

# PY Type

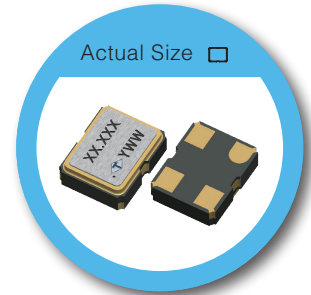
## 2.5 x 2.0 mm SMD Crystal Oscillator

### FEATURE

- Typical 2.5 x 2.0 x 0.81 mm ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Operation voltage: 1.8V, 2.5V, 3.3V
- Tri-state enable/disable

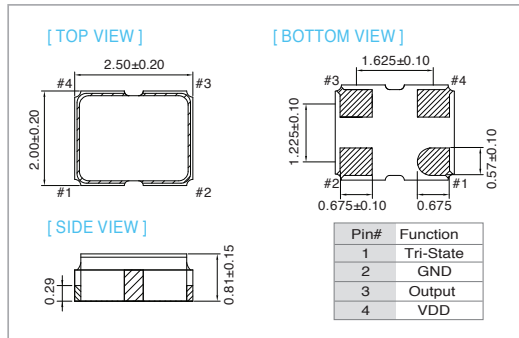
### TYPICAL APPLICATION

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

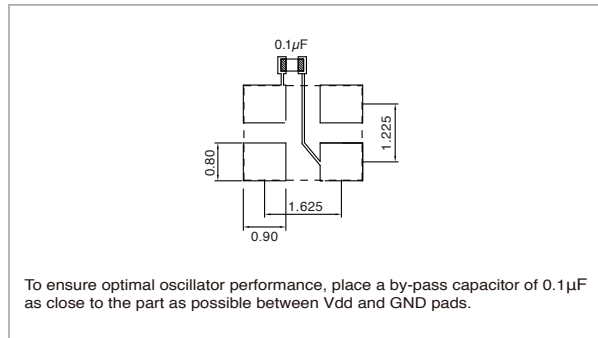


RoHS Compliant

### DIMENSION (mm)



### 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>	1	200	1	166	1	110	MHz
<b>V<sub>DD</sub> Sensitivity (±10 %)</b>	-2	2	-2	2	-2	2	ppm
<b>Supply Current</b>							mA
1 MHz ≤ F <sub>o</sub> < 30 MHz	-	10	-	8	-	6	
30 MHz ≤ F <sub>o</sub> < 75 MHz	-	12	-	10	-	8	
75 MHz ≤ F <sub>o</sub> < 133 MHz	-	15	-	12	-	10	
133 MHz ≤ F <sub>o</sub> < 166 MHz	-	18	-	15	-	-	
166 MHz ≤ F <sub>o</sub> ≤ 200 MHz	-	20	-	-	-	-	
<b>Duty Cycle</b>	45	55	45	55	45	55	%
<b>Output Level (CMOS)</b> Output High (Logic "1")	2.97	-	2.25	-	1.62	-	V
Output Low (Logic "0")	-	0.33	-	0.25	-	0.18	
<b>Transition Time: Rise/Fall Time<sup>+</sup></b>							nSec
1 MHz ≤ F <sub>o</sub> < 10 MHz	-	3	-	4	-	5	
10 MHz ≤ F <sub>o</sub>	-	2	-	3	-	4	
<b>Startup Time</b>	-	8	-	8	-	8	mSec
<b>Tri-State (Input to Pin 1)</b> Enable (High voltage or floating)	2.31	-	1.75	-	1.26	-	V
Disable (Low voltage or GND)	-	0.99	-	0.75	-	0.54	
<b>Period Jitter (Pk-Pk)</b>							pSec
Specific Frequency <sup>†</sup>	-	40	-	40	-	40	
Others	-	200	-	200	-	200	
<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, 13.0, 22.0, 26.0, 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