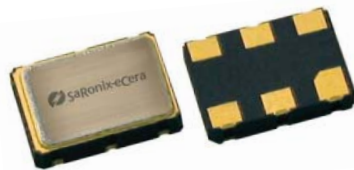


3.3V PECL Low Jitter XO

PB


7.0 x 5.0mm Ceramic SMD

Product Features

- 38.88 to 162 MHz Frequency Range
- <1 ps RMS jitter with non-PLL design
- Designed for standard reflow & washing techniques
- IBIS models available
- Pb-free & RoHS/Green compliant

Product Description

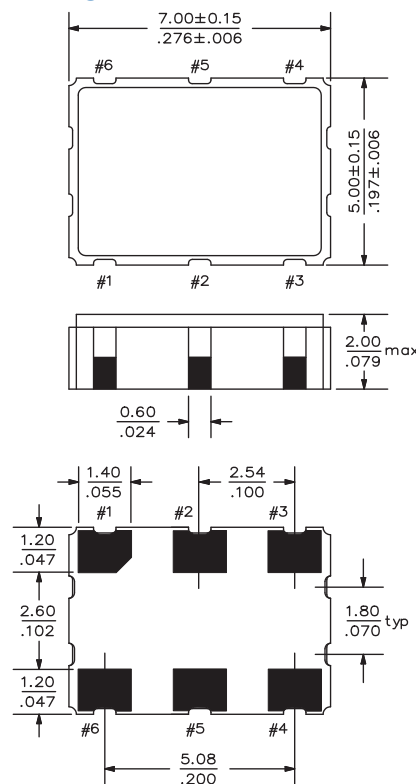
The PB Series 3.3V crystal clock oscillator achieves superb jitter and stability over a broad range of operating conditions and frequencies. The output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVPECL logic levels. The device, available on tape and reel, is contained in a 7.0 x 5.0mm surface-mount ceramic package.

Applications

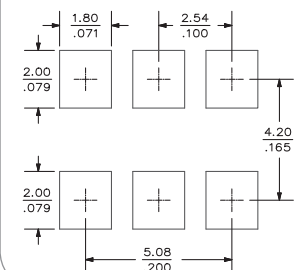
The PB Series is ideal for high-speed applications requiring low jitter, including:

- 1/10 Gigabit Ethernet
- 2/4/10G FibreChannel
- Serial Attached SCSI (SAS)
- Server & Storage platforms
- SONET/SDH linecards
- Passive Optical Network (PON) devices
- HD Video Systems

Package:



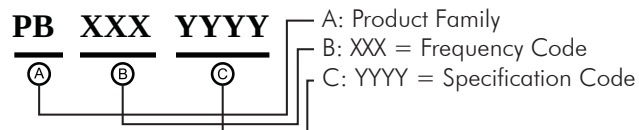
Recommended Land Pattern:



Pin Functions:

Pin	Function
1	OE or NC
2	OE or NC
3	Ground
4	Q Output
5	$\bar{Q}$ Output
6	V _{CC}

Part Ordering Information:



Following the above format, Saronix-eCera part numbers will be assigned upon confirmation of exact customer requirements.

Electrical Performance

Parameter	Min.	Typ.	Max.	Units	Notes
Output Frequency	38.88		162	MHz	As specified
Supply Voltage	2.97	3.30	3.63	V	
Supply Current, enabled		55	88	mA	
Supply Current, Disabled			0.03	mA	
Frequency Stability			±20 to ±50	ppm	See Note 1 below
Operating Temperature Range	-20		+70	°C	Commercial (standard)
	-40		+85		Industrial (standard)
Output Logic 0, V _{OL}			V _{CC} - 1.62	V	
Output Logic 1, V _{OH}	V _{CC} - 1.025			V	
Output Load	50Ω connected connected to V _{CC} - 2 V				output requires termination
Duty Cycle	45		55	%	measured 50% of waveform
Rise and Fall Time		500	850	ps	measured 20/80% of waveform
Jitter, Phase		0.5	1	ps RMS (1-σ)	12kHz to 20MHz frequency band
Jitter, Total			25	ps pk-pk	100,000 random periods

Notes:

- Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (5 year at 40°C average effective ambient temperature), shock and vibration.
- For specifications other than those listed, please contact sales.

Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin OE), Output Enable	0.7			V	or open
Input Voltage (pin OE), Output Disable (low power standby)			0.3	V	Output disabled to Hi-Z
Internal Pullup Resistance	50			kΩ	
Output Disable Delay			200	ns	
Output Enable Delay			10	ms	

Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-55		+125	°C	

The schematic diagram illustrates the test setup for the AD9288. It features a +2.0V supply and a -1.3V supply. The +2.0V supply is connected to the AD9288 through a 0.1μF capacitor and a 0.01μF capacitor. The -1.3V supply is connected to the AD9288 through a 0.1μF capacitor and a 0.01μF capacitor. The AD9288 is connected to the test point through a 50Ω resistor. The test point is labeled "Test Point (Termination internal to scope)".

As per IPC/JEDEC J-STD-020C

The graph shows Temperature in degrees Celsius on the y-axis and Time on the x-axis. The profile starts at 0°C, ramps up at 1 to 3°C/sec to a peak of 260°C, which is held for a maximum of 10 seconds. The temperature then ramps down at 1 to 3°C/sec. A horizontal line at 217°C intersects the ramp-up and ramp-down curves. The time between these intersections is labeled as 60 to 90 seconds. The total time from the start of the ramp-up to the end of the ramp-down is labeled as 4 to 6 minutes maximum.

This product is rated to meet the following test conditions:

Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 (R ₁ = 2x10 ⁻⁸ atm cc/s)
Mechanical	Solvent resistance	MIL-STD-202, Method 215
Environmental	Thermal shock	MIL-STD-883, Method 1011, Condition A
Environmental	Moisture resistance	MIL-STD-883, Method 1004
Environmental	Vibration	MIL-STD-883, Method 2007, Condition A
Environmental	Resistance to soldering heat	J-STD-020C Table 5-2 Pb-free devices (2 cycles max)

Output Waveform

