

Features

- Support XTAL or Clock input at 25MHz
- Three buffered outputs support V_{DD} operation
- One 32.768 kHz output
- Very low phase jitter(RMS), 25MHz : < 0.5ps
- Very low additive jitter: <250fs (typ)
- 3.3V supply voltage for Core
- 1.8V ~ 3.3V supply voltage for two outputs
- Packaging: 16-pin TSSOP
- Commercial & Industrial Temperature support

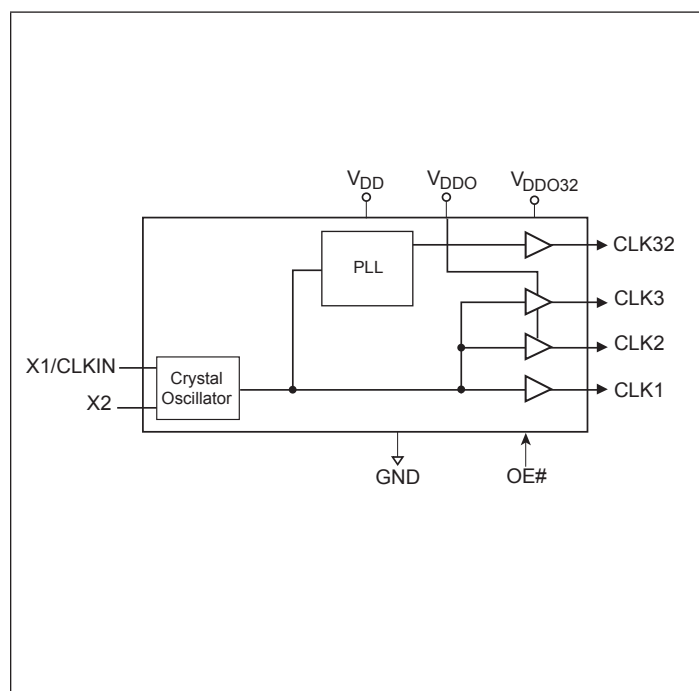
Applications

- Networking Systems
- Femtocell BTS
- Peripheral

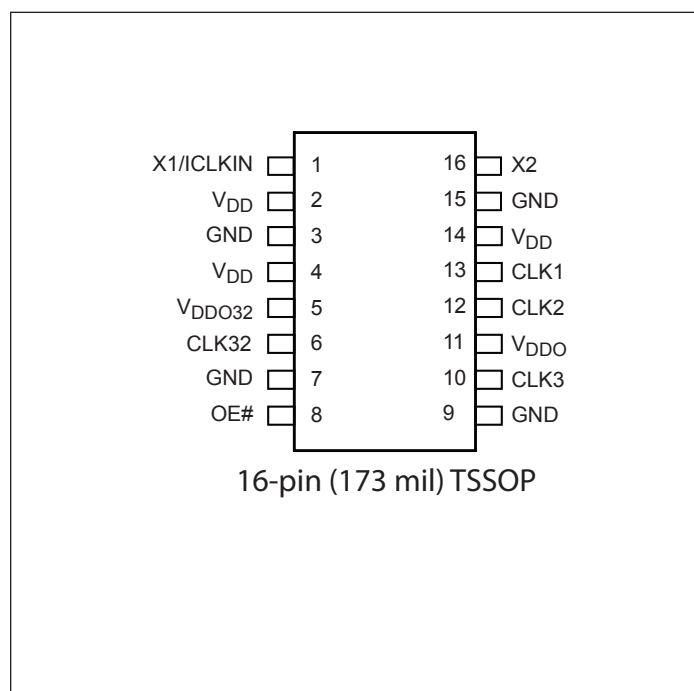
Description

The PI6C490097 is a low jitter clock generator supporting either XTAL or reference input. Two of its buffered outputs can support wide operating voltage from 1.8V to 3.3V. It is a cost effective way to generate multiple outputs for all kinds of applications that need 25MHz with different power supplies and a 32kHz clock signal.

Block Diagram



Pin Configuration (16-Pin TSSOP)



Pin number	Pin Name	Type	Description
1	X1/CLKIN	Input	Crystal connection or clock input
2, 4, 14	V _{DD}	Power	Supply voltage 3.3V
5	V _{DDO32}	Power	Supply voltage for CLK32
6	CLK32	Output	32.768 kHz output
7, 9, 15	GND	Power	Connect to Ground
8	OE#	Input	Global output enable when low. Internal pull-down resistor.
10	CLK3	Output	Clock Output 3
11	V _{DDO}	Power	Supply voltage from 1.8V to 3.3V for CLK2 and CLK3
12	CLK2	Output	Clock Output 2
13	CLK1	Output	Clock Output 1
16	X2	Output	Crystal connection

Function Table

OE#	CLK1/CLK2/CLK3/CLK32
0	Enabled
1	Hi-Z, weak pull down

Maximum Ratings

(Above which useful life may be impaired. For user guidelines, not tested.)

Storage Temperature.....	-65°C to +150°C
Supply Voltage to Ground Potential, V_{DD}	-0.5V to +4.6V

Note: Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Power Requirements (Over operating free-air temperature range)

Symbol	Parameter	Min.	Typ.	Max.	Units
V_{DD}	Power Supply Voltage	3.135	3.3	3.465	V
V_{DDO}	Power Supply Voltage for outputs	1.71		3.465	V
I_{DD}	Power supply current, no load		20		mA
T_A	Ambient Operating Temperature	0		+70	°C
		-40		+85	
t_{UP}	Power Supply Ramp Time			4	ms

DC Electrical Characteristics

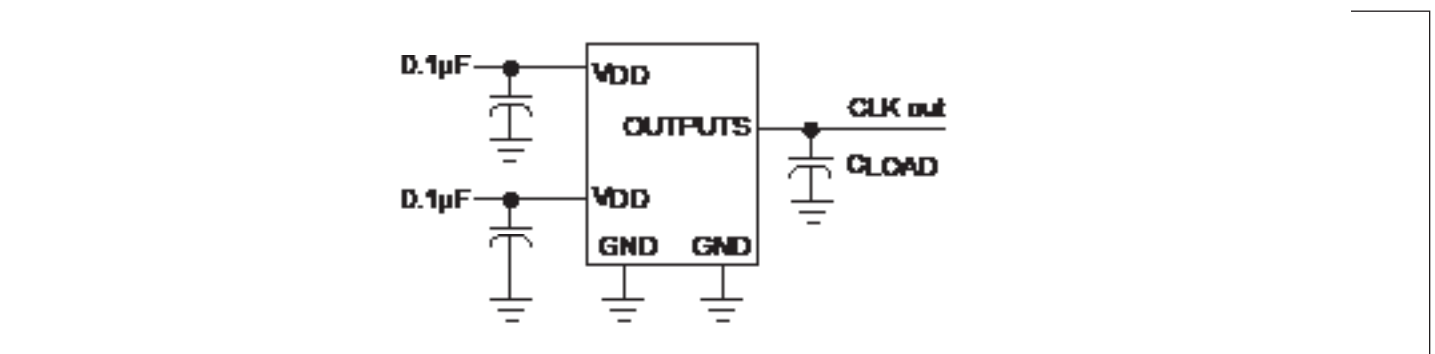
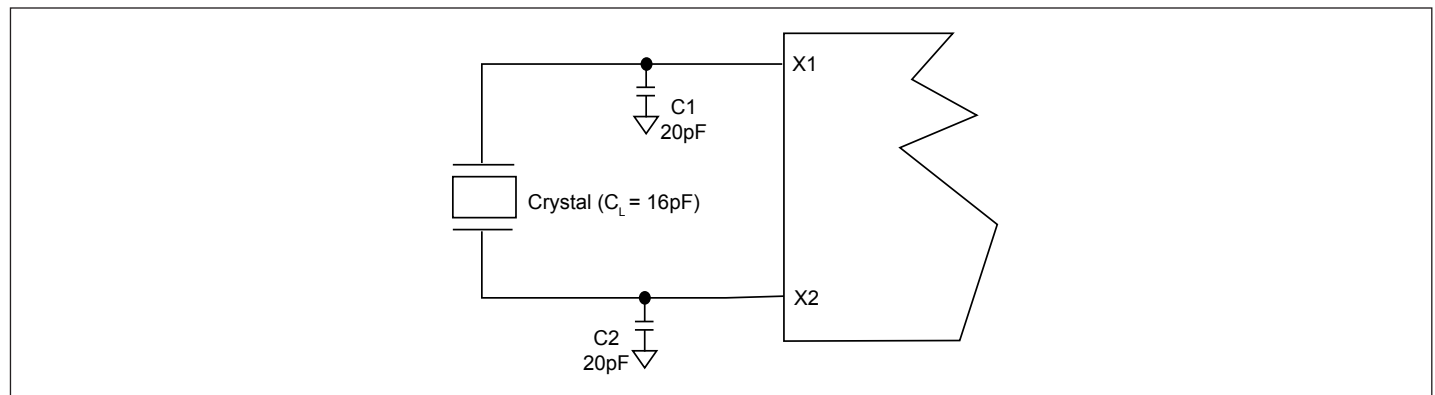
Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
V_{IH}	Input High Voltage	CLKIN, OE#	$V_{DD}/2+1$			V
V_{IL}	Input Low Voltage	CLKIN, OE#			$V_{DD}/2-1$	V
V_{OH}	Output High Voltage	$I_{OH} = 4mA$ or -8mA	32.768kHz output	$V_{DD032} - 0.4$		V
			25MHz output	$V_{DD0} - 0.4$		V
V_{OL}	Output Low Voltage	$I_{OL} = 8mA$			0.4	V
Z_O	Nominal Output Impedance			20		Ω
R_{PD}	Internal Pull-down Resistor	OE#		230		k Ω
		CLKIN		320		
C_{IN}	Input Capacitance	Inputs		4		pF

AC Electrical Characteristics (Note 4)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F_{IN}	Input Frequency	Fundamental Crystal		25		MHz
		Input Clock		25		
t_R	Output Rise Time	20% to 80% 25MHz, Note 1		1		ns
t_F	Output Fall Time	80% to 20% 25MHz, Note 1		1		ns
t_R	Output Rise Time	20% to 80% 32kHz, Note 1		2		ns
t_F	Output Fall Time	80% to 20% 32kHz, Note 1		2		ns
t_{DC}	Duty Cycle			50	53	%
F_{Error}	Output Frequency Synthesis Error		0			ppm
J_{phase}	Clock Phase Jitter (RMS)	25MHz, Note 2		0.5	1.5	ps
J_{add}	Additive Jitter	25MHz, Note 3		250		fs

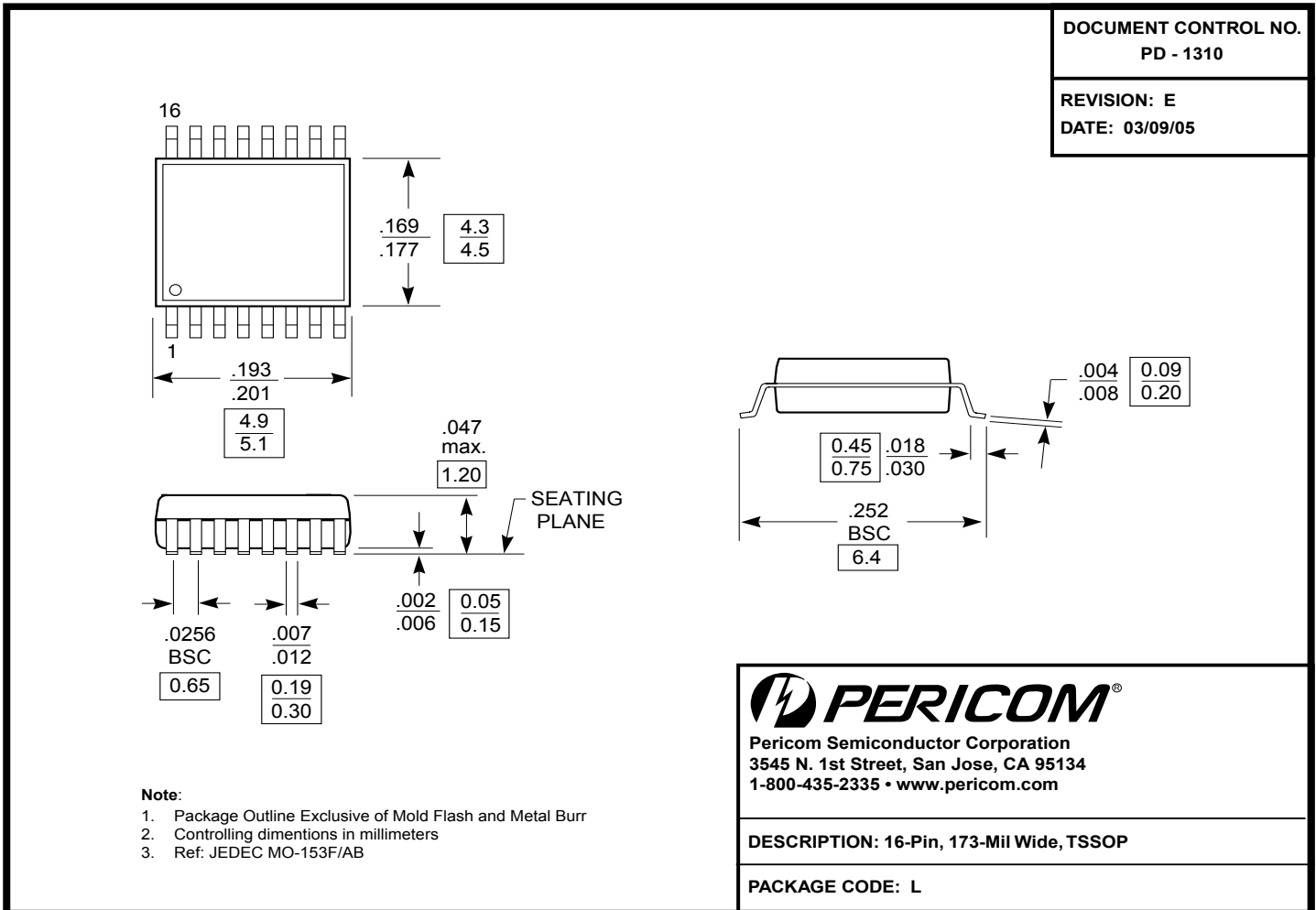
- Note 1: Measured with 7 pF load.
- Note 2: 12 kHz to 20 MHz offset frequency using a crystal input.
- Note 3: 12 kHz to 20 MHz offset frequency using CLKIN input with X2 floating.
- Note 4: Do not drive this device without a crystal or valid clock input

Crystal Oscillator Circuit



CMOS Test Configuration

Packaging Mechanical: 16-Pin TSSOP (L)



Ordering Information

Ordering Code	Package Code	Package Type	Operating Temperature
PI6C490097LE	L	Pb-free & Green, 16-pin TSSOP	Commercial
PI6C490097LIE	L	Pb-free & Green, 16-pin TSSOP	Industrial

Notes:

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