

# PY Type

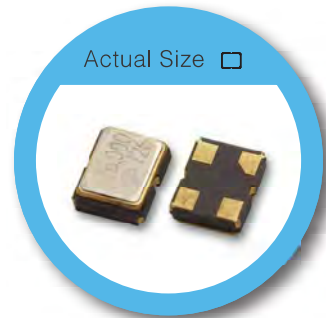
## 2.5 x 2.0 mm SMD Crystal Oscillator

### FEATURE

- Typical 2.5 x 2.0 x 0.85 mm ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Operation voltage: 1.8V, 2.5V, 3.3V
- Tri-state enable/disable

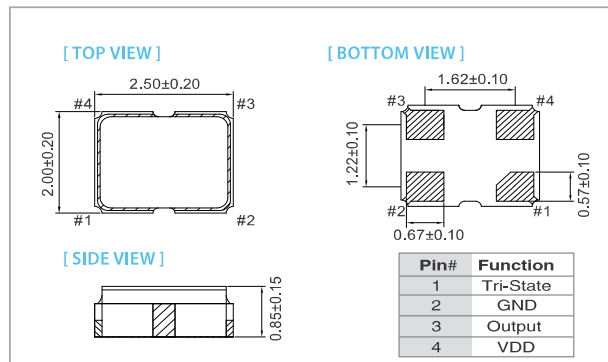
### TYPICAL APPLICATION

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

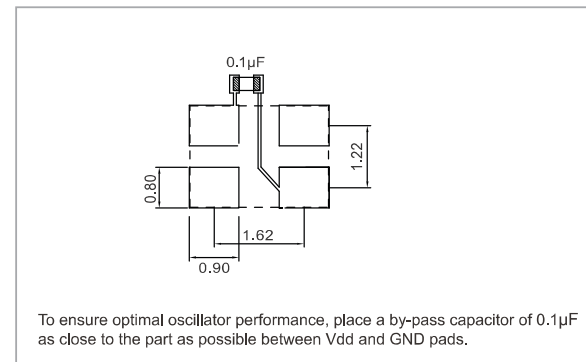


RoHS Compliant

### 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.	
Supply Voltage Variation (V <sub>DD</sub> )	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
Frequency Range	2.048	200	2.048	166	2.048	110	MHz
V <sub>DD</sub> Sensitivity (±10 %)	-2	2	-2	2	-2	2	ppm
Supply Current							mA
2.048 MHz ≤ F <sub>o</sub> < 30 MHz	-	10	-	8	-	6	
30 MHz ≤ F <sub>o</sub> < 75 MHz	-	15	-	10	-	8	
75 MHz ≤ F <sub>o</sub> < 133 MHz	-	20	-	15	-	12	
133 MHz ≤ F <sub>o</sub> < 166 MHz	-	22	-	15	-	-	
166 MHz ≤ F <sub>o</sub> ≤ 200 MHz	-	25	-	-	-	-	
Duty Cycle	45	55	45	55	45	55	%
Output Level (CMOS)							V
Output High (Logic "1")	2.97	-	2.25	-	1.62	-	
Output Low (Logic "0")	-	0.33	-	0.25	-	0.18	
Transition Time: Rise/Fall Time <sup>+</sup>							nSec
2.048 MHz ≤ F <sub>o</sub> < 10 MHz	-	3	-	4	-	5	
10 MHz ≤ F <sub>o</sub>	-	2	-	3	-	4	
Start Time	-	2	-	2	-	2	mSec
Tri-State (Input to Pin 1)							V
Enable (High voltage or floating)	2.31	-	1.75	-	1.26	-	
Disable (Low voltage or GND)	-	0.99	-	0.75	-	0.54	
Period Jitter (Pk-Pk)							pSec
Specific Frequency <sup>†</sup>	-	40	-	40	-	40	
Others	-	200	-	200	-	200	
Standby Current	-	15	-	15	-	15	µA
Aging ( @ 25°C 1st year)	-	±3	-	±3	-	±3	ppm
Storage Temp. Range	-55	125	-55	125	-55	125	°C

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

<sup>+</sup> 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