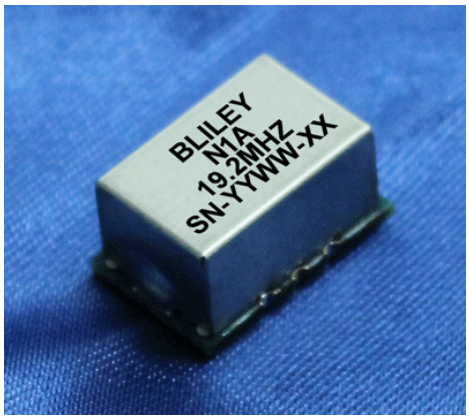
# Miniature OCXO & OCVCXO

**N1A Series**

## Description:

**The N1A Series Ovenized Crystal Oscillator Series offers an extremely small footprint with excellent Frequency vs. Temperature stability performance. This series is ideally suited for base station, test equipment, synthesizers, and digital switching applications.**




## Features:

- **Available in Frequencies from 12.8 MHz to 40 MHz**
- **LVCMOS Output**
- **3.3V or 5VDC Supply voltage.**
- **9mm x 14mm x 7.7mm package**
- **Standard Frequencies of 12.8MHz, 19.2MHz, 19.44MHz 20.38MHz, and 38.88MHz**
- **Other frequencies available on request**
- **Storage Temperature Range of -55℃ to 105℃**

### Electronic Voltage Control (EFC):

| **EFC Code** | **A** | **B** | | |
|---|---|---|---|---|
| Characteristic | Fixed Frequency | Min | Nom | Max |
| EFC Voltage (VDC) | | 0 | 1.65 | 3.3 |
| Pull Range (ppm) | | 1.5 | | 4.0 |
| EFC Slope | | Positive | | |
| EFC Impedance (Ohms) | | | 100K | |
| EFC Bandwidth (Hz) | | | 10K | |

### Operating Temperature Range and Frequency Stability:

| **Temperature Range Code** | Operating Temperature | Freq vs. Temp Stability Code | | Freq vs. Supply ±5% Change (ppb) | Freq vs. Load ±10% Change (ppb) |
|---|---|---|---|---|---|
| **2** | 0 to +70°C | **A** | ±10 ppb | ±10 max | ±10 |
| **3** | -20 to +70°C | **B** | ±20 ppb | ±10 max | ±10 |
| **5** | -40 to +85°C | **C** | ±30 ppb | ±10 max | ±10 |

Frequency calibration @25°C ± 1ppm max

### Supply Voltage, Current Consumption and Warm-up:

| **Supply Voltage Code** | **C** | **D** |
|---|---|---|
| **Supply Voltage** | **3.3V +/-5%** | **5.0V +/-5%** |
| Power Consumption | 2.2 W @ Startup<br>1.0 W Steady State | 2.2 W @ Startup<br>1.0 W Steady State |
| Warm-up Time | 1 min Max | 1 min Max |

**Aging: (after 30 days continuous operation)**

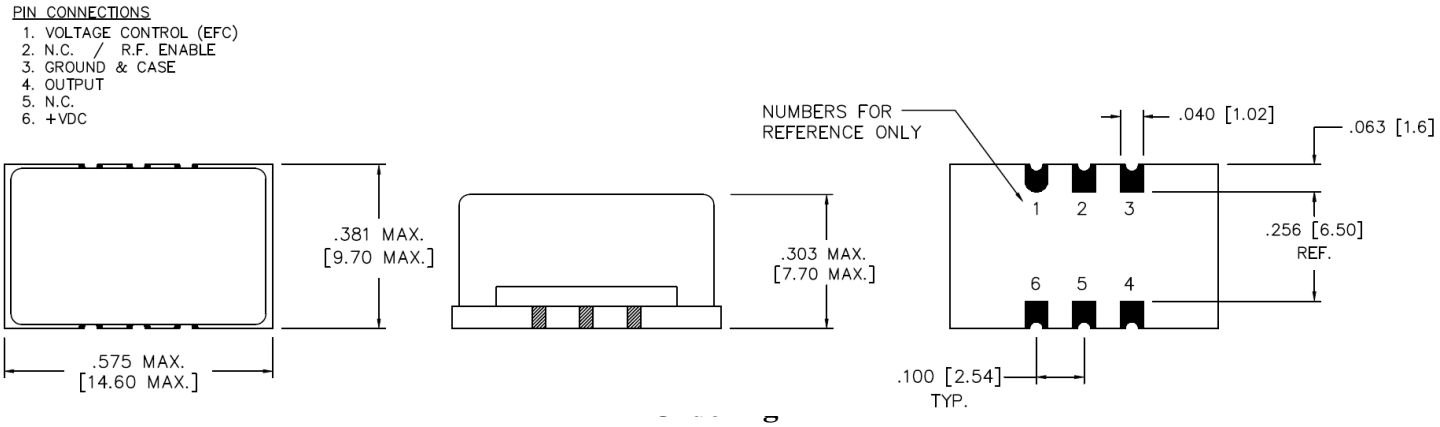
| Frequency | Timeframe | Min | Typical | Max |
|---|---|---|---|---|
| 12.8MHz to 40MHz | 30 Days | | ±2ppb | |
| | 1 Year | | ±300ppb | |
| | 10 Years | | ±2.5ppm | |

**Output Waveform:**

| LVCMOS | Min | Typical | Max |
|---|---|---|---|
| Logic "0" (VDC) | | | 0.4 |
| Logic "1" (VDC) | 2.4 | | |
| Rise/Fall Time; 10% to 90% level (nSec) | | 5 | |
| Duty Cycle @ 50% level (%) | 45 | | 55 |
| Output Load (pF) | 14.25 | 15 | 15.75 |

**Phase Noise Performance (Typical at 19.2MHz):**

| Freq offset from Carrier (Hz) | Min | Typical | Max |
|---|---|---|---|
| 1Hz (dBc/Hz) | | -65 | |
| 10Hz (dBc/Hz) | | -95 | |
| 100Hz (dBc/Hz) | | -125 | |
| 1KHz (dBc/Hz) | | -145 | |
| 10KHz (dBc/Hz) | | -150 | |




**Options:**

| Model | | Phase Noise | Temp. Range | Frequency Stability | | Supply Voltage | Output | EFC | Operating Frequency (MHz) |
|---|---|---|---|---|---|---|---|---|---|
| N1A | - | A | 2 | A | - | C | 3 | A | XXMXXX |
| | | | 3 | B | | D | | B | |
| | | | 5 | C | | | | | |

*Trailing Zeros Will Be Omitted In Final Part Number