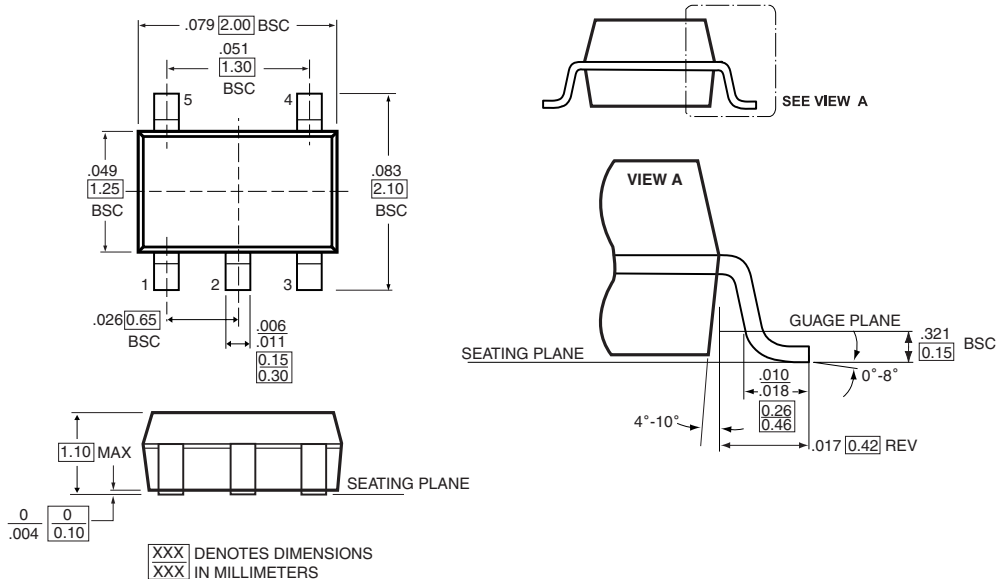


Figure 2. I_{CCD} Test Circuit

Packaging Mechanical: 5-Pin SOT23 (T)



Packaging Mechanical: 5-Pin SC70 (C)



Ordering Information

Ordering Code	Packaging Code	Package Type
PI74ST1G32TX	T	5-Pin - SOT23
PI74ST1G32CX	C	5-Pin - SC70
PI74ST1G32TEX	T	Pb-free & Green, 5-Pin - SOT23
PI74ST1G32CEX	C	Pb-free & Green, 5-Pin - SC70

Notes:

- Thermal characteristics can be found on the company web site at www.pericom.com/packaging/
- E = Pb-free & Green
- X suffix = Tape/Reel