

TZ Type

2.0 x 1.6 mm SMD Voltage Controlled Temperature Compensated Crystal Oscillator

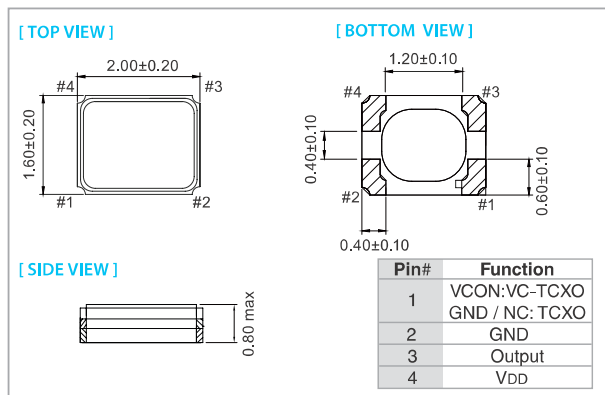
FEATURE

- Typical 2.0 x 1.6 x 0.8 mm ceramic SMD package.
- For automatic assembly.
- Compactness and lightweight.
- VCTCXO available.
- Miniature size and low profile.

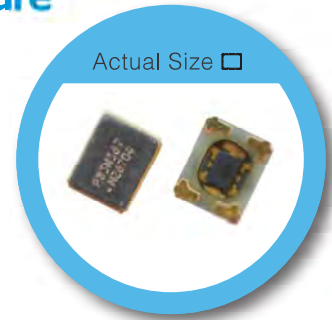
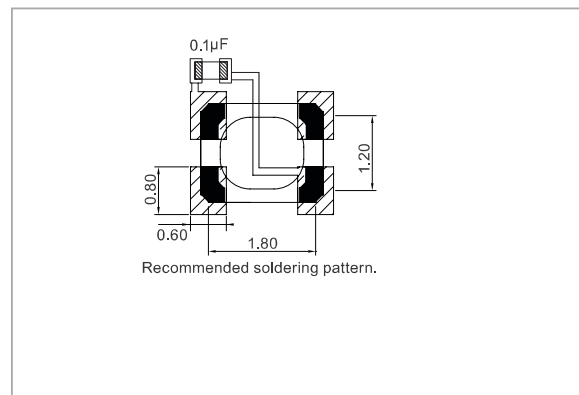
TYPICAL APPLICATION

- GPS
- WiMAX, WLAN
- Mobile Phone
- IoT, wearable Electronics.

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



RoHS Compliant

ELECTRICAL SPECIFICATION

| Parameter | 3.3 / 3.0 / 2.8 V | | 2.5 V | | 1.8 V | | Unit |
|-------------------------------------|--------------------------|-------|---------------|-------|---------------|------|--------|
| | Min. | Max. | Min. | Max. | Min. | Max. | |
| Supply Voltage Variation (VDD) | 2.66 | 3.465 | 2.375 | 2.625 | 1.71 | 1.89 | V |
| Frequency Range | 10 | 52 | 10 | 52 | 10 | 52 | MHz |
| Standard Frequency | 16.369, 19.2, 26.0, 38.4 | | | | | | |
| Frequency Tolerance* | - | ±2.0 | - | ±2.0 | - | ±2.0 | ppm |
| Frequency stability | | | | | | | ppm |
| Vs Supply Voltage (±5%) change | - | ±0.2 | - | ±0.2 | - | ±0.2 | |
| Vs Load (±10%) change | - | ±0.2 | - | ±0.2 | - | ±0.2 | |
| Vs Aging (@ 1st year) | - | ±1.0 | - | ±1.0 | - | ±1.0 | ppm |
| Supply Current 10 MHz ≤ Fo ≤ 26 MHz | - | 1.5 | - | 1.5 | - | 1.5 | mA |
| 26 MHz < Fo ≤ 52 MHz | - | 2.0 | - | 2.0 | - | 2.0 | |
| Output Level (Clipped sine wave) | 0.8 | - | 0.8 | - | 0.8 | - | Vp-p |
| Load | 10 KΩ // 10pF | | 10 KΩ // 10pF | | 10 KΩ // 10pF | | |
| Control Voltage Range (VCTCXO) | 0.5 | 2.5 | 0.4 | 2.4 | 0.3 | 1.5 | V |
| Pulling Range (VCTCXO) | ±5.0 | - | ±5.0 | - | ±5.0 | - | ppm |
| Vc Input Impedance (VCTCXO) | 500 | - | 500 | - | 500 | - | kΩ |
| Phase Noise @ 19.2 MHz | 100 Hz | | -115 | | -115 | | dBc/Hz |
| | 1 kHz | | -135 | | -135 | | |
| | 10 kHz | | -148 | | -148 | | |
| Start time | - | 2 | - | 2 | - | 2 | mSec |
| 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.

* Frequency at 25°C, 1 hour after reflow.

FREQ. STABILITY vs. TEMP. RANGE

| Temp. (°C) | ppm | ±0.5 | ±1.0 | ±1.5 | ±2.0 | ±2.5 |
|------------|-----|------|------|------|------|------|
| -20 ~ +70 | | ○ | ○ | ○ | ○ | ○ |
| -30 ~ +85 | | ○ | ○ | ○ | ○ | ○ |
| -40 ~ +85 | | ○ | ○ | ○ | ○ | ○ |

* ○: Available △: Conditional X: Not available