WENZEL ASSOCIATES

# OCXO HF CITRINE

"QUIETLY THE BEST"

## LOW NOISE CRYSTAL OSCILLATORS > HF CITRINE

### FEATURES:

- Frequencies from 10 MHz to 25MHz, fixed
- Standard or Premium Phase Noise
- Ruggedized for Dynamic Environments
- Low G-Sensitivity to 1E-10/g per axis
- Excellent Temperature Stability
- Low Aging Rate
- Vibration Isolated Version Available


### APPLICATIONS:

- Military Applications
- Airborne, Ground, Shipboard
- Radar Systems
- Tactical Radio
- Vehicular Communication
- Reference Source

### DESCRIPTION:

The HF Citrine is a 10 MHz to 25 MHz fixed frequency rugged OCXO featuring Standard or Premium phase noise options, excellent aging and temperature stability and low g-sensitivity (to 1E-10/g per axis). Designed for demanding application, the HF Citrine provides excellent phase noise performance under vibration with both hard-mount and a vibration isolated version available. The hard-mount nickel-plated machined aluminum package is 2.25" x 2.25" x 0.8" with single and dual output options. A low noise internal voltage regulator is included, which provides excellent power supply line rejection. Please consult the factory to discuss any custom specification modifications which may better suit your application.

| Electrical Specifications | |
|---|---|
| Output Frequency (fixed; specify within range) | 10 MHz to 25 MHz |
| Output Level | +13 dBm ±2 dB into 50 ohms |
| Output Level (Dual Output - Package B) | +10 dBm ±2 dB into 50 ohms, each output |
| External Reference Input Frequency | 10 MHz (standard; other options available) |
| External Reference Input Level | +7 dBm ±6 dB into 50 ohms |
| Aging | (10 MHz model, typical) |
| Per day after 30 days operating, typical | $5 \times 10^{-10}$ |
| Second year, typical | $5 \times 10^{-8}$ |
| Per year thereafter, typical | $3 \times 10^{-8}$ |
| Temperature Stability (consult factory for other ranges) | (10 MHz model, typical) |
| Range E: 0 to +50°C (Ref: +25°C) | $\leq \pm 5 \times 10^{-9}$ |
| Range F: -20 to +70°C (Ref: +25°C) | $\leq \pm 1 \times 10^{-8}$ |
| Range G: -55 to +85°C (Ref: +25°C) | $\leq \pm 1 \times 10^{-7}$ |
| Phase Noise | (Frequency Dependent: See Std Specifications and Part Numbers table below for details) |
| Harmonics | ≤ -30 dBc |
| PLL & Divider Products | ≤ -50 dBc |
| Spurious | ≤ -80 dBc |
| PLL Loop Bandwidth | ≤ 1 Hz or ≤ 10 Hz |
| Supply Voltage | +15 VDC or +12 VDC (±5%) |
| Warm-up | ≤ 6 Watts for 5 minutes at +25°C |
| Total | ≤ 2.5 Watts at +25°C |
| Crystal Type | SC-cut |
| Crystal Acceleration Sensitivity (10 MHz models only) | $5 \times 10^{-10}$/g, typical; to $1 \times 10^{-10}$/g, available |
| **Mechanical** | |
| Packaging | Nickel-Plated Machined Aluminum |
| Dimensions | 3.5" x 2.5" x 0.8" |
| Connectors / Mounting — Package A | SMA(f) and solder pins on side Threaded Inserts, #2-56, 4 places |
| Package B | SMA(f) x2 and solder pins on side Threaded Inserts, #2-56, 4 places |

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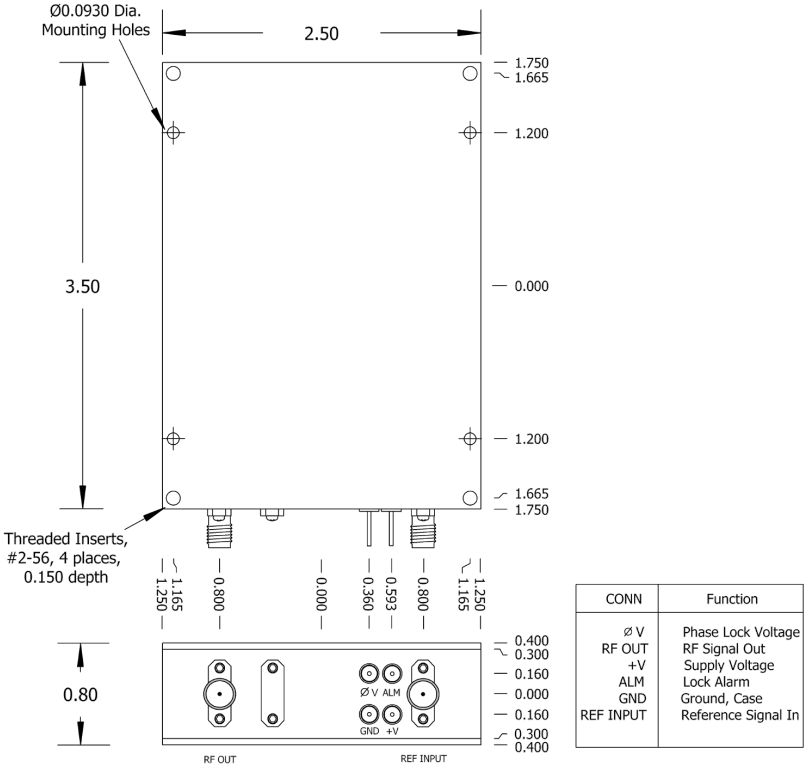
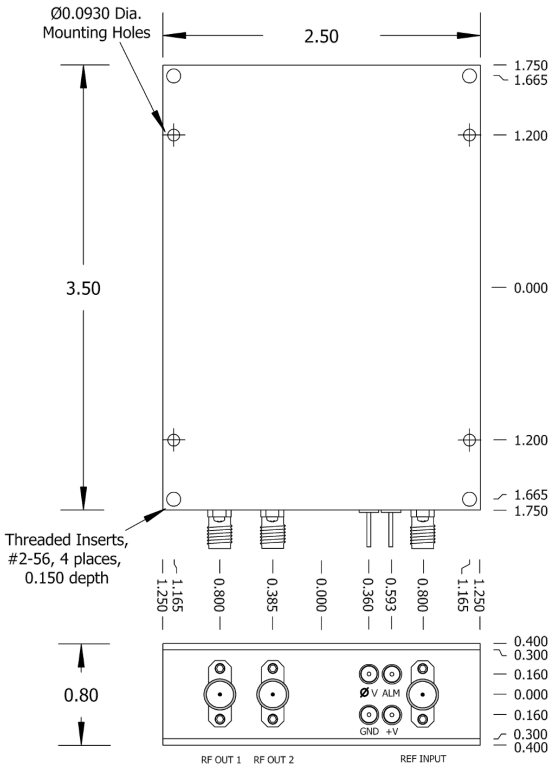
### PACKAGE A




| CONN | Function |
|---|---|
| Ø V | Phase Lock Voltage |
| RF OUT | RF Signal Out |
| +V | Supply Voltage |
| ALM | Lock Alarm |
| GND | Ground, Case |
| REF INPUT | Reference Signal In |

### PACKAGE B




| CONN | Function |
|---|---|
| Ø V | Phase Lock Voltage |
| RF Out 1 | RF Signal Out |
| RF Out 2 | RF Signal Out |
| +V | Supply Voltage |
| ALM | Lock Alarm |
| GND | Ground, Case |
| REF INPUT | Reference Signal In |

## Standard Specifications and Part Numbers * *

| Part Number | Output Frequency * (MHz) | Typical Phase Noise (dBc/Hz), Static * (free-running) | | | | | Output Level (dBm) * into 50 ohms | Temperature Stability (Ref: +25°C) * | Supply Voltage (VDC) | Acceleration Sensitivity (/g per axis) * | External Reference Frequency (MHz) | Package / Connectors | Package Size (inches) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 Hz | 100 Hz | 1 kHz | 10 kHz | 100 kHz | | | | | | | |
| 501-27592-01 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±2 | ±5E-9, 0° to +50°C | +15 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-02 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±2 | ±1E-8, -20° to +70°C | +15 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-11 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±2 | ±5E-9, 0° to +50°C | +15 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-12 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±2 | ±1E-8, -20° to +70°C | +15 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-21 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±2 | ±5E-9, 0° to +50°C | +12 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-22 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±2 | ±1E-8, -20° to +70°C | +12 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-31 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±2 | ±5E-9, 0° to +50°C | +12 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-32 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±2 | ±1E-8, -20° to +70°C | +12 | 5E-10, typ | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-41 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±2 | ±5E-9, 0° to +50°C | +15 | 3E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-42 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±2 | ±1E-8, -20° to +70°C | +15 | 3E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-51 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±2 | ±5E-9, 0° to +50°C | +15 | 3E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27592-52 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±2 | ±1E-8, -20° to +70°C | +15 | 3E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27601-01 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±3 | ±5E-9, 0° to +50°C | +15 | 1E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27601-02 | 10 | -140 | -157 | -169 | -172 | -172 | +13 ±3 | ±1E-8, -20° to +70°C | +15 | 1E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27601-11 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±3 | ±5E-9, 0° to +50°C | +15 | 1E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |
| 501-27601-12 | 10 | -145 | -160 | -172 | -174 | -174 | +13 ±3 | ±1E-8, -20° to +70°C | +15 | 1E-10, gtd | 10, LBW=1Hz | SMA(f) & Pins on Side | 2.5 x 3.5 x 0.8 |

* Consult factory for custom frequency, phase noise performance, output level, temperature stability and acceleration sensitivity options.

* * See website for additional Standard Part Numbers and Specifications.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