

# O B Type

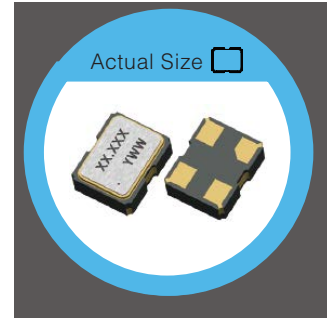
## 2.0 x 1.6 mm SMD Crystal Oscillator

### FEATURE

- Typical 2.05 x 1.65 x 0.75 mm ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Operation voltage: 1.8V, 2.5V, 3.3V
- Tri-state enable/disable

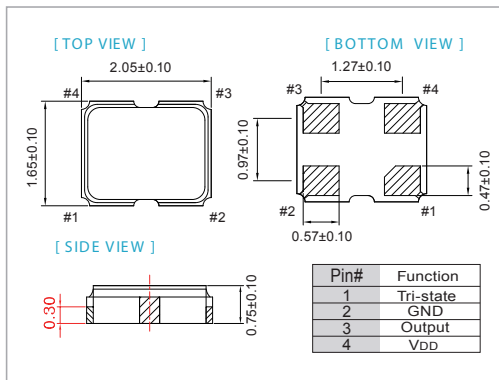
### TYPICAL APPLICATION

- WLAN/WiMax
- Mobile Phone
- DSC, Set-top Box, HDTV

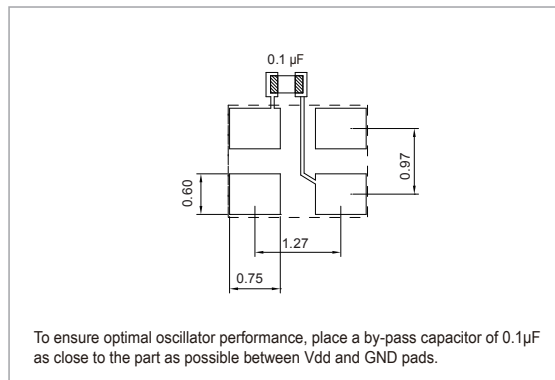


RoHS Compliant

### DIMENSION (mm)



### SOLDER PAD LAYOUT (mm)



### ELECTRICAL SPECIFICATION

| Parameter                                    | 3.3V    |         | 2.5V    |         | 1.8V    |         | Unit |
|--|---------|---------|---------|---------|---------|---------|------|
|  | Min.    | Max.    | Min.    | Max.    | Min.    | Max.    |      |
| Supply Voltage Variation (VDD)               | VDD-10% | VDD+10% | VDD-10% | VDD+10% | VDD-10% | VDD+10% | V    |
| Frequency Range                              | 1.5     | 50      | 1.5     | 50      | 1.5     | 50      | MHz  |
| Standard Frequency                           | 24,26   |         |         |         |         |         |      |
| Supply Current                               | -       | 15      | -       | 10      | -       | 7       | mA   |
| Duty Cycle                                   | 45      | 55      | 45      | 55      | 45      | 55      | %    |
| Output Level (CMOS)                          |         |         |         |         |         |         |      |
| Output High (Logic "1")                      | 2.97    | -       | 2.25    | -       | 1.62    | -       | V    |
| Output Low (Logic "0")                       | -       | 0.33    | -       | 0.25    | -       | 0.18    |      |
| Transition Time: Rise/Fall Time <sup>+</sup> |         |         |         |         |         |         |      |
| 1.5 MHz ≤ Fo < 20 MHz                        | -       | 4       | -       | 4       | -       | 5       | nSec |
| 20 MHz ≤ Fo ≤ 50 MHz                         | -       | 3       | -       | 3       | -       | 4       |      |
| Start Time                                   | -       | 2       | -       | 2       | -       | 2       | mSec |
| Tri-State (Input to Pin 1)                   |         |         |         |         |         |         |      |
| Enable (High voltage or floating)            | 2.31    | -       | 1.75    | -       | 1.26    | -       | V    |
| Disable (Low voltage or GND)                 | -       | 0.99    | -       | 0.75    | -       | 0.54    |      |
| Period Jitter (pk-pk)                        | -       | 40      | -       | 40      | -       | 40      | pSec |
| RMS Phase Jitter (Integrated 12 KHz~20 MHz)  | -       | 1       | -       | 1       | -       | 1       | pSec |
| Standby Current                              | -       | 10      | -       | 10      | -       | 10      | µ A  |
| Aging (@ 25°C 1 <sup>st</sup> 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 VDD, with an output load of 15 pF.

### FREQ. STABILITY vs. TEMP. RANGE

| Temp(°C)   | ppm |     |     |
|------------|-----|-----|-----|
|            | ±20 | ±25 | ±50 |
| -10 ~ +60  | ○   | ○   | ○   |
| -20 ~ +70  | △   | ○   | ○   |
| -40 ~ +85  | ×   | △   | ○   |
| -40 ~ +125 | ×   | ×   | ○   |

\*O: 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.