



Features and Benefits

Ultra-high stability up to $\pm 5 \times 10^{-11}$ at -30°C to $+70^{\circ}\text{C}$
 Very low aging up to $\pm 1 \times 10^{-10}$ /day, 1.5×10^{-8} /year
 Low phase-noise level at -165 dBc/Hz , TYP floor
 Excellent Allan variance, 1s to 1×10^{-12}
 Small size packaging

Typical Applications

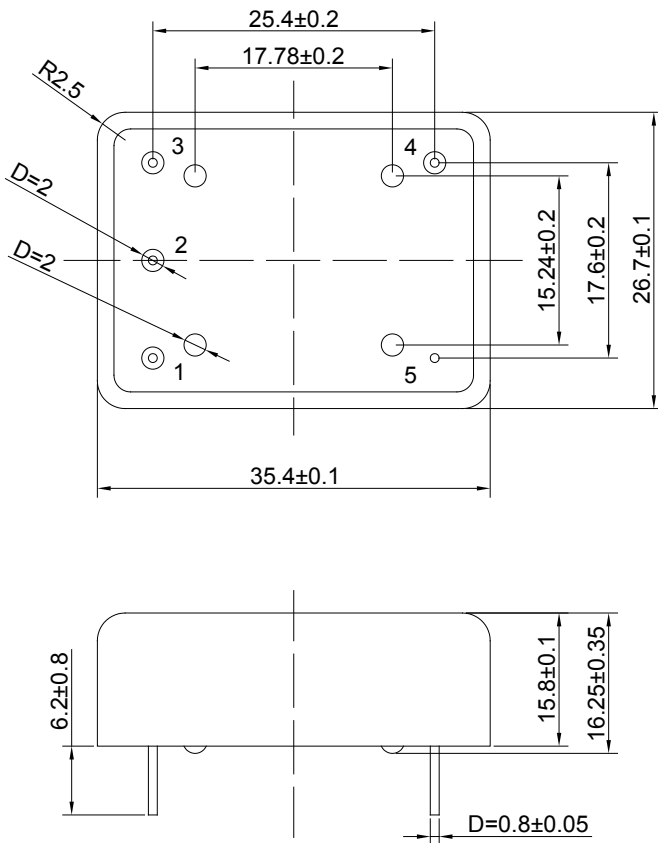
Rubidium Standard Replacement
 Stratum 2 Clock Systems
 Instrumentation
 GPS Receivers

Description

A contemporary series of ultra-stable double oven OCXO with the latest circuit topologies.

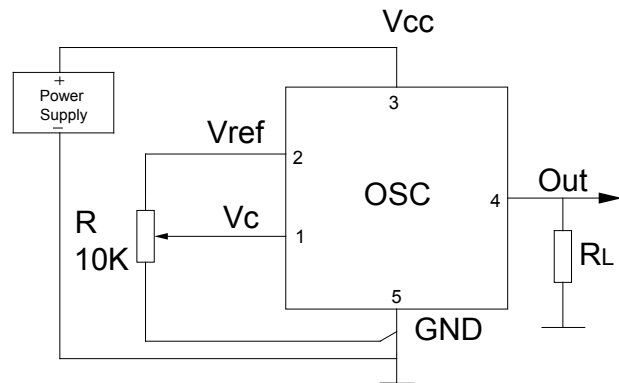
Mechanical Drawing & Pin Connections

Drawing No: MD140079-2



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

Unit : mm
 1mm=0.0394inch



R - precision resistor with low TCR



Specifications

| General Specifications | | | | | | | |
|------------------------|------------------|--|------------|------------|------------|------------|----------------------------------|
| Parameter | Sym | Condition | Value | | | Unit | Note |
| | | | Min. | Typ. | Max | | |
| Frequency Range | F ₀ | | 5 | | 100 | MHz | |
| RF Output | | | | | | | |
| HCMOS (TTL) option | Load | | 10 | | 15 | kOhm pF | For 10 MHz operational frequency |
| | 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 10 MHz operational frequency |
| Sine-wave option | Level | L | +6 | +8 | +10 | dBm | |
| | Load | R _L | | 50 | | Ohm | |
| | Harmonics level | | | | -30 | dBc | |
| Sub-harmonics level | | Operational frequency < 30 MHz Operational frequency ≥ 30 MHz | | None - | - | dBc | Frequency multiplier is used |
| Frequency Control* | | | | | | | |
| Control Voltage Range | V _c | V _{cc} =5 or 12V V _{cc} =3.3V | 0 0 | | 4.2 2.8 | V | Tuning slope - positive |
| Tuning Range | | | ±0.3 | ±0.4 | | ppm | |
| Reference voltage | V _{ref} | V _{cc} =5 or 12V V _{cc} =3.3V | 4.0 2.7 | 4.2 2.8 | 4.3 2.9 | V | |
| Frequency Stability | | | | | | | |
| Vs. temperature | | -40°C to +85°C, ref 25°C | ±0.1 | | | ppb | See chart below |
| Vs. supply voltage | | Ref V _{cc} typ. | ±0.1 | | | ppb | |
| Power Supply | | | | | | | |
| Voltage | V _{CC} | | 4.75 | 5.0 | 5.25 | V | 3.3, 12V supply available |
| Power Consumption | | Warm-up state Steady state, +25°C | | 5 1.25 | 1.5 | W W | |
| Warm-up time | t _{up} | to Δf/f = 1e-8 at +25°C | | | 5 | min | Ref to frequency after 30 min |
| SSB Phase Noise | | 1 Hz | | -100 | | dBc/Hz | For 10 MHz operational frequency |
| | | 10 Hz | | -130 | | | |
| | | 100 Hz | | -147 | | | |
| | | 1 kHz | | -155 | | | |
| | | 10 kHz | | -165 | | | |
| Allan variance | | 1s | 1 | | | e-12 | |
| Aging | Per day | After 30 days of operation | ±0.1 | | | ppb | See chart below |
| | First year | | ±15 | | | ppb | |
| | For 10 years | | ±0.3 | | | 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, 5G swept sine 10 to 500Hz |
| 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

| | | | | | | | | |
|------------|---|---|---|---|---|---|---|--------|
| DOCXO3627C | - | 2 | 3 | 4 | 1 | 1 | - | 10 MHz |
| | | 1 | 2 | 3 | 4 | 5 | | |

For example, DOCXO3627C-23411-10MHz denotes the OCXO has the following specifications:

| | |
|----------------------------|--------------------|
| Temperature Range | -10°C to +60°C |
| Stability Over Temperature | ±2e ⁻¹⁰ |
| Aging per day / year | 0.5ppb / 0.005 ppm |
| Supply Voltage | 5V ±5% |
| Output | HCMOS |
| 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 |

| 2 | Stability Over Temperature | |
|------|----------------------------|----------------------------------|
| Code | Specification | Available temperature range code |
| 1 | ±5e-11 | 1, 2, 3, 4, 5 |
| 2 | ±1e-10 | 1, 2, 3, 4, 5, 6 |
| 3 | ±2e-10 | 1, 2, 3, 4, 5, 6 |
| 4 | ±3e-10 | 1, 2, 3, 4, 5, 6 |
| 5 | ±5e-10 | 1, 2, 3, 4, 5, 6 |
| 6 | ±1e-9 | 1, 2, 3, 4, 5, 6 |

| 3 | Aging per day/year, ppb/ppm |
|------|-----------------------------|
| Code | Specification |
| 1 | 0.1/0.015 |
| 2 | 0.2/0.020 |
| 3 | 0.3/0.030 |
| 4 | 0.5/0.005 |
| 5 | 1.0/0.100 |
| 6 | 1.5/0.150 |
| 7 | 2.0/0.200 |
| 8 | 3.0/0.300 |

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

| 5 | Output |
|------|-----------------------|
| Code | Specification |
| 1 | HCMOS |
| 2 | Sine wave + 6 dBm min |

*for 10 MHz operational frequency

Deviations of the parameters may be possible on Customer's requirements
 Please contact Dynamic Engineers Inc. for further details.