

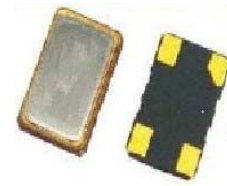
Series VH5

5.0 x 3.2 mm SMD High Precision Voltage Controlled Temperature Compensated Crystal Oscillator



FEATURE

- Typical 5.0 x 3.2 x 1.55 mm ceramic SMD package.
- ± 0.2 ppm, $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$; ± 0.05 ppm, $-10^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- CMOS and Clipped Sine wave (without DC-cut capacitor) output optional.

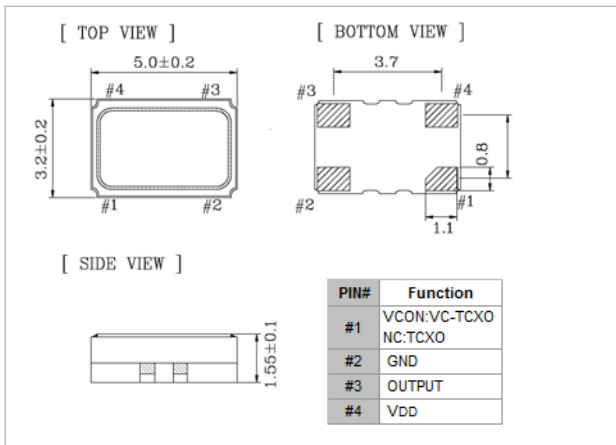


TYPICAL APPLICATION

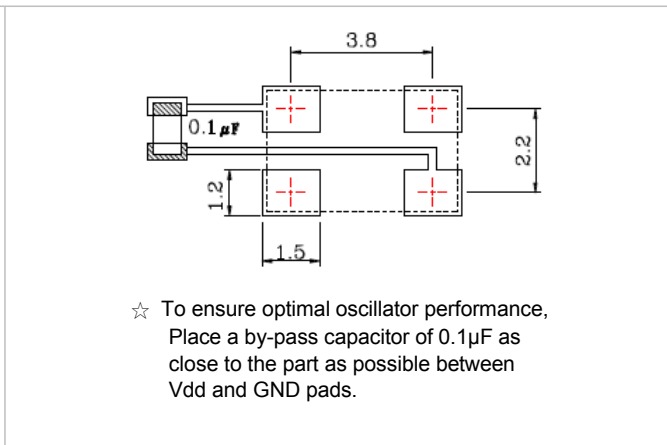
- Base Stations, Stratum 3
- Femtocell

RoHS Compliant Standard

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

| Parameter | 5.0V | | 3.3V | | Unit |
|--|-------------------------------|------------|--------------------|------------|--------------------|
| | Min. | Max. | Min. | Max. | |
| Supply Voltage Variation (VDD) 5% | 4.75 | 5.25 | 2.97 | 3.63 | V |
| Frequency Range | 10 | 40 | 10 | 40 | MHz |
| Standard Frequency (for CMOS) | 10, 12.8, 19.2, 20, 26, 30.72 | | | | |
| Standard Frequency (for Clipped Sine) | 10, 12.8, 19.2, 20, 26, 30.72 | | | | |
| Frequency Tolerance* | - | ± 2.0 | - | ± 2.0 | ppm |
| Frequency Stability | | | | | ppm |
| Vs Supply Voltage ($\pm 5\%$ change) (CMOS) | - | ± 0.2 | - | ± 0.2 | |
| Vs Load ($\pm 10\%$ change) | - | ± 0.2 | - | ± 0.2 | |
| Vs Aging (after 1 year) | - | ± 1.0 | - | ± 1.0 | |
| Supply Current (CMOS output) | - | 6 | - | 6 | mA |
| Supply Current (Clipped Sine Wave) | - | 3.5 | - | 3.5 | |
| Output Level (CMOS) | 90% VDD | - | 90% VDD | - | V |
| Output Level (Clipped Sine Wave) | 0.8 | - | 0.8 | - | Vp-p |
| Load (CMOS) | 15pF | | 15pF | | |
| Load (Clipped Sine Wave) | 10K Ω /10pF | | 10K Ω /10pF | | |
| Control Voltage Range (VCTCXO) | 0.5 | 2.5 | 0.5 | 2.5 | V |
| Pulling Range (VCTCXO) | ± 5.0 | ± 10.0 | ± 5.0 | ± 10.0 | ppm |
| Vc Input Impedance (VCTCXO) | 100 | - | 100 | - | K Ω |
| Phase Noise @ 12.8 MHz | | | | | dBc/Hz |
| 100 Hz | -125 | | -125 | | |
| 1 KHz | -145 | | -145 | | |
| 10 KHz | -150 | | -150 | | |
| Start Time | - | 2 | - | 2 | mSec |
| Storage Temp. Range | -55 | 125 | -55 | 125 | $^{\circ}\text{C}$ |

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

*Frequency at 25 $^{\circ}\text{C}$ 1 hour after reflow

Packing: Tape & Reel, 1000/3000 pcs per Reel.

FREQ. STABILITY vs. TEMP. RANGE

| $^{\circ}\text{C}$ | ppm | ± 0.05 | ± 0.1 | ± 0.2 | ± 0.28 | ± 0.5 |
|--------------------|----------|------------|-----------|-----------|------------|-----------|
| | | 0~+55 | O | O | O | O |
| -10~+60 | O | O | O | O | O | |
| -10~+70 | Δ | O | O | O | O | |
| -40~+85 | X | X | Δ | O | O | |

* O: Available Δ : Conditional X: Not available