

RFPO60

The RFPO60 is from the world's first ASIC-based OCXO product family and utilizes Rakon's patented Mercury™ ASIC technology. It delivers temperature stability as low as ±10ppb (over -20 to 70°C) and is capable of short term aging of typically less than ±2ppb per day.

With a highly integrated oven included, the RFPO60 ensures short warm-up times and consumes very low power – only 350mW at room temperature. The ASIC architecture delivers a 1000x reliability improvement when compared to traditional discrete OCXOs. The RFPO60 is available in an industry standard, Dual-In-Line (DIL) package.

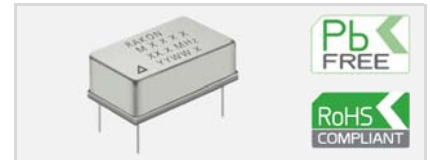
Features

- Frequency stability over temperature as low as ±10ppb over -20 to 70°C
- Low power consumption
- High reliability

Applications

- Base Stations
- Broadcasting
- Time & Frequency Reference
- Communications

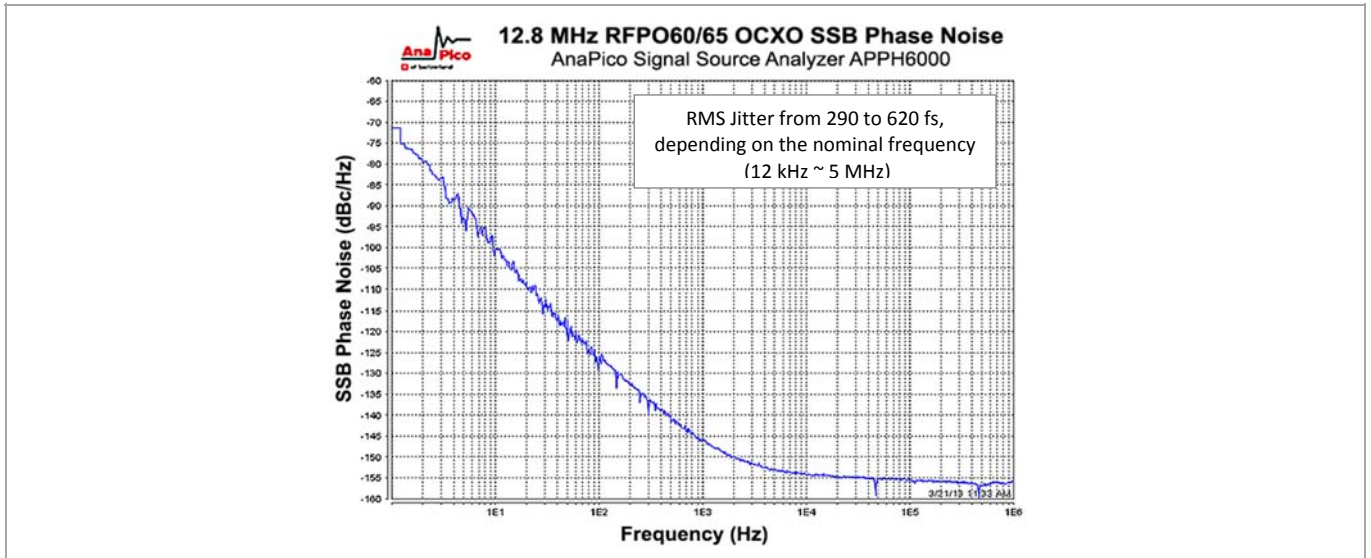
20.7 x 13.08 x 8.65 mm



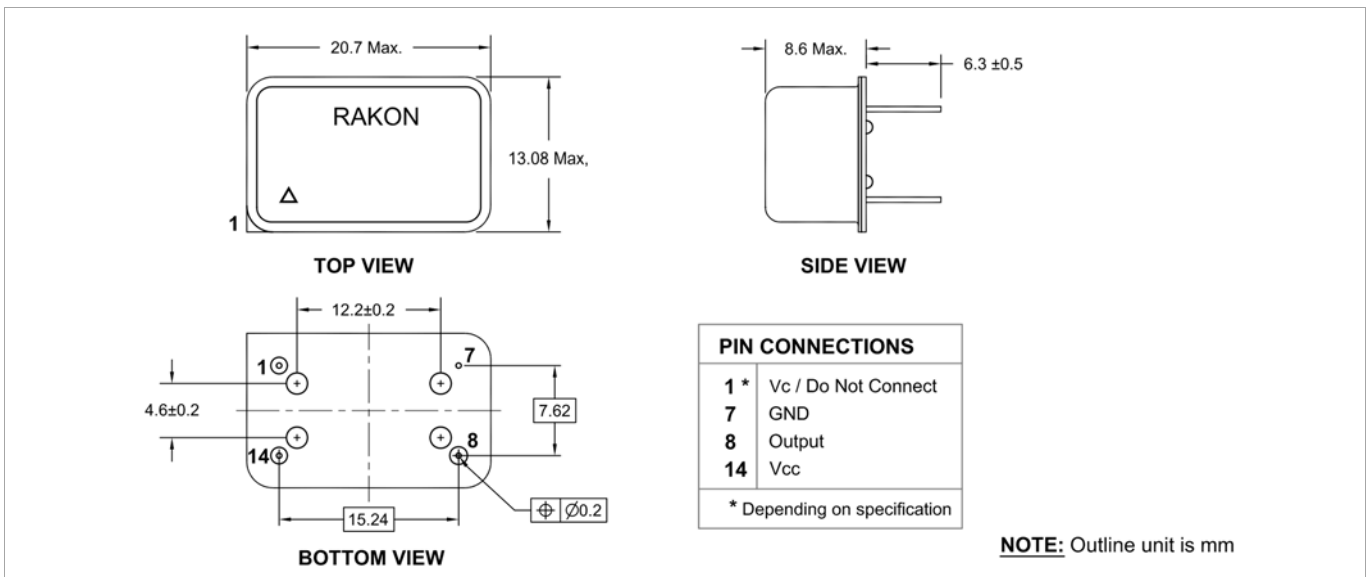
Standard Specifications

| Parameter | Min. | Typ. | Max. | Unit | Test Condition / Description |
|---|---------|---------------------|------------|---------|--|
| Nominal frequency | | 5 – 50 | | MHz | Standard frequencies: 10, 12.8, 19.2, 19.44, 20, 24.576, 25, 26, 30.72 and 40MHz |
| Frequency calibration | | | ±0.5 | ppm | Initial accuracy at 25°C ±2°C |
| Reflow shift | | | ±1 | ppm | Pre to post reflow ΔF (measured ≥ 60 minutes after reflow) |
| Frequency stability over temperature in still air | | | ±10 – ±100 | ppb | Reference to (FMAX + FMIN)/2 |
| Frequency slope ΔF/ΔT in still air | | | ±0.5 – ±2 | ppb/°C | Temperature ramp ≤ 1°C/minute |
| Operating temperature range | -40 | | 85 | °C | |
| Supply voltage stability | | ±10 | | ppb | ±5% variation, frequency ≤ 26MHz |
| Load sensitivity | | ±10 | | ppb | ±5pF / ±10% variation, frequency ≤ 26MHz |
| Warm-up time | | < 3 | | minutes | Time needed for frequency to be within ±20ppb reference to frequency after 1 hour, at 25°C. Parameter is frequency, assembly and operating history dependent |
| Acceleration sensitivity | | < 2 | | ppb/g | Gamma vector of all 3 axes, 30 to 1500Hz |
| Long term stability (ageing) | | < ±2 | | ppb | Per day (after 30 days of continuous operation) |
| | | | ±1 | ppm | First year |
| | | | ±3 | ppm | 10 years |
| Root Allan Variance (20MHz) | | 7.10 ⁻¹¹ | | | tau = 1.0s |
| Supply voltage (Vcc) | | 2.7 – 5.5 | | V | ±5% |
| Input power (warm up) | | 1000 | | mW | -40 to 85°C devices |
| | | 800 | | mW | -20 to 70°C devices |
| Input power (steady state in still air at 25°C) | | | 400 | mW | -40 to 85°C devices |
| | | | 350 | mW | -20 to 70°C devices |
| Control voltage (Vc) | | 0.5 – 2.5 | | V | The GND of Vc needs to be connected directly to pin 2 as ground lead impedance may cause performance degradation |
| Frequency tuning | | ±5 | | ppm | Reference to frequency at Vc=1.5V |
| Slope | | +8 | | ppm/V | |
| Linearity | | | 1 | % | Deviation from linear over control voltage range in accordance with MIL-PRF-55310 |
| Port input impedance | 80 | | | kΩ | |
| Modulation bandwidth | | 3.5 | | kHz | |
| Oscillator output – C/Sinewave | 0.8 | 1.1 | | Vpk-pk | At minimum supply voltage, 10kΩ//10pF load |
| Oscillator output – HCMOS | | | | | |
| Output voltage level high (VOH) | | | 10% Vcc | V | |
| Output voltage level high (VOL) | 90% Vcc | | | V | |
| Duty cycle | 45 | | 55 | % | At 50% level |
| Rise and fall times | | | 4 | ns | 10 to 90% |
| Load | 0 | 15 | 30 | pF | |

SSB Phase Noise (Typical Value at 25°C)



Model Outline and Recommended Pad Layout



Model Code Builder

