



Features and Benefits

Temperature stability to 10 ppb at -40°C to +125°C
 Low aging up to ±0.3ppb/day, 30 ppb/year
 Low noise level up to -170dBc/Hz@100kHz
 Frequency range from 8 to 30 MHz
 Allan Variance up to ±5x10⁻¹²/s

Typical Applications

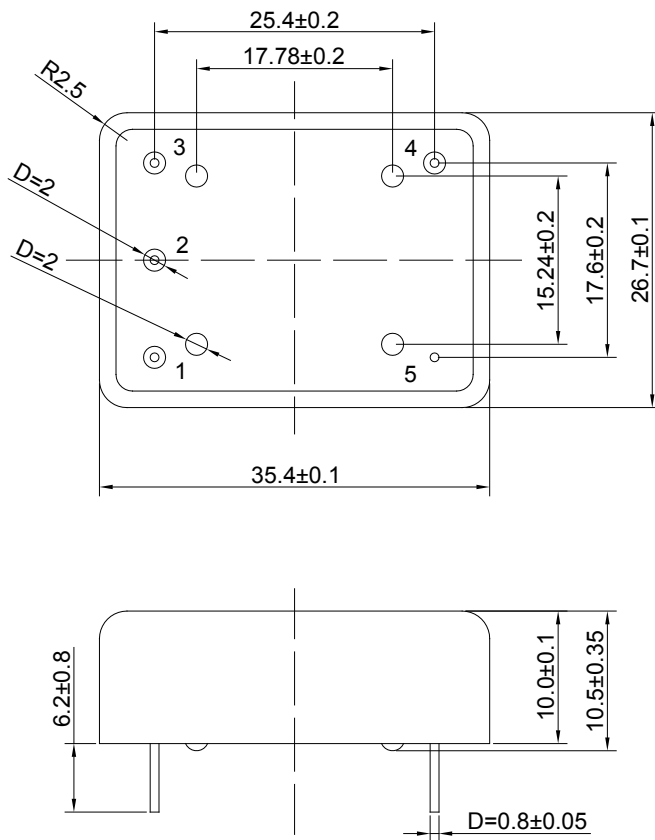
Stratum 3 Clock Systems
 Microwave Communications
 Cellular Base Stations
 Radar reference
 Instrumentation

Description

A new series of high-temperature high stability OCXO with low phase noise for rigorous environment.

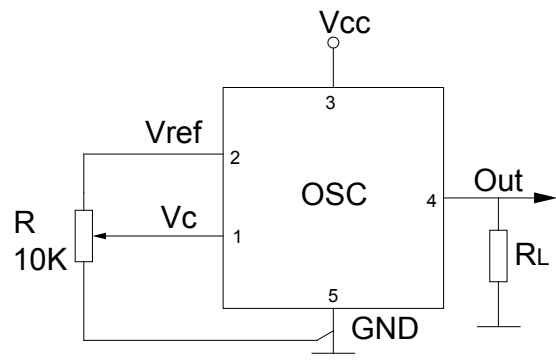
Mechanical Drawing & Pin Connections

Drawing No:MD140079-1



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

Unit : mm
 1mm=0.0394



Packaging available:
 35X26X10.5(12.5, 13.2)mm



Specifications

| General Specifications | | | | | | | |
|------------------------|------------------|--|------------|------------|------------|-------------------|---|
| Parameter | Sym | Condition | Value | | | Unit | Note |
| | | | Min. | Typ. | Max | | |
| Frequency Range | F ₀ | | 8 | | 30 | MHz | Fundamental |
| RF Output | | | | | | | |
| HCMOS (TTL) option | Load | | 10 | | 15 | kOhm 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 10 MHz operational frequency |
| Sine-wave option | Level | L | +6 | +8 | +10 | dBm | |
| | Load | R _L | | 50 | | Ohm | |
| | Harmonics level | | | | -6 | dBc | |
| Sub-harmonics level | | | None | | | | |
| Frequency Control* | | | | | | | |
| Control Voltage Range | V _c | V _{cc} =5V V _{cc} =3.3V | 0 0 | | 4.2 2.8 | V | Positive tuning slope (standard option) |
| Tuning Range | | | ±0.35 | ±1.00 | | ppm | |
| Reference voltage | V _{ref} | V _{cc} =5V V _{cc} =3.3V | 4.1 2.7 | 4.2 2.8 | 4.3 2.9 | V | |
| Frequency Stability | | | | | | | |
| Vs. temperature | | -40°C to +125°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 supply available |
| Power Consumption | | Warm-up state | | 3.2 | 3.5 | W | |
| | | Steady state, +25°C | | 1.3 | 1.5 | 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 | -110 | -100 | | dBc/Hz | For 10 MHz operational frequency |
| | | 10 Hz | -135 | -125 | | | |
| | | 100 Hz | -155 | -145 | | | |
| | | 1 kHz | -163 | -155 | | | |
| | | 10 kHz | -170 | -168 | | | |
| | | 100 kHz | -170 | -170 | | | |
| Allan variance | | 1s | 5 | | | 10 ⁻¹² | |
| Aging | Per day | After 30 days of operation | 0.3 | 0.5 | | ppb | See chart below |
| | First year | | 30 | 50 | | ppb | |
| | For 20 years | | | 0.5 | | ppm | |



| Environmental, mechanical conditions. | |
|---------------------------------------|--|
| Operating temperature range | See chart below |
| Storage temperature range | -60°C to +125°C |
| Humidity | Hermetically sealed |
| Mechanical Shock | Per MIL-STD-202, 30G half sine pulse, 11ms (500G 1ms – optional) |
| Vibration | Per MIL-STD-202, 10G swept sine 10 to 2000Hz |
| Soldering Conditions | Hand solder only – not reflow compatible 260°C 10s (on pins) |

* No frequency control option – on customer requirement

Ordering Code

| | | | | | | | | |
|-------------|---|---|---|---|---|---|---|--------|
| ETOCXO3526C | - | 1 | 3 | 4 | 2 | 1 | - | 10 MHz |
| | | 1 | 2 | 3 | 4 | 5 | | |

For example, ETOCXO3526C-13421-10MHz denotes the OCXO has the following specifications:

| | |
|----------------------------|------------------|
| Temperature Range | -40°C to +125°C |
| Stability Over Temperature | ±30ppb |
| Aging per day / year | 1.5ppb / 0.15ppm |
| Supply Voltage | 3.3V ±10% |
| Output | HCMOS |
| Frequency | 10MHz |

| 1 | Temperature Range |
|------|-------------------|
| Code | Specification |
| 1 | -40°C..+125°C |

| 2 | Stability Over Temperature | |
|------|----------------------------|---|
| Code | Specification | Available temperature range code ±100ppb P: |
| 1 | ±10ppb | 1 |
| 2 | ±20ppb | 1 |
| 3 | ±30ppb | 1 |
| 4 | ±50ppb | 1 |
| 5 | ±100ppb | 1 |

| 3 | Aging per day/year, ppb/ppm |
|------|-----------------------------|
| Code | Specification |
| 1 | 0.3/0.03 |
| 2 | 0.5/0.05 |
| 3 | 1.0/0.10 |
| 4 | 1.5/0.15 |
| 5 | 2.0/0.20 |
| 6 | 3.0/0.30 |
| 7 | 5.0/0.50 |

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

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

*for 10 MHz operational frequency

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