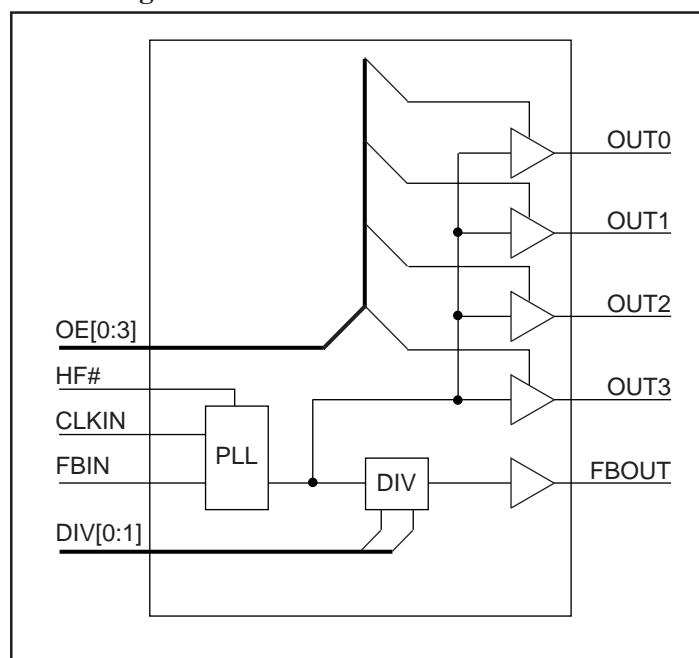
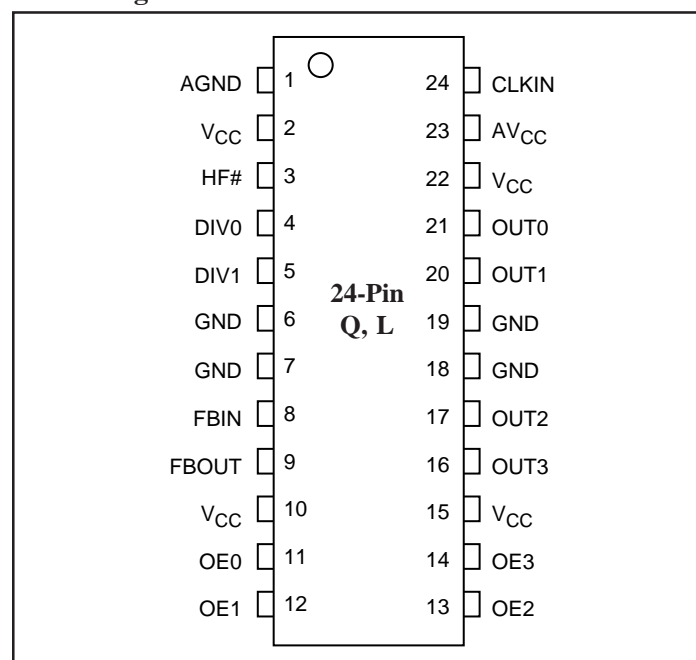


**Product Features**

- Four synchronous outputs
- Selectable divider/multiplier
- Output Enable control
- Low phase error < 150 ps
- Allows clock input to have spread spectrum modulation for EMI reduction
- Low output skew < 200 ps
- Low cycle jitter < 200 ps
- Industrial temperature (−40°C to 85°C)
- 3.3V supply
- Packages (Pb-free and Green available):  
24-pin QSOP (Q)  
24-pin TSSOP (L)

**Block Diagram**

**Product Description**

PI6C2410 is a low skew, low jitter, PLL clock buffer with divider or multiplier designed for PCI-X application in servers and workstations. There are two selectable input ranges using HF# input: 10-40 MHz and 40-80 MHz. All outputs are synchronized to the input and to the other outputs. Each output can be independently turned off to reduce EMI and power consumption.

**Pin Configuration**

**Clock Select Table**

HF#	DIV1	DIV0	OUTx	CLKIN	OUTx
1	1	1	CLKIN	33MHz	33MHz
1	1	0	2xCLKIN		66MHz
1	0	1	3xCLKIN		100MHz
1	0	0	4xCLKIN		133MHz
0	1	1	CLKIN/2	66MHz	33MHz
0	1	0	CLKIN		66MHz
0	0	1	1.5xCLKIN		100MHz
0	0	0	2xCLKIN		133MHz

### Pin Description

Pin	Type	Qty	Symbol	Description
21,20,17,16	O	4	OUT[0:3]	Clock outputs. To achieve zero input to output delay, all outputs must have the same loading.
11, 12, 13, 14	I	4	OE[0:3]	Active high Output Enable, pulled up. When OE is low, OUT [0:3] outputs are disabled at low state.
9	O	1	FBOUT	Feedback output. To achieve zero input to output delay, FBOUT must have the same loading as OUT[0:3].
8	I	1	FBIN	Feedback input.
24	I	1	CLKIN	Input Clock.
3	I	1	HF#	High Frequency range, pulled up. "1" = Low, "0" = High.
4,5	I	2	DIV[0,1]	Divider/Multiplier Select, pulled up.
2,10,15,22	P	4	V <sub>CC</sub>	3.3V power
6,7,18,19	P	4	GND	Ground
23	P	1	AV <sub>CC</sub>	3.3V analog power
1	P	1	AGND	Analog ground

### Absolute Maximum Ratings

Supply Voltage (V <sub>CC</sub> , AV <sub>CC</sub> ) .....	0.5V to +4.6V
Input Voltage .....	-0.5V to V <sub>CC</sub> +0.5V
Industrial Operating Temperature .....	-40°C to +85°C
Storage Temperature .....	-65°C to +150°C
Junction Temperature .....	150°C
Input ESD MIL-883, Method 3015, human body model .....	2kV

### Operating Condition

Symbol	Description	Min.	Max.	Units
V <sub>CC</sub> , AV <sub>CC</sub>	I/O Supply, Analog Core Supply	3.0	3.6	V
T <sub>A</sub>	Industrial Ambient Temperature	-40	+85	°C

**DC Electrical Characteristics Over Operating Conditions**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V <sub>IL</sub>	Low Input Voltage				0.8	V
V <sub>IH</sub>	High Input Voltage		2.0			
I <sub>IL</sub>	Low Input Current	V <sub>IN</sub> = 0V			50	uA
I <sub>IH</sub>	High Input Current	V <sub>IN</sub> = V <sub>CC</sub>			200	
V <sub>OL</sub>	Low Output Voltage	V <sub>CC</sub> = 3.0V, I <sub>ol</sub> = 12mA			0.4	V
V <sub>OH</sub>	High Output Voltage	V <sub>CC</sub> = 3.0V, I <sub>oh</sub> = -12mA	2.4			
I <sub>dd_33</sub>	Supply Current	C <sub>L</sub> = 15pF, F <sub>OUT</sub> = 33MHz		25	tbd	mA
I <sub>dd_66</sub>	Supply Current	C <sub>L</sub> = 15pF, F <sub>OUT</sub> = 66MHz		35		
I <sub>dd_100</sub>	Supply Current	C <sub>L</sub> = 15pF, F <sub>OUT</sub> = 100MHz		45		
I <sub>dd_133</sub>	Supply Current	C <sub>L</sub> = 15pF, F <sub>OUT</sub> = 133MHz		60		
C <sub>O</sub>	Output Capacitance				6	pF
C <sub>I</sub>	Input Capacitance				6	
L <sub>PIN</sub>	Pin Inductance				7	nH

**Switching Characteristics (T<sub>A</sub> = 25°C, V<sub>CC</sub> = 3.3V ±0.3V, C<sub>I</sub> = 15pF, F<sub>OUT</sub> = 66.67 MHz)**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
F <sub>IN</sub>	Input frequency	Low Freq., HF# = "1"	10	33	40	MHz
		High Freq., HF# = "0"	40	66	80	
F <sub>OUT</sub>	Output frequency				160	
T <sub>PD</sub>	Propagation delay	CLKIN to FBIN rising edges @ V <sub>DD</sub> /2	-150		150	ps
T <sub>SK</sub>	Output skew	@ 1.4V, rising edges			200	
T <sub>SKFP</sub>	Pkg to pkg skew	@ V <sub>DD</sub> /2, rising edges, same CLKIN			400	
T <sub>JC</sub>	Cycle jitter				200	
T <sub>DC</sub>	Duty cycle	@ 1.4V	35	50	65	%
T <sub>R</sub> /T <sub>F</sub>	Rise/Fall time	0.8V~2.0V			1.5	ns

**Note:** T<sub>jc</sub> = T<sub>p</sub>(n+1) - T<sub>p</sub>(n)      T<sub>dc</sub> = T<sub>h</sub>/T<sub>p</sub>  
 T<sub>p</sub>(n) = Period of the n<sup>th</sup> cycle      T<sub>p</sub> = Period cycle time  
 T<sub>p</sub>(n+1) = Period of n<sup>th</sup>+1 cycle      T<sub>h</sub> = High time @ 1.4V

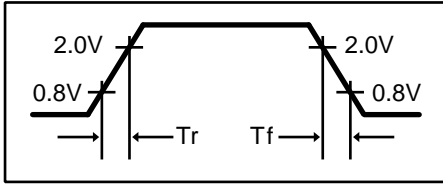


Figure 1. Rise/Fall time

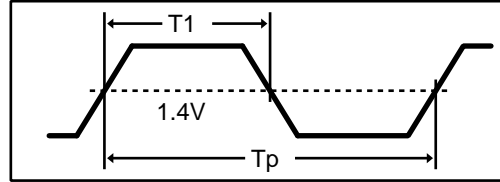


Figure 2. Duty cycle

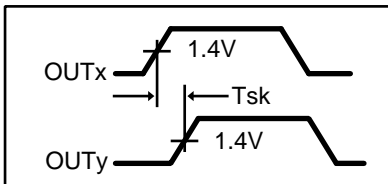


Figure 3. Output skew

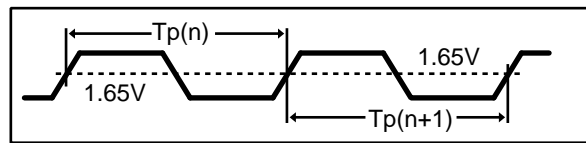


Figure 4. Cycle jitter

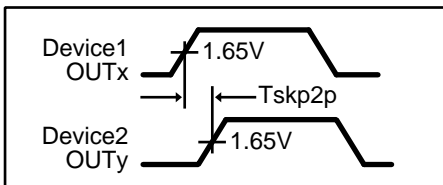


Figure 5. Pkg.-to-Pkg. skew

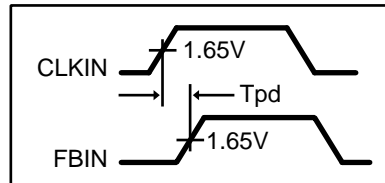


Figure 6. Propagation Delay

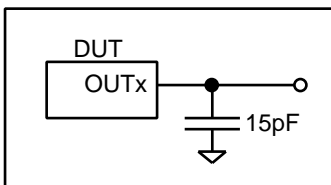
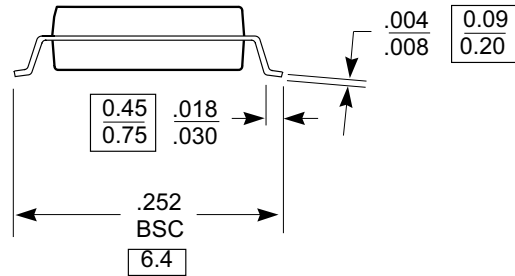
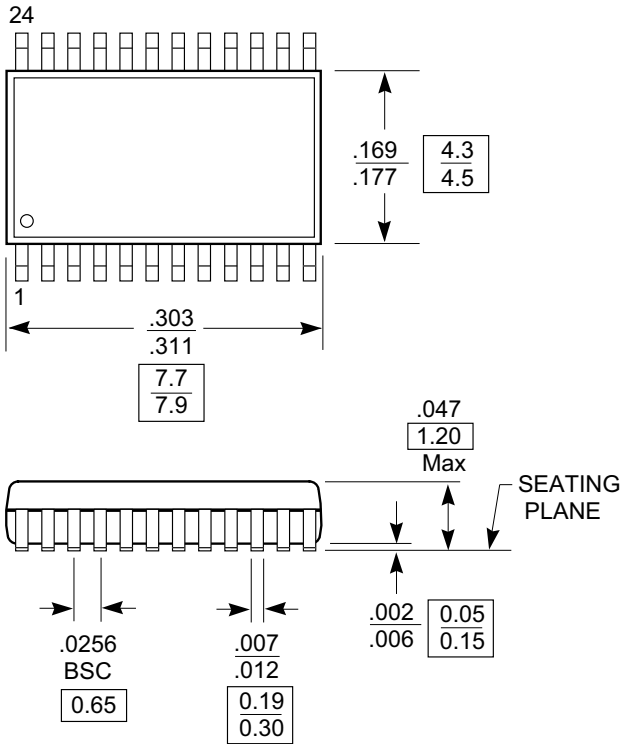


Figure 7. Test load

Packaging Mechanical: 24-Pin TSSOP (L)

DOCUMENT CONTROL NO.  
PD - 1312

REVISION: E  
DATE: 03/09/05



Note:

1. Package Outline Exclusive of Mold Flash and Metal Burr
2. Controlling dimensions in millimeters
3. Ref: JEDEC MO-153F/AD



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

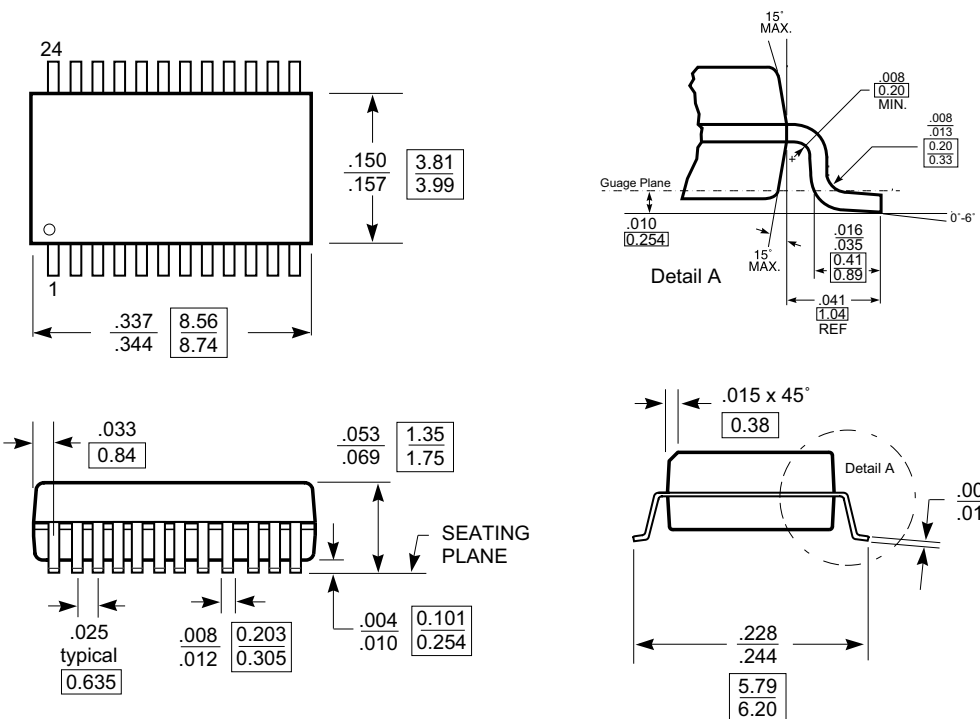
DESCRIPTION: 24-Pin, 173-Mil Wide, TSSOP

PACKAGE CODE: L

Packaging Mechanical: 24-pin QSOP (Q)


DOCUMENT CONTROL NO.  
PD - 1203

REVISION: H  
DATE: 10/22/07



X.XX DENOTES DIMENSIONS  
X.XX IN MILLIMETERS

Note:  
 1) Controlling dimensions in millimeters  
 2) Ref. JEDEC MO-137B/AE  
 3) Dimensions do not include mold flash, protrusions or gate burrs



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 1-800-435-2335 • www.pericom.com

DESCRIPTION: 24-Pin, 150-Mil Wide, QSOP

PACKAGE CODE: Q

07-0475

Notes:

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

Ordering Information

Ordering Code	Package Name	Package Type
PI6C2410QEX	Q	Pb-free & Green, 24-pin, 150-mil QSOP
PI6C2410LEX	L	Pb-free & Green, 24-pin, 173-mil TSSOP

Notes:

- Thermal characteristics can be found on the company web site at [www.pericom.com/packaging/](http://www.pericom.com/packaging/)
- E = Pb-free and Green
- Adding an X suffix = Tape/Reel