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

**OCXO3313C**
Low Power and Phase Noise Miniature OCXO

## Features and Benefits

Miniature DIP8 sizes
Very low power consumption (to 0.15W at +25 °C)
High frequency stability (to ± 5ppb over -40°C to 85°C)
Very fast warming-up (to 15s)
Low phase-noise level (-173dBc/Hz, floor)
Low aging (to ± 0.2ppb/day, ± 30ppb/year)
Fundamental operation at up to 150MHz

## Description

The OCXO3313C series ovenized oscillator employs a directly heated crystal process which delivers very fast warm- up, excellent phase noise and frequency long term stability in a very small industry-standard package. The OCXO3313C is excellent solution for various portable or/and battery fed applications with elevated requirements to frequency stability and phase-noise of the OCXO.

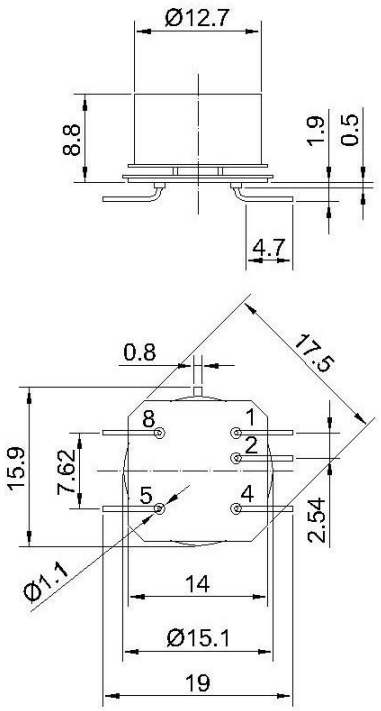
## Typical Applications

Portable Wireless Communications
Mobile Test equipment
Beacons & Rescue systems
Battery Powered Applications

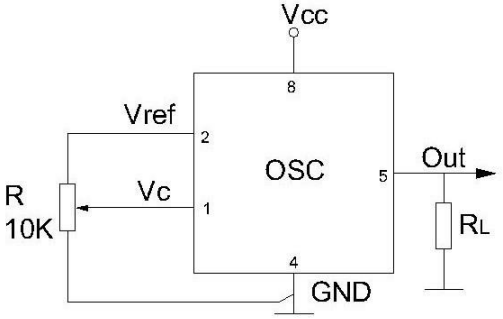
## Mechanical Drawing & Pin Connections

Drawing No: **MD140077-2**

**Physical dimensions**




**Schematic connections**




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

**Unit : mm**

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# Specifications

| OCXO Specificat | | Sym | Condition | Value Min. | Value Typ. | Value Max. | Unit | Note |
|---|---|---|---|---|---|---|---|---|
| Frequency Range | | $F_0$ | | 8 | | 150 | MHz | |
| **RF Output** | | | | | | | | |
| HCMOS (TTL) Option | Load | | | 10 | | | kOhm | |
| | | | | | | 15 | pF | |
| | H-level Voltage | $V_H$ | | 3.8 | | | V | |
| | L-level Voltage | $V_L$ | | | | 0.4 | V | |
| | Duty Cycle | | | 45 | | 55 | % | |
| | Rise/Fall Time | | | | | 10 | ns | For 10MHz optional frequency |
| Sine Wave Option | Level | L | | +6 | +8 | +10 | dBm | |
| | Load | $R_L$ | | | 50 | | Ohm | |
| | Harmonics Level | | | | | -25 | dBc | |
| Sub-harmonics Level | | | | | None | | | |
| **Power Supply** | | | | | | | | |
| Voltage | | $V_{cc}$ | | 4.75 | 5.0 | 5.25 | V | 3.3V available |
| Power Consumption | | $I_{Warm-up}$ | Warm-up state | | 0.7 | | W | |
| | | | Steady state, +25°C | | 0.15 | | W | |
| Warm-up Time | | $t_{up}$ | $\triangle f/f_0$ = 1e-7 at 25°C | 15 | 45 | | s | ref. to frequency after 10 min |
| **Frequency Control** | | | | | | | | |
| Control Voltage Range | | $V_c$ | @ $V_{cc}$ = 5V | 0 | | 4.2 | V | Tuning slope – positive (standard option) |
| | | | @ $V_{cc}$ = 3.3V | 0 | | 2.8 | V | |
| Tuning Range | | | | +/-0.5 | +/-1 | | ppm | |
| Reference Voltage | | $V_{ref}$ | @ $V_{cc}$ = 5V | 4.1 | 4.2 | 4.3 | V | |
| | | | @ $V_{cc}$ = 3.3V | 2.7 | 2.8 | 2.9 | V | |
| **Frequency Stability** | | | | | | | | |
| vs. Temperature | | | -40°C to +85°C, ref. 25°C | | | +/-5 | ppb | For more information, please consult sale |
| vs. Supply Voltage | | | Ref. $V_{cc}$ typ. | | +/-2 | | ppb | |
| vs. Acceleration | | | Worst direction | +/-0.5 | | +/-1 | ppb/G | |
| Aging | Per Day | | After 30 days of operation | | +/-0.5 | | ppb | For more information, please consult sale |
| | First Year | | | | +/-0.05 | | ppm | |
| **Phase Noise** | | | | | | | | |
| Phase Noise | | | 1Hz | -100 | -95 | | dBc/Hz | For 10MHz operational frequency |
| | | | 10Hz | -130 | -125 | | | |
| | | | 100Hz | -150 | -145 | | | |
| | | | 1kHz | -160 | -155 | | | |
| | | | 10kHz | -170 | -165 | | | |
| | | | 100KHz | -173 | -168 | | | |
| Allan Variance | | | 1s | | 20 | | e-12 | |
| **Environmental** | | | | | | | | |
| Operating Temperature Range | | -40°C to +85°C | | | | | | |
| Storage Temperature Range | | -60°C to +90°C | | | | | | |
| Humidity | | Non-condensing 95% | | | | | | |
| Mechanical Shock | | Per MIL-STD-202, 30G half sine pulse, 11ms (500G, 1ms-special option) | | | | | | |
| Vibration | | Per MIL-STD-202, 10G swept sine 10 to 2000Hz | | | | | | |
| Soldering Conditions | | Hand solder only – not reflow compatible. 260°C 10s (on pins) | | | | | | |