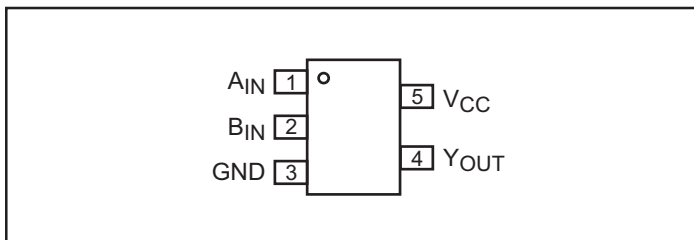
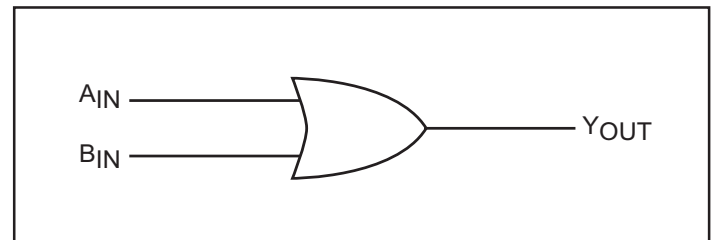


**Features**

- 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 <sub>IN</sub>	Input
B <sub>IN</sub>	Input
Y <sub>OUT</sub>	Output

**Recommended Operating Conditions<sup>(1)</sup>**

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	

**Function Table**

Inputs		Output
A <sub>IN</sub>	B <sub>IN</sub>	Y <sub>OUT</sub>
L	L	L
L	H	H
H	L	H
H	H	H

**Notes:**

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

**Notes:**

H = HIGH Logic Level  
L = LOW Logic Level

**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		$T_A = +25^\circ\text{C}$			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$		Units
					Min.	Typ.	Max.	Min.	Max.	
$V_{IH}$	HIGH Level Input Voltage	1.8 2.3-3.6			0.75 $V_{CC}$ 0.70 $V_{CC}$			0.75 $V_{CC}$ 0.70 $V_{CC}$		V
$V_{IL}$	LOW Level Input Voltage	1.8 2.3-3.6					0.25 $V_{CC}$ 0.30 $V_{CC}$	0.25 $V_{CC}$ 0.30 $V_{CC}$		
$V_{OH}$	HIGH Level Output Voltage	1.8	$V_{IN} = V_{IH}$	$I_{OH} = -100\mu\text{A}$	1.7	1.79		1.7		
		2.3			2.2	2.29		2.2		
		3.0			2.9	2.99		2.9		
$V_{OL}$	LOW Level Output Voltage	2.3	$V_{IN} = V_{IL}$	$I_{OL} = 100\mu\text{A}$		0.01	0.1		0.1	
		3.0			0.01	0.1		0.1		
		3.0			0.00	0.1		0.1		
$V_{OL}$	LOW Level Output Voltage	2.3	$V_{IN} = V_{IL}$	$I_{OL} = 8\text{mA}$		0.10	0.3		0.3	
		3.0			0.18	0.4		0.4		
		3.0			0.28	0.55		0.55		
$I_{IN}$	Input Leakage Current	0-3.6	$V_{IN} = 5.5\text{V}, GND$		-1		1	-1	1	$\mu\text{A}$
$I_{OFF}$	Power Off Leakage Current	0.0	$V_{IN}$ or $V_{OUT} = 5.5\text{V}$		-1		1	-1	1	
$I_{CC}$	Quiescent Supply Current	1.8-3.6	$V_{IN} = 5.5\text{V}, GND$				2.0		20	

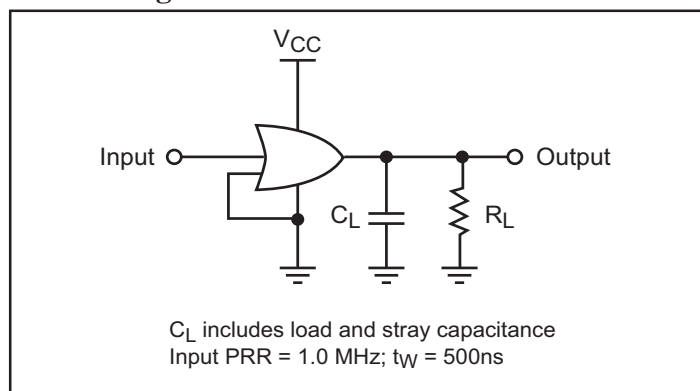
### AC Electrical Characteristics

Symbol	Parameter	V <sub>CC</sub> (V)	Conditions	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		Units	Fig. No.
				Min.	Typ.	Max.	Min.	Max.		
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay	1.8 2.5 ±0.2 3.3 ±0.3	C <sub>L</sub> = 15pF, R <sub>L</sub> = 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 <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay	3.3 ±0.3	C <sub>L</sub> = 50pF, R <sub>L</sub> = 500Ω	1.5	2.8	3.8	1.5	4.1		1 3
C <sub>IN</sub>	Input Capacitance	V <sub>IN</sub> = 0			4				pF	
C <sub>PD</sub> <sup>(1)</sup>	Power Dissipation Capacitance	3.3			20					2

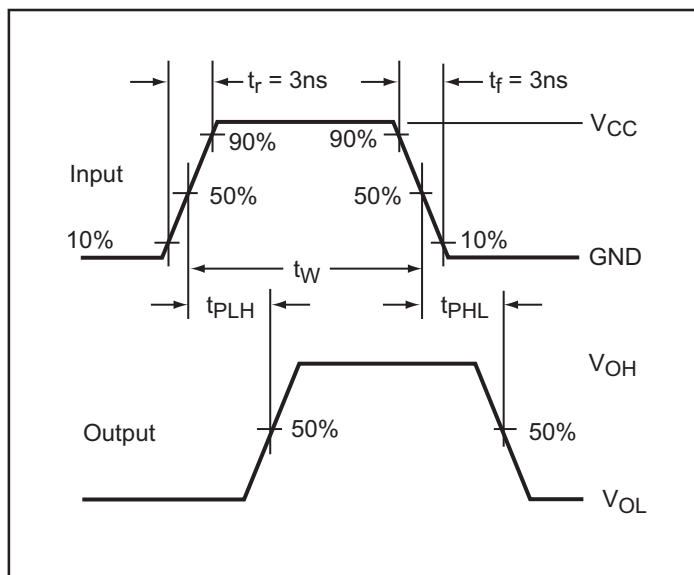
**Notes:**

1. C<sub>PD</sub> is defined as the value of the internal equivalent capacitance which is derived from dynamic operating current consumption (I<sub>CCD</sub>) at no output loading and operating at 50% duty cycle (see Figure 2). C<sub>PD</sub> is related to I<sub>CCD</sub> dynamic operating current by the expression: I<sub>CCD</sub> = (C<sub>PD</sub>)(V<sub>CC</sub>)(f<sub>IN</sub>) + (I<sub>CC static</sub>).

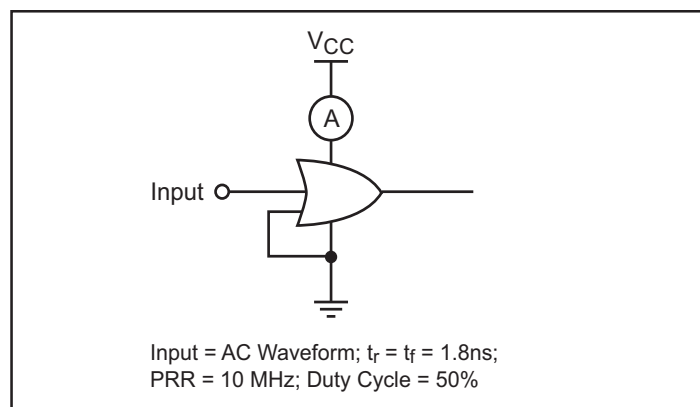
### AC Loading and Waveforms



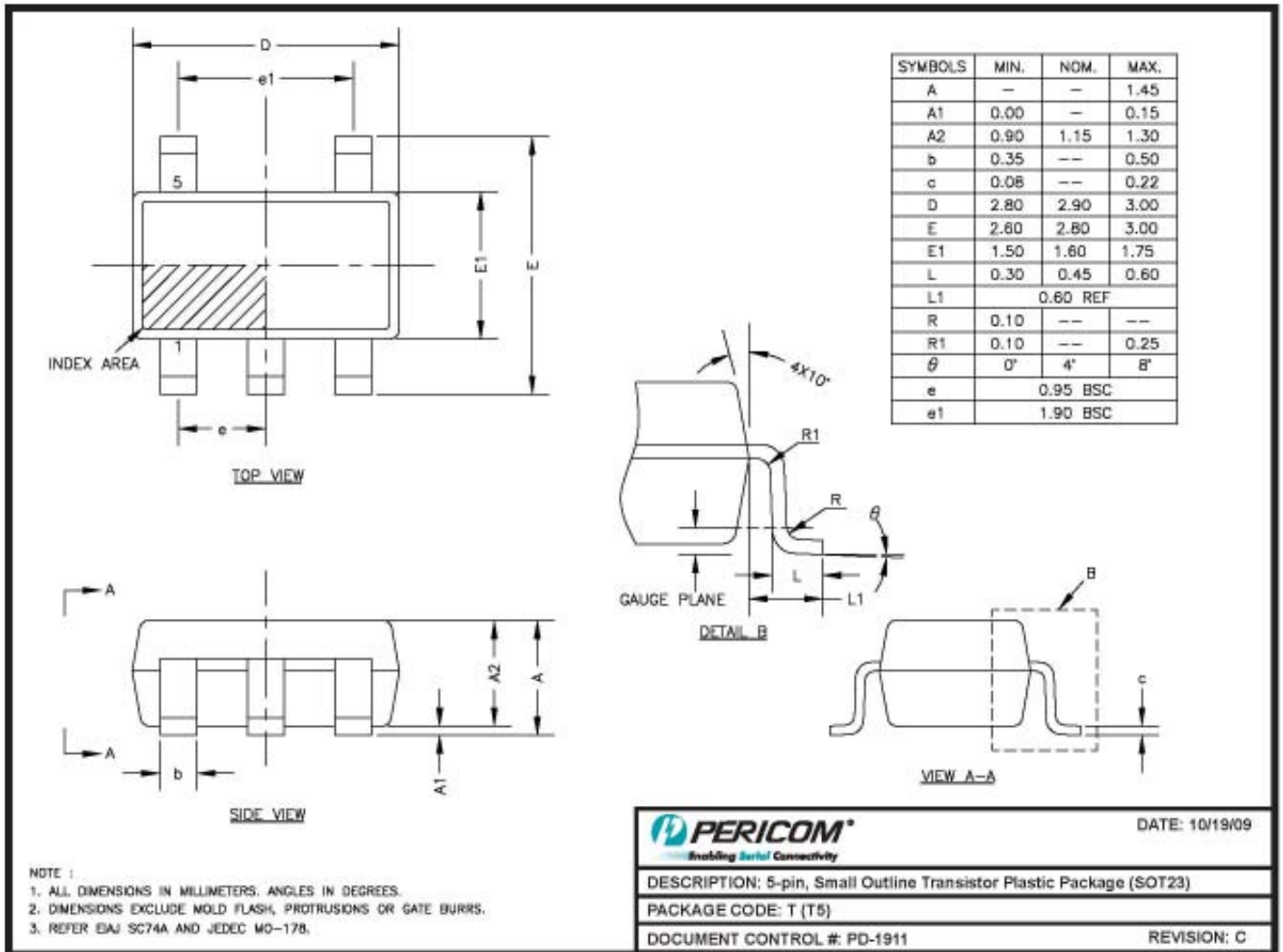
**Figure 1. AC Test Circuit**



**Figure 3. AC Waveforms**



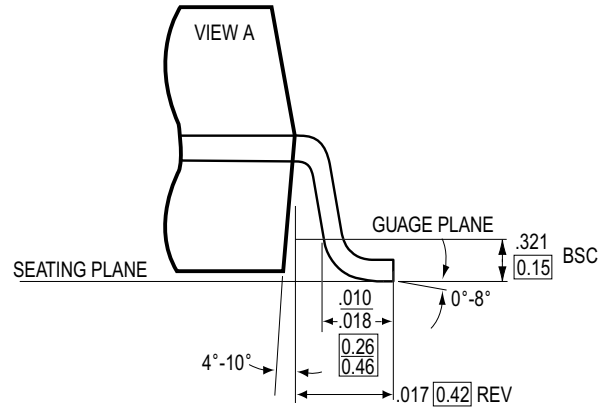
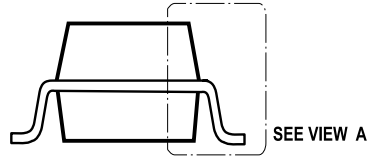
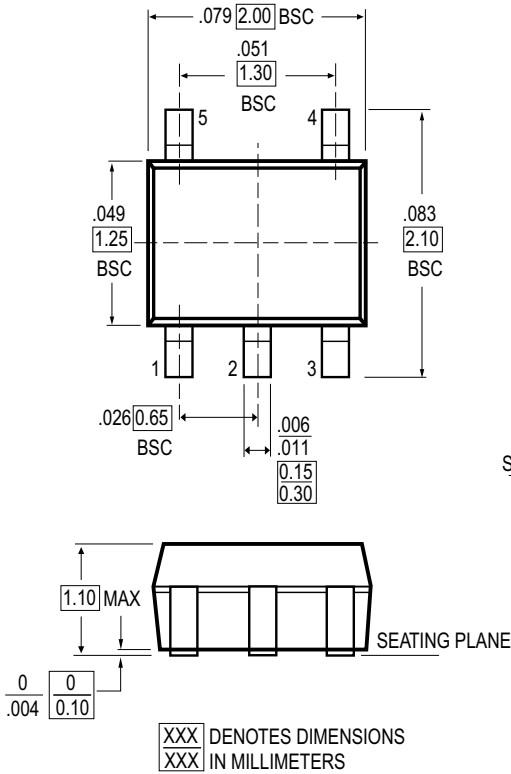
**Figure 2. I<sub>CCD</sub> Test Circuit**



09-0130

DOCUMENT CONTROL NO.  
PD - 1901

REVISION: D  
DATE: 03/09/05



**Notes:**

1. Controlling dimensions in millimeters
2. Ref: JEDEC MO-203B/AA
3. Package Outline Exclusive of Mold Flash and Metal Burr



Pericom Semiconductor Corporation  
3545 N. 1st Street, San Jose, CA 95134  
1-800-435-2335 • www.pericom.com

DESCRIPTION: 5-Pin, SC70

PACKAGE CODE: C

**Note:**

- For latest package info, please check: <http://www.pericom.com/products/packaging/mechanicals.php>

**Ordering Information**

Ordering Code	Packaging Code	Package Type
PI74ST1G32TX	T	5-Pin - SOT23
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/](http://www.pericom.com/packaging/)
- E = Pb-free & Green
- X suffix = Tape/Reel

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