

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

Available Options

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

Contact Microsemi 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 Microsemi® 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.

Symmetricon 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

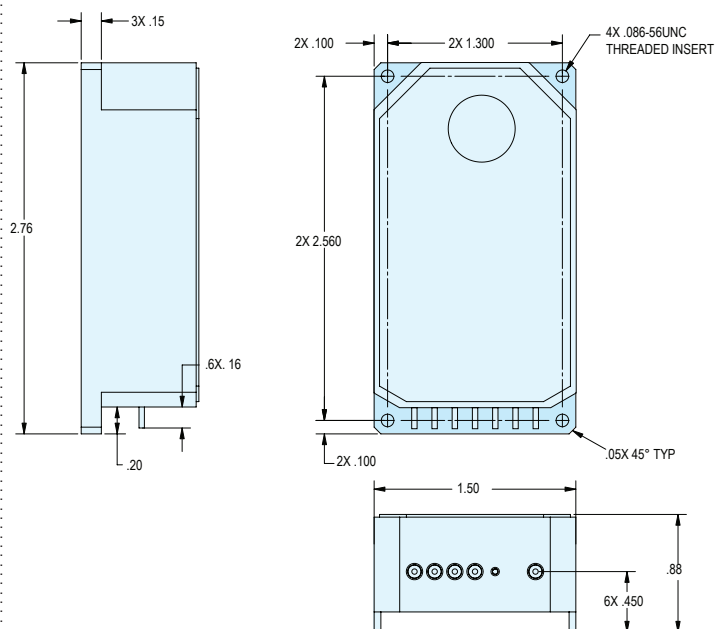
PERFORMANCE PARAMETERS

• 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 I ² C
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



Microsemi

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DS/9250/061014 900-00603-000 A