

19.44 to 40 MHz, 3.3V, VCXO for General Purpose Applications

Features

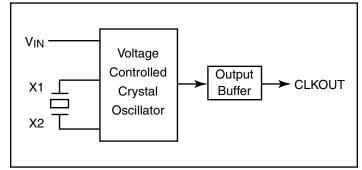
- 3.3V operating voltage
- Uses an external crystal
- On-chip VCXO with pull range of 240ppm
- VCXO tuning voltage from 0V to 3.3V
- 10mA output drive at CMOS levels
- Packaging (Pb-free & Green):
 - 8-pin SOIC (W)

Description

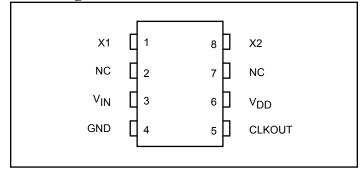
The PI6CX100-00 is a low-cost, high-performance, 3.3V, VCXO available in discrete IC form with external quartz cryatal. The on-chip Voltage Controlled Crystal Oscillator accepts a 0V to 3.3V input voltage that pulls the output clock frequency by ± 120 ppm. This device operates with an external quartz crystal specified to achieve the desired performance.

The PI6CX100-00 is designed for General Purpose applications, supporting operating frequencies between 19.44 and 40 MHz.

Block Diagram



Pin Configuration



Pin Description

Pin Name	Number	Туре	Description	
X1, X2	1, 8	I	Crystal Connection	
NC	2, 7		No Connection	
V _{IN}	3	I	Voltage Input to VCXO	
GND	4	PWR	Ground	
CLKOUT	5	0	Clock Output	
V_{DD}	6	PWR	Power Supply ⁽¹⁾	

1

Note:

1. 0.1μF or 0.01μF bypass capacitor is required.

PS8761 02/04/05



Maximum Ratings

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

Storage Temperature	55°C to 125°C
Ambient Temperature	40°C to 85°C
Supply Voltage V _{DD}	0.5V to 7V
Inputs/Outputs Voltage	0.5V to V _{DD} +0.5V
Output Current	10mA
Soldering Lead Temperature (10s)	260°C
Junction Temperature	50°C to 150°C

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.

DC Electrical Characteristics

(Unless otherwise specified, $V_{DD} = 3.3V$, $f_O = 27$ MHz, $V_{IN} = 1.65V$, Load = 15pF, $T_A = 25$ °C)

Symbol	Desciption	Test Condidtion	Min.	Тур.	Max.	Units
V_{DD}	Operating Voltage		3.135	3.3	3.465	
V _{OH}	Output High Volage	$I_{OH} = -12mA$	2.8			V
$V_{ m OL}$	Output Low Voltage	$I_{OL} = 12mA$			0.5	
I _{OH}	Output High Current	$V_{OH} = V_{DD} - 0.5V$		-11	-4	
I_{OL}	Output Low Current	$V_{OL} = 0.5V$	4	12		mA
I_{DD}	Supply Current	$C_L = 15pF$		5		
I_{OZ}	Output Off-leakage				10	μА
R_{S}	Negative Resistance	$V_{IN} = 0V$		-150		Ω
f_{O}	Input Frequency		19.44		40	MHz
C_{L}	Output load Capacitance			15	30	pF

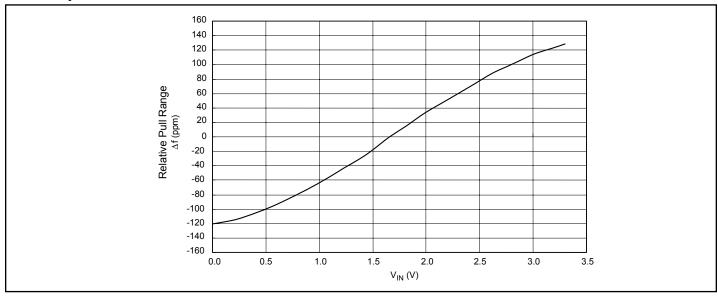
AC Electrical Characteristics (Unless otherwise specified, $f_O = 27$ MHz, Load = 15pF, $T_A = 25$ °C)

Symbol	Desciption	Test Condidtion	Min.	Тур.	Max.	Units
T_R/T_f	Rise / Fall Time	0.1V _{DD} to 0.9 V _{DD}		1.5	6	ns
T_d	Duty Cycle	0.5 V _{DD}	45		55	%
Δf	Pull Range	$V_{IN} = 0$ to V_{DD}		±120		ppm
T_{j}	Cycle-to-Cycle Jitter	$C_L = 15pf$		50		ps
Lin	Linearity	$V_{IN} = 0.1 V_{DD}$ to 0.9 V_{DD}		±10		%
	Oscillator Start Time	$V_{DD} = 0.9 V_{DD}$ Trigger		1.5	10	ms

2



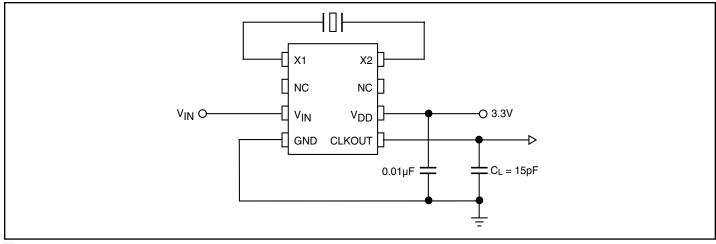
Pullability Characteristics



Recommended Crystal Specifications

Description	Crystal
Mode of Oscillation and Cut	Fundamental AT
Frequency (as specified)	19.44 to 40 MHz
Frequency Tolerance	±20ppm
Temperature plus Aging Stability	±30ppm
Operating Temperature	-20°C to +70°C
C0 /C1	240 (max.)
Load Capacitance (C _L)	18pF
Equivalent Series Resistance (ESR)	35Ω (max.)

Measurement Circuit



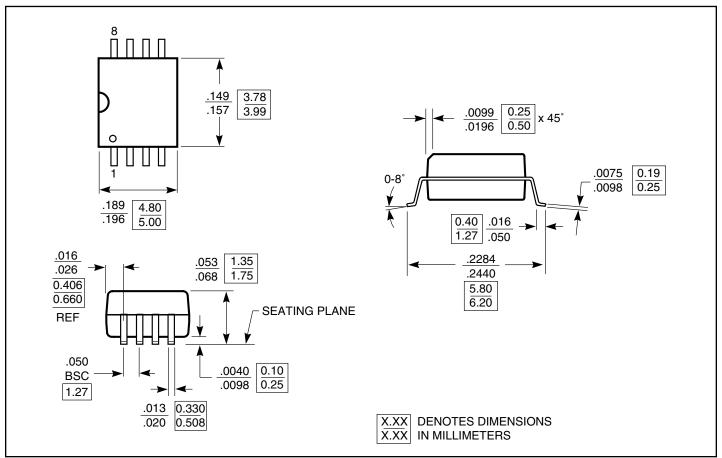
3

Note:

1. $0.1\mu F$ or $0.01\mu F$ bypass capacitor is required.



Packaging Mechanical: Plastic 8-pin SOIC (W)



Ordering Information

Ordering Code	Package Code	Package Type	Operating Range
PI6CX100-00WE	W	Pb-free & Green 8-pin, 150-mil SOIC	Industrial

Notes:

- 1. Thermal characteristics can be found on the company web site at www.pericom.com/packaging/
- 2. Use Suffix "X" for tape and reel
- 3. Number of Transistors = TBD