

VFOV504

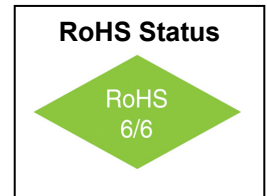
OCXO - Ultra Miniature, Ultra Low Power

HCMOS / SINE WAVE



Features

- 30MHz to 120MHz frequency range
 - Industry's smallest OCXO
 - Fastest warm-up (<30s)
 - < 120mW power consumption
- Sine wave or HCMOS output
- Low phase noise fundamental mode



Applications

- PLL Reference for Telecommunication Systems
- Microwave Communications / RADAR signal source
- Portable Equipment
- Instrumentation / Test and Measurement

Electrical Specifications

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|-----------------------------|-----------------|---|--------------|-------------------------------------|--------------------|------------|---|
| Frequency Range | F | | 30 | | 120 | MHz | |
| Frequency Stability | $\Delta F/F$ | Vs. Operating temp. E: -30°C to +70°C | | ± 50 | | ppb | STD option shown. See "How to Order" chart |
| | | Vs. Supply voltage | | ±5 | | ppb | Ref. V _{CC} typ. |
| | | Vs. Aging / Day Vs. Aging / Year | | 5 0.3 | | ppb ppm | after 30 days |
| Operating Temperature Range | T | | -30° | | +70° | °C | STD option shown. See "How to Order" chart |
| Allan Variance | | 1s | | 20E ⁻¹² | | | |
| SSB Phase Noise | | 10Hz 100Hz 1kHz 10kHz 100kHz | | -95 -125 -152 -160 -160 | | dBc/Hz | For 100MHz oscillator |
| Retrace | | after 30 min. | | | ±20 | ppb | |
| G-Sensitivity | | worst direction | | | ±1 | ppb/g | |
| Supply Voltage | V _{CC} | | 4.75 3.14 | 5.0 3.3 | 5.25 3.47 | V | |
| Power Consumption | P | steady state, 25°C steady state, -30°C start-up | | 0.12 1.2 0.7 | 0.23 1.5 1.0 | W | |
| Warm Up Time | τ | to 0.1ppm accuracy | | 30 | 60 | Sec. | Note 1 |

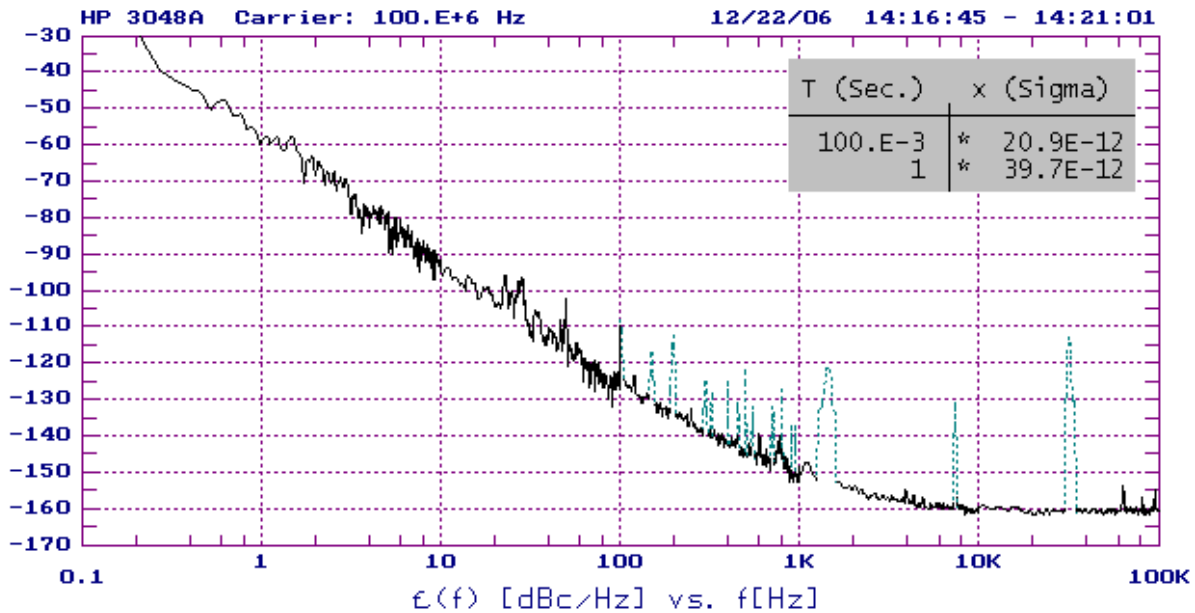
*Note 1: Warm up time is affected by input voltage, initial accuracy, frequency, aging and other conditions.

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Electrical Specifications

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|---------------------------|------------------|---|----------------|------------|-------------|-------|--------------|
| HCMOS / TTL Output Levels | | HCMOS/TTL | 10kOhms / 15pF | | | | Order Code H |
| | V _H | V _{CC} = 5.0V V _{CC} =3.3V | 3.9 2.4 | | | V | |
| | V _L | | | | 0.4 | V | |
| Rise / Fall time | | At 100MHz | | | 3 | ns | |
| Duty Cycle | | | 45 | | 55 | % | |
| Sine-Wave Output | | V _{CC} =5.0V | +6 | +8 | +10 | dBm | Order Code S |
| | | V _{CC} =3.3V | +3 | +5 | +7 | | |
| | R _L | | | 50 | | Ω | |
| Harmonics | | | | | -25 | dBc | |
| Sub-Harmonics | | | | | none | | Fundamental |
| Control Voltage | V _C | V _{CC} = 5V V _{CC} =3.3V | 0 0 | | 4.3 2.8 | V | |
| Pull Range | | from F _{NOM} | ±0.5 | ±1 | | ppm | |
| Deviation slope | | Monotonic, Positive | | 0.4 | | ppm/V | |
| Reference output | V _{REF} | V _{CC} = 5V V _{CC} =3.3V | 4.1 2.73 | 4.2 2.8 | 4.3 2.87 | V | |



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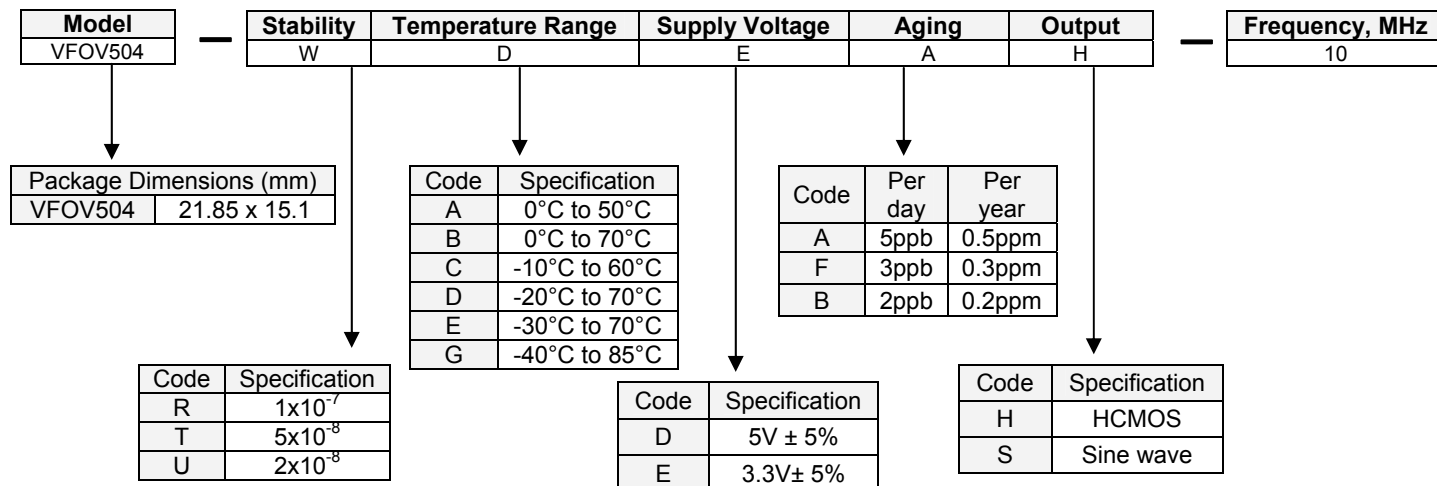
Absolute Maximum Ratings

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|---------------------------|----------|-----------|------|-----|---------------|------|------|
| Supply Break Down Voltage | V_{CC} | | -0.5 | | $V_{CC}+20\%$ | V | |
| Control Voltage | V_C | | -1 | | 9 | V | |

Environmental and Mechanical Conditions

| Parameter | Condition |
|----------------------|---|
| Storage Temperature | -60°C to +90°C |
| Humidity | Hermetically Sealed |
| Mechanical Shock | Per MIL-STD-202, 30g, half sine, 11ms |
| Vibration | Per MIL-STD-202, 10g swept Sine to 2000Hz |
| Soldering Conditions | 260°C for 10s. Hand solder only – not reflow compatible |
| Markings | Epoxy ink or laser engraved |

How to Order



Available Frequency Stabilities over Operating Temperature Ranges

| Order Code | Temperature Range | Stability | | |
|------------|-------------------|--------------------|--------------------|--------------------|
| | | 1×10^{-7} | 5×10^{-8} | 2×10^{-8} |
| A | 0°C to 50°C | * | * | * |
| B | 0°C to 70°C | * | * | |
| C | -10°C to 60°C | * | * | * |
| D | -20°C to 70°C | * | * | |
| E | -30°C to 70°C | * | * | |
| G | -40°C to 85°C | * | | |

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Package

