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

**OCXO2525C_Rev2**
Low phase-noise high stability OCXO

DEI P/N: OCXO2525C_Rev2

Nominal Freq.: 5 ~ 150 MHz

GSL P/N:

Revision: 01

Date: 2017.01.10

| Approved / Date | Checked / Date | Prepared / Date |
|---|---|---|
| Greg/2017.01 | David/2017.01.10 | Catherine/2017.01.10 |

Customer:

Customer P/N: N/A

# REVISION HISTORY (OCXO2525C_Rev2)

| Revision # | Revised Page(s) | Revision Content | Date | Ref Number | Revision Requested by | Reviser |
|---|---|---|---|---|---|---|
| 1 | | Initial Release | 01/10/17 | N/A | Greg | Catherine |
| | | | | | | |
| | | | | | | |

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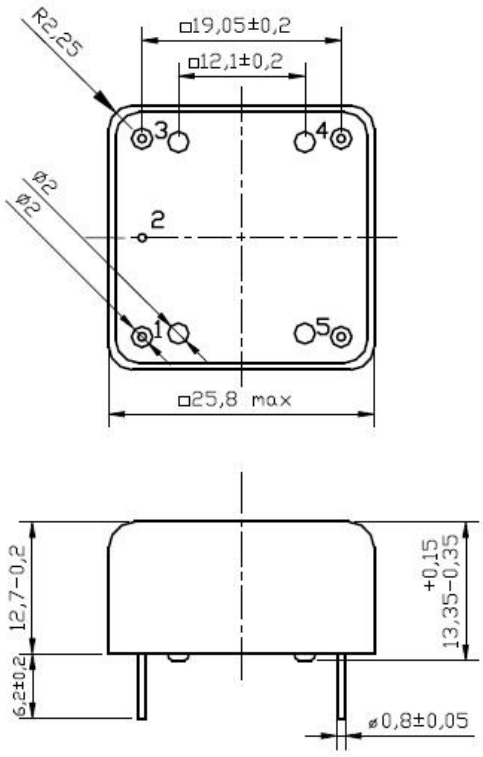
## Features and Benefits
Very low phase noise up to -175 dBc/Hz, floor
High temperature stability up to ±1 ppb at -40°C to +85°C
Low aging up to ±0.2 ppb/day, 20 ppb/year
Compact packaging
Frequency range from 5 MHz to 150 MHz

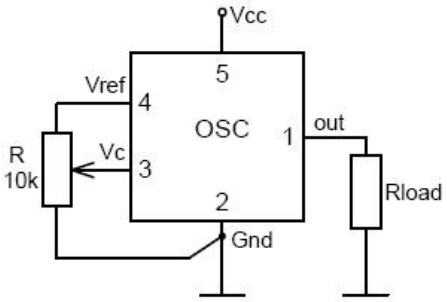
## Typical Applications
Stratum 3E clock systems
Cellular Base Station
Microwave Communications
Radar Reference
Instrumentation

## Description
A new series of low phase-noise OCXO with high temperature stability for optimal performance.

## Mechanical Drawing & Pin Connections

Drawing No:MD140078-1




| Pin | Signal |
|---|---|
| 1 | RF Out |
| 2 | GND |
| 3 | Electrical tuning |
| 4 | Reference voltage |
| 5 | +V Supply |

* - 10.7 mm height is available

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## Specifications

| General Specifications | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | | Sym | Condition | Value | | | Unit | Note |
| | | | | Min. | Typ. | Max | | |
| **Frequency Range** | | $F_0$ | | 5 | | 150 | MHz | Fundamental operation |
| **RF Output** | | | | | | | | |
| **HCMOS (TTL) option** | **Load** | | | 10 | | 15 | kOhm pF | For 10 MHz operational frequency |
| | **H-level voltage** | $V_H$ | $V_{cc}$=5V or 12V<br>$V_{cc}$=3.3V | 3.8<br>2.4 | | | V | |
| | **L-level voltage** | $V_L$ | | | | 0.4 | V | |
| | **Duty Cycle** | | | 45 | | 55 | % | |
| | **Rise / Fall Time** | | | | | 10 | ns | For 10 MHz operational frequency |
| **Sine-wave option** | **Level** | L | | +6 | +8 | +10 | dBm | |
| | **Load** | $R_L$ | | | 50 | | Ohm | |
| | **Harmonics level** | | | | | -30 | dBc | |
| **Spurious level** | | | | | | -100 | dBc | |
| **Frequency Control*** | | | | | | | | |
| **Control Voltage Range** | | $V_c$ | $V_{cc}$=5V or 12V<br>$V_{cc}$=3.3V | 0<br>0 | | 4.2<br>2.8 | V | Positive tuning slope – (standard option) |
| **Tuning Range** | | | | ±0.5 | ±1 | | ppm | |
| **Reference voltage** | | $V_{ref}$ | $V_{cc}$=5V or 12V<br>$V_{cc}$=3.3V | 4.1<br>2.7 | 4.2<br>2.8 | 4.3<br>2.9 | V | |
| **Frequency Stability** | | | | | | | | |
| **Vs. temperature** | | | -40°C to+85°C, ref 25°C | | ±10 | | ppb | See chart below |
| **Vs. supply voltage** | | | Ref $V_{cc}$ typ. | | ±1 | | ppb | |
| **Vs. acceleration** | | | Worst direction | ±0.5 | | ±1 | ppb/G | |
| **Power Supply** | | | | | | | | |
| **Voltage** | | $V_{CC}$ | | 4.75 | 5.0 | 5.25 | V | 3.3V, 12V optional |
| **Power Consumption** | | | Warm-up state<br>Steady state, +25°C | | 3.2<br>1 | 3.5<br>1.2 | W<br>W | |
| **Warm-up time** | | $t_{up}$ | to Δf/f = 1e-7, at +25°C | | | 180 | Sec | Ref to frequency after 30 min |
| **SSB Phase Noise** | | | 1 Hz | -106/- | -100/- | | dBc/Hz | For 10 MHz /100 MHz operational frequency |
| | | | 10 Hz | -135/-95 | -125/-90 | | | |
| | | | 100 Hz | -155/-130 | -145/-120 | | | |
| | | | 1 kHz | -163/-155 | -155/-150 | | | |
| | | | 10 kHz | -170/-170 | -165/-165 | | | |
| | | | 100 kHz | -172/-175 | -168/-168 | | | |
| **Allan variance** | | | 1s | 5 | 10 | | e-12 | |
| **Aging** | Per day | | After 30 days of operation | 0.2 | 0.5 | | ppb | For 10 MHz See chart below |
| | First year | | | 20 | 50 | | ppb | |
| | For 20 years | | | 0.3 | 0.5 | | ppm | |

| Environmental, mechanical conditions. | |
|---|---|
| **Operating temperature range** | See chart below |
| **Storage temperature range** | -60°C to +90°C |
| **Humidity** | Hermetically sealed |
| **Mechanical Shock** | Per MIL-STD-202, 30G half sine pulse, 11ms |
| **Vibration** | Per MIL-STD-202, 10G swept sine 10 to 2000Hz |
| **Soldering Conditions** | Hand solder only – not reflow compatible 260°C 10s (on pins) |
| **Washing Conditions** | Washing with water or alcohol based detergent allowed only with final enough drying stage |

* No frequency control option – on customer requirement

**Ordering Code**

| OCXO2525C_Rev2 | - | 2 | 6 | 4 | 2 | 1 | - | 10 MHz |
|---|---|---|---|---|---|---|---|---|
| Group | | 1 | 2 | 3 | 4 | 5 | | |

For example, OCXO2525C_Rev2-26421-10MHz denotes the OCXO has the following specifications:

| | |
|---|---|
| Temperature Range | -10°C to +60°C |
| Stability Over Temperature | ±10ppb |
| Aging per day / year | 1.0ppb / 0.10 ppm |
| Supply Voltage | 3.3V ±10% |
| Output | HCMOS/TTL |
| Frequency | 10MHz |

| **1** | **Temperature Range** |
|---|---|
| Code | Specification |
| 1 | 0°C..+50°C |
| 2 | -10°C..+60°C |
| 3 | 0°C..+70°C |
| 4 | -20°C..+70°C |
| 5 | -30°C..+70°C |
| 6 | -40°C..+85°C |
| 7 | -55°C..+85°C |
| 8 | -40°C..+125°C |

| **2** | **Stability Over Temperature** | | |
|---|---|---|---|
| Code | Specification | Available temperature range code | |
| | | For 10 MHz | For 100 MHz |
| 1 | ±0.5 ppb | 1, 2 | - |
| 2 | ±1.0 ppb | 1, 2, 3, 4, 5, 6 | - |
| 3 | ±2.0 ppb | 1, 2, 3, 4, 5, 6 | - |
| 4 | ±3.0 ppb | 1, 2, 3, 4, 5, 6, 7 | 1 |
| 5 | ±5.0 ppb | 1, 2, 3, 4, 5, 6, 7 | 1, 2, 3, 4, 5, 6 |
| 6 | ±10.0 ppb | 1, 2, 3, 4, 5, 6, 7 | 1, 2, 3, 4, 5, 6, 7 |
| 7 | ±20.0 ppb | 1, 2, 3, 4, 5, 6, 7, 8 | 1, 2, 3, 4, 5, 6, 7 |
| 8 | ±50.0 ppb | 1, 2, 3, 4, 5, 6, 7, 8 | 1, 2, 3, 4, 5, 6, 7 |
| 9 | ±100.0 ppb | 1, 2, 3, 4, 5, 6, 7, 8 | 1, 2, 3, 4, 5, 6, 7 |

| **3** | **Aging per day/year, ppb/ppm** | |
|---|---|---|
| Code | Specification | |
| 1 | 0.2/0.02 | ≤10MHz |
| 2 | 0.3/0.03 | |
| 3 | 0.5/0.05 | ≤20MHz |
| 4 | 1.0/0.10 | ≤40MHz |
| 5 | 1.5/0.15 | ≤50MHz |
| 6 | 2.0/0.20 | ≤120MHz |
| 7 | 3.0/0.30 | |
| 8 | 5.0/0.50 | ≤150MHz |

| **4** | **Supply voltage** |
|---|---|
| Code | Specification |
| 1 | 5V ±5% |
| 2 | 3.3V ±5% |
| 3 | 12V ±10% |

| **5** | **Output** |
|---|---|
| Code | Specification |
| 1 | HCMOS/TTL |
| 2 | Sine wave |

Disclaimer: Not all option choices available across entire frequency range

Please contact Dynamic Engineers Inc. for further details.