

# PX Type 3.2 x 2.5 mm SMD Programmable Crystal Oscillators

SHOULDER

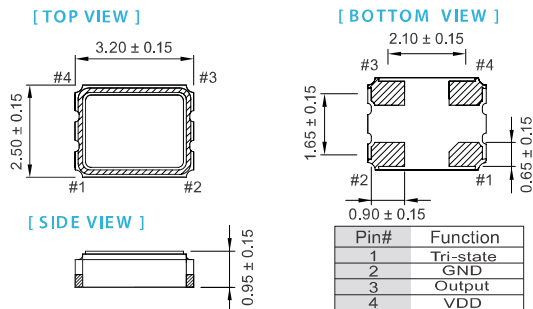
## FEATURE

- Typical 3.2 x 2.5 x 0.95mm ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Operation voltage: 1.8V,2.5V,2.8V,3.0V,3.3V
- Tri-state enable/disable

## TYPICAL APPLICATION

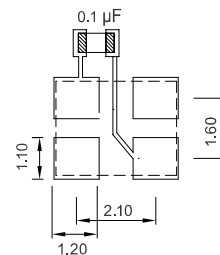
- Computer Peripherals
- Set-top Box , HDTV
- DSC, PDA

## DIMENSION (mm)



RoHS Compliant

## SOLDER PAD LAYOUT (mm)



To ensure optimal oscillator performance, place a by-pass capacitor of 0.1µF as close to the part as possible between Vdd and GND pads.

## ELECTRICAL SPECIFICATION

Parameter	3.3V/3.0V		2.8V/2.5V		1.8V		unit
	Min.	Max.	Min.	Max.	Min.	Max.	
<b>Supply Voltage Variation (VDD)</b>	VDD-10%	VDD+10%	VDD-10%	VDD+10%	VDD-10%	VDD+10%	V
<b>Frequency Range</b>	2.048	200	2.048	166	2.048	110	MHz
<b>VDD Sensitivity (±10 %)</b>	-2	2	-2	2	-2	2	ppm
<b>Supply Current</b>	2.048 MHz ≤ Fo < 30 MHz	10	8	8	6	6	mA
	30 MHz ≤ Fo < 75 MHz	15	10	10	8		
	75 MHz ≤ Fo < 133 MHz	20	15	15	12		
	133 MHz ≤ Fo < 166 MHz	22	15	15	12		
	166 MHz ≤ Fo ≤ 200 MHz	25	15	15	12		
<b>Duty Cycle</b>	45	55	45	55	45	55	%
<b>Output Level (CMOS)</b>	Output High (Logic "1")	2.7	2.25	1.62	1.62	1.62	V
	Output Low (Logic "0")	0.33	0.25	0.18	0.18	0.18	
<b>Transition Time: Rise/Fall Time<sup>+</sup></b>	2.048 MHz ≤ Fo < 10 MHz	3	4	5	5	5	nSec
	10 MHz ≤ Fo	2	3	4	4	4	
<b>Start Time</b>	Enable (High voltage or floating)	2.31	1.75	1.26	1.26	1.26	mSec
	Disable (Low voltage or GND)	0.99	0.75	0.54	0.54	0.54	
<b>Period Jitter (Pk-Pk)</b>	Specific Frequency <sup>**</sup>	40	40	40	40	40	pSec
	Others	200	200	200	200	200	
	Standby Current	15	15	15	15	15	
<b>Aging (@ 25°C 1st year)</b>	±3	±3	±3	±3	±3	±3	ppm
<b>Storage Temp. Range</b>	-55	125	-55	125	-55	125	°C

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

+ Transition times are measured between 10% and 90% of VDD, with an output load of 15pF.

\*\* Specific frequency including 4.0, 6.0, 8.0, 12.0, 13.0, 16.0, 19.2, 20.0, 24.0, 26.0, 32.0, 38.4 and 40.0MHz

## FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm		
	±20	±25	±50
-10 ~ +60	○	○	○
-20 ~ +70	△	○	○
-40 ~ +85	×	○	○

\* ○: Available △: Conditional X: Not available

\* Inclusive of calibration @ 25 °C, operating temperature range, input voltage variation, load variation, aging (1<sup>st</sup> year), shock, and vibration

Note: not all combination of options are available. Other specifications may be available upon request.

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Specifications subject to change without notice.