

# PX Type

## 3.2 x 2.5 mm SMD Crystal Oscillator

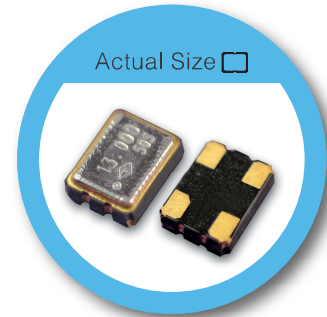
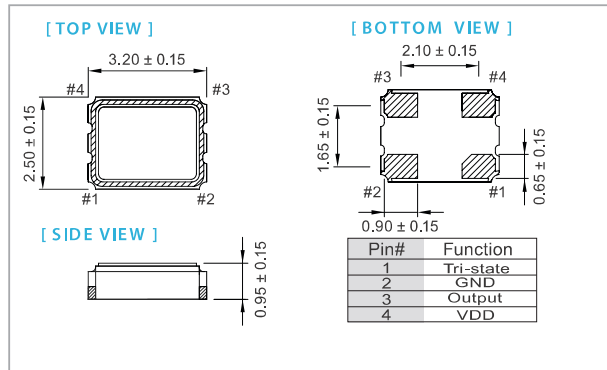
### FEATURE

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

### TYPICAL APPLICATION

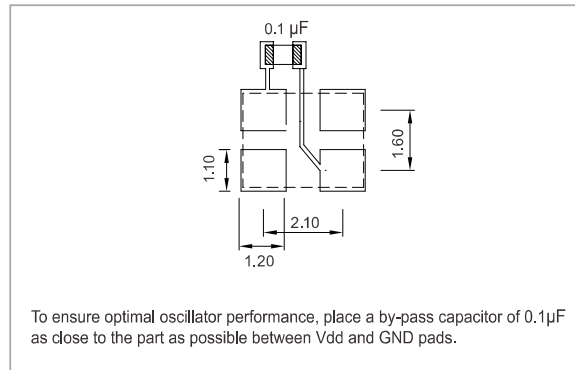
- Computer Peripherals
- Set-top Box , HDTV
- DSC, PDA

### DIMENSION (mm)



**RoHS Compliant**

### SOLDER PAD LAYOUT (mm)



### ELECTRICAL SPECIFICATION

Parameter	3.3 V		2.5 V		1.8 V		unit
	Min.	Max.	Min.	Max.	Min.	Max.	
<b>Supply Voltage Variation (V<sub>DD</sub>)</b>	V <sub>DD</sub> -10%	V <sub>DD</sub> +10%	V <sub>DD</sub> -10%	V <sub>DD</sub> +10%	V <sub>DD</sub> -10%	V <sub>DD</sub> +10%	V
<b>Frequency Range</b>	2.048	200	2.048	166	2.048	110	MHz
<b>V<sub>DD</sub> Sensitivity (±10%)</b>	-2	2	-2	2	-2	2	ppm
<b>Supply Current</b> 2.048 MHz ≤ F <sub>o</sub> < 30 MHz 30 MHz ≤ F <sub>o</sub> < 75 MHz 75 MHz ≤ F <sub>o</sub> < 133 MHz 133 MHz ≤ F <sub>o</sub> < 166 MHz 166 MHz ≤ F <sub>o</sub> ≤ 200 MHz	-	10	-	8	-	6	mA
	-	15	-	10	-	8	
	-	20	-	15	-	12	
	-	22	-	15	-	-	
	-	25	-	-	-	-	
<b>Duty Cycle</b>	45	55	45	55	45	55	%
<b>Output Level (CMOS)</b> Output High (Logic "1") Output Low (Logic "0")	2.97	-	2.25	-	1.62	-	V
	-	0.33	-	0.25	-	0.18	
<b>Transition Time: Rise/Fall Time<sup>+</sup></b> 2.048 MHz ≤ F <sub>o</sub> < 10 MHz 10 MHz ≤ F <sub>o</sub>	-	3	-	4	-	5	nSec
	-	2	-	3	-	4	
<b>Start Time</b>	-	2	-	2	-	2	mSec
<b>Tri-State (Input to Pin 1)</b> Enable (High voltage or floating) Disable (Low voltage or GND)	2.31	-	1.75	-	1.26	-	V
	-	0.99	-	0.75	-	0.54	
<b>Period Jitter (Pk-Pk)</b> Specific Frequency <sup>**</sup> Others	-	40	-	40	-	40	pSec
	-	200	-	200	-	200	
<b>Standby Current</b>	-	15	-	15	-	15	μA
<b>Aging (@ 25°C 1st year)</b>	-	±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 V<sub>DD</sub>, 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.

# Model Numbering Guide – Crystal Oscillator

## Available options

Type	package (mm)	Supply Voltage(V)	Tri-State Function	Freq. Stability (ppm)	Temp. Range(°C)	Output Logic and Symmetry	Oscillator Mode	Appearance	Lead Free	Dash	Freq. (MHz)
O: Oscillator	Z:2.0 x 1.6 Y:2.5 x 2.0 X:3.2 x 2.5 V:5.0 x 3.2 C:7.0 x 5.0	E: 2.8/3.0/3.3 J: 2.5 K: 1.8 P: 1.5 L: 1.2 M: 0.9	T: Fixed-Freq with Tri-State M: Multiplier Freq with Tri-State(only for V/C package) U: Ultra Low Noise design	A: ±5 B: ±10 P: ±15 C: ±20 D: ±25 E: ±30 F: ±40 G: ±50 H: ±100	E: 0~+85 I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85 J: -40~+105 H: -40~+125 F: -55~+125	J: CMOS 15pF / 50±5% K: CMOS 15pF / 50±10%					
P: Programmable Oscillator	Y: 2.5 x 2.0 X: 3.2 x 2.5	E: 2.8/3.0/3.3 J: 2.5 K: 1.8	T: Fixed-Freq with Tri-State	C: ±20 D: ±25 G: ±50 H: ±100		J: CMOS 15pF / 50±5%	A: AT Fundamental T: AT 3rd Overtone	N :Normal	F: RoHS Compliant	-	XX.XXXXXX
O: Oscillator (Differential Output)	A:3.2x2.5 W:5.0x3.2 T:7.0x5.0	E: 3.3 J: 2.5	T: Input to pin 2 (std.) R: Input to pin 1 (case by case ) U: Ultra Low Jitter design (Only for T package)	D: ±25 G: ±50 H: ±100	I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85	L: LVPECL / 50±5% V: LVDS / 50±5% H: HCSL / 50±5%	Not Selectable by Customer				
O: Oscillator (Fast Delivery series)	W:5.0x3.2 T:7.0x5.0	E: 3.3 J: 2.5	M: Multiplier Freq with pin 2 Tri-State N: Multiplier Freq. with PIN 1 Tri-State	D: ±25 G: ±50 H: ±100		J: CMOS 15pF / 50±5% L: LVPECL / 50±5% V: LVDS / 50±5%					

**O Y E T C C J A N F – 13.000000**

\*Not all combinations of options are available.

### Example: OYETCCJANF-13.000000

Type	Oscillator
Package	2.5 x 2.0 mm
Supply Voltage(V)	3.3 V
Tri-State .	Fixed-Freq.
Freq. Stability	±20ppm
Temp Range	-20~+70 °C
Output	CMOS 15 pF / Symmetry 50±5%
Oscillator Mode	AT Fundamental
Appearance	Normal Appearance
Lead Free	RoHs Compliant
Frequency	13.000000 MHz