

9250

Low-Profile Military OCXO

KEY FEATURES

- 10 MHz Output
- $<3.0E-10$ Per Day Aging
- $\leq 2.0E-9$ per g Acceleration Sensitivity
- Low Phase Noise
- <0.9 Inches High

OPTIONS

Available options for this product include:

- Analog or I²C EFC input
- Low acceleration sensitivity of $\leq 3.0E-10$ per g

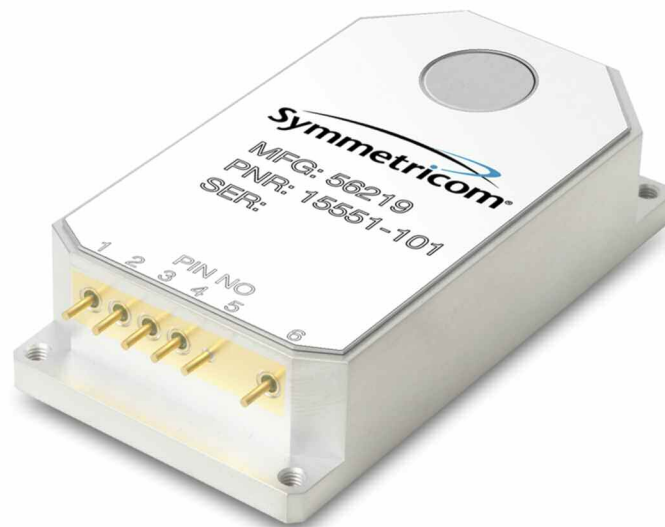
Contact Symmetricom to configure a 9250 oscillator that will meet your specific needs.

As the military moves toward implementing more advanced communications, navigation, and targeting systems, precision oscillators that can withstand a wide range of operating environments are becoming more critical.

The Symmetricom 9250 is a military OCXO designed for ground tactical and airborne applications where superior phase noise and frequency stability are required. Phase noise performance is critical in many radar applications, and precise frequency accuracy and stability are critical for secure communication and navigation applications.

The 9250 is based around an ovenized 10 MHz, 3rd-overtone SC-cut crystal resonator enclosed in a hermetically sealed 1.50" x 2.76" x 0.9" package. All inputs and outputs are accessible via feed-through pins on the side of the chassis. The small, low profile package allows for easy integration into complex subsystems where space is at a premium.

Symmetricom has achieved this low-profile package without sacrificing performance. The 9250 achieves -100 dBc phase noise at 1 Hz offset from the 10 MHz carrier. Its low-g acceleration sensitivity also means it will maintain low phase noise under challenging dynamic applications.



9250 SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

- Standard Output Frequency 10 MHz
- Initial Accuracy $\pm 5.0E-8$
- Format Sine wave
- Amplitude 7.0 dBm ± 1 dB
- Harmonic distortion < -30 dBc
- Non-harmonic distortion < -80 dBc
- Load impedance 50 Ω
- VSWR 1.5:1

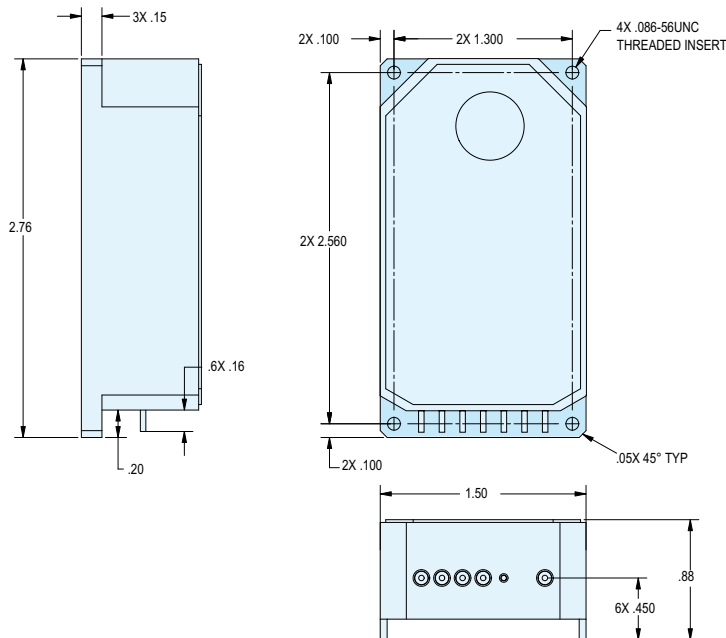
PERFORMANCE PARAMETERS

- Short-term stability
 - 1 second (Allan deviation): $< 1.0E-11$
 - 10 second (Allan deviation): $< 1.0E-11$
- SSB phase noise (static)
 - 1 Hz -100 dBc
 - 10 Hz -125 dBc
 - 100 Hz -140 dBc
 - 1 kHz -150 dBc
 - 10 kHz -155 dBc
 - 100 kHz -155 dBc
- Aging
 - Per day: $< 3.0E-10$
 - Per year: $< 4.0E-8$
 - 10 years: $< 1.0E-6$
- Frequency Retrace (after up to 24 hrs. off and 1 hour on at 25° C): $\pm 1.0E-8$
- Acceleration sensitivity
 - Per g, total gamma: $\leq 2.0E-9$
 - Low g option, total gamma $\leq 3.0E-10$
- Frequency change vs. Temperature
- -30° C to +70° C: $\pm 4.0E-8$
- Warm-up time from +25° C: ≤ 5 minutes to within $2.0E-8$ of final frequency
- Input Voltage
 - Range 12 to 15 Vdc
 - Sensitivity $< 1.0E-9$ for $\pm 5\%$ voltage change
- Steady-state power consumption: < 3 W
- Warm-up power consumption: 4 to 12 W
- Electronic Frequency Control (EFC) Range $\pm 5.0E-7$
 - EFC Input Analog (0 to 5 Vdc) or I²C
 - EFC Linearity 10% typical
- Load change sensitivity: $\pm 1.0E-9$ for $\pm 5\%$ load change

ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

- Operating Temperature: -40° C to +70° C
- Storage Temperature: -55° C to +100° C
- Operating Humidity: 95% RH up to 50° C
- Operating Altitude: 0 to 65,000 feet
- Random vibration
 - Operating (endurance): 35 g rms
- Shock: 20 g for 11 ms half-sine impulse
- EMI/EMC Performance: Contact Factory
- MTBF
 - 100,000 hours (ground fixed)
 - 45,000 hours (ground mobile)
- Reliability specification: MIL-HDBK-217F
- Weight: 0.09 kg

9250 OUTLINE DRAWING



9250 CONNECTION DESCRIPTIONS

PIN NO.	FUNCTION
1	EFC TUNING VOLTAGE INPUT
2	+ 12VDC to +15VDC
3	SCL
4	SDA
5	CHASSIS GND
6	10 MHZ SINE RF OUTPUT



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