Dynamic Engineers Inc.
2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA
TEL: 1-281-870-8822 EMAIL:Sales@DynamicEng.com

**OCXO3312C-16.8MHz-B-V**
Low Power and Phase Noise Minature OCXO

## Features and Benefits

Miniature DIP8 sizes
Very low power consumption (up to 0.18W at +25°C)
High frequency stability (up to ±50 ppb over -30°C +70°C)
Very fast warm-up time (60 s typical)
Low phase-noise level (-172dBc/Hz)
Low aging (up to 0.5 ppb/day, 50 ppb / year)
Sinewave output available

## Typical Applications

Portable Wireless Communications
Mobile Test Equipment
Beacons & Rescue Systems+
Battery Powered Applications

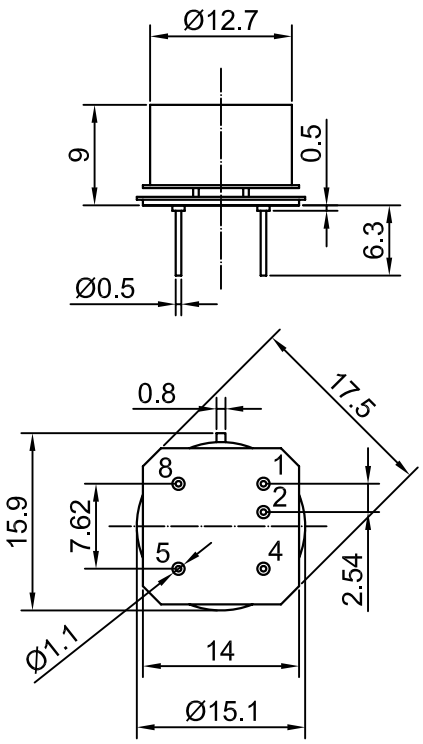
## Description

The OCXO3321C series ovenized oscillator employs a direct heated crystal process which delivers very fast warm-up time, excellent phase noise and frequency long term stability in a very small industry-standard package. The OCXO3312C is excellent solution for various portable and / or battery fed applications with elevated requirements to frequency stability and phase-noise of the OCXO.

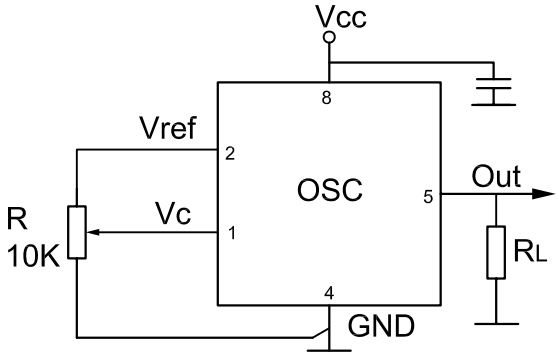
## Mechanical Drawing & Pin Connections

Drawing No:MD140077-3

**Physical dimensions**




**Schematic connections**




| Pin | Signal |
|---|---|
| 1 | Electrical tuning |
| 2 | Reference voltage |
| 4 | GND |
| 5 | RF Out |
| 8 | +V Supply |

**Unit : mm**
**1mm=0.0394 inch**

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## Specifications

| Oscillator Specification | | Sym | Condition | Value Min. | Value Typ. | Value Max. | Unit | Note |
|---|---|---|---|---|---|---|---|---|
| Operational Frequency | | $F_0$ | | | 16.8 | | MHz | |
| **RF Output** | | | | | | | | |
| Sine Wave | Level | L | | +6 | | | dBm | |
| | Load | $R_L$ | | | 50 | | Ohm | |
| | Harmonics | | | | | -25 | dBc | |
| Sub-harmonics Level | | | | | None | | | |
| **Power Supply** | | | | | | | | |
| Voltage | | $V_{cc}$ | | | 3.30 | | V | ±5% |
| Power Consumption | | $I_{Warm-up}$ | Warm-up Steady-state @+25°C | | 0.7<br>0.18 | | W | |
| Warm-up time | | $t_{up}$ | $_{\Delta}f/f_0$ = 1e$^{-7}$ at +25°C | 15 | 60 | | s | Ref. frequency after 10 min |
| **Frequency Control** | | | | | | | | |
| Control Voltage | | $V_c$ | $V_{cc}$ = 3.3 V | 0 | | 2.8 | V | Tuning slope posiitve |
| Tuning Range | | | | ±0.5 | ±1.0 | | ppm | |
| Reference Voltage | | $V_{ref}$ | $V_{cc}$= 3.3 V | 2.7 | 2.8 | 2.9 | V | |
| **Frequency Stability** | | | | | | | | |
| VS. Operating Temperature Range | | | Over -30°C to +70°C | ±50 | | | ppb | Ref @ 25°C |
| VS.Supply Voltage Change | | | Ref. $V_{CC}$typ | | ±2.0 | | ppb | |
| VS.Acceleration | | | Worst Direction | ±0.5 | | ±1.0 | ppb/G | |
| Allan Variance | | | 1s | 10 | 20 | | e$^{-12}$ | |
| Aging | Per Day | | After 30 days of operation | | ±0.5 | | ppb | |
| | Per Year | | | | ±50 | | ppb | |
| **Phase Noise** | | | | | | | | |
| Phase noise | | | 1Hz | -105 | | -95 | dBc/Hz | @ 10 MHz |
| | | | 10 Hz | -135 | | -125 | | |
| | | | 100 Hz | -158 | | -145 | | |
| | | | 1 KHz | -165 | | -155 | | |
| | | | 10 KHz | -170 | | -165 | | |
| | | | 100 KHz | -172 | | -168 | | |

| **Environmental Conditions** | |
|---|---|
| **Parameter** | **Reference Std.** |
| Operating temperature range | -30°C to +70°C |
| Storage temperature range | -60°C to +90°C |
| Humidity | Non-condensing 95% |
| Mechanical Shock | Per MIL-STD-202, 30G half sine pulse, 11ms |
| Vibration | Per MIL-STD-202, 10G swept sine 10 to 2000 Hz |
| Soldering Conditions | Hand solder only – not reflow compatible. 260°C 10s (on pins) |