Symmetricom

9633

Ultra-miniature Military OCXO with Vibration Compensation

KEY FEATURES

- 10 MHz Output
- Electronic and Mechanical Vibration Compensation
- < 3.0E-10 Per Day Aging
- < 2.0E-11 Per g Acceleration Sensitivity
- Low Phase Noise
- Temperature Range: -40°C to +70°C

OPTIONS

Available options for this product include:

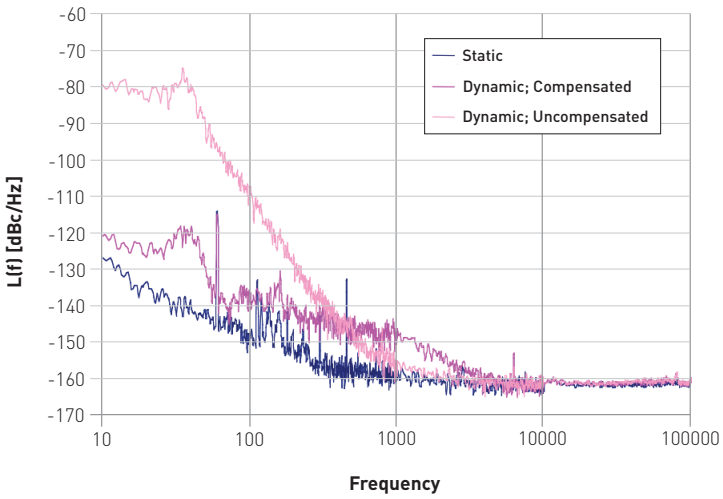
- Analog or I²C EFC input

Contact Symmetricom to configure a 9633 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 9633 is a military OCXO designed for ground tactical and airborne applications where superior frequency stability and phase noise in high-vibration environments are required. Both electronic and mechanical compensation techniques are utilized to provide up to 40dB of compensation when operating under vibration. Total gamma acceleration sensitivity of < 2.0E-11 per g can be achieved. The 9633 thus provides not only superior dynamic phase noise, but also frequency accuracy, and stability needed for today's radar, secure communications, and navigation applications.

The 9633 is based on an ovenized 10 MHz 3rd overtone SC-cut crystal resonator, enclosed in a hermetically sealed 1.60" x 3.00" x 1.58" H package.



Dynamic Phase Noise (typical performance)

9633 SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

- Standard Output Frequency: 10 MHz
- Initial Accuracy: ±5.0E-8
- Format: Sine wave
- Amplitude: 7.0 dBm ±1 dB
- Harmonic distortion: <-35 dBc
- Non-harmonic distortion: <-80 dBc
- Load impedance: 50 Ω
- VSWR: 1.5:1

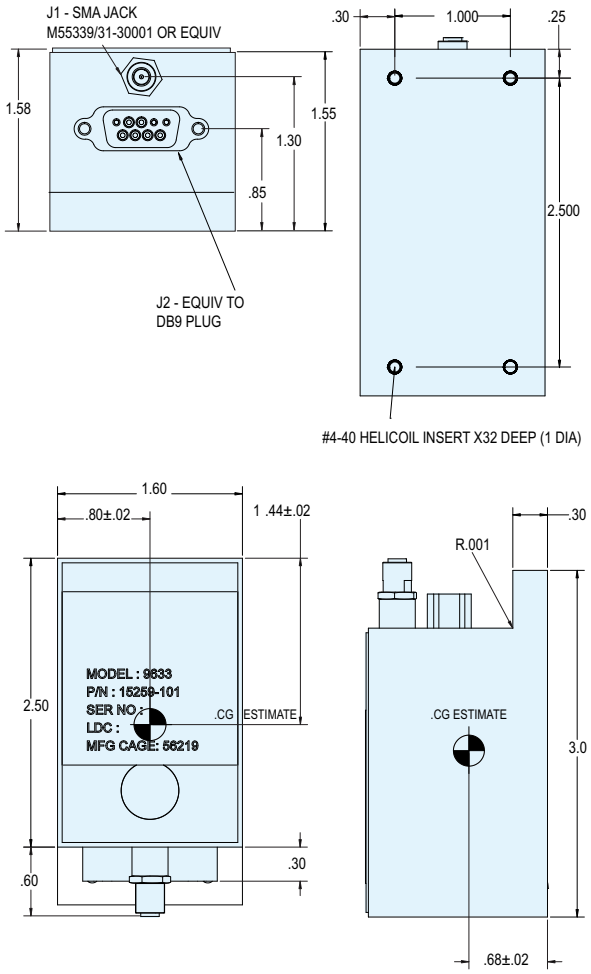
PERFORMANCE PARAMETERS

- Short-term stability
  - 1 second (Allan deviation): <5.0E-12
  - 10 second (Allan deviation): <5.0E-12
  - 100 second (Allan deviation): <1.0E-11
- SSB phase noise (static)
  - 1 Hz: N/A
  - 10 Hz: -120 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): ±1.0E-8
- Acceleration sensitivity
  - Per g, total gamma: ≤2.0E-11
- Frequency change vs. Temperature
  - -30° C to +70° C: ±1.0E-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: <5.0E-10 for ±5% voltage change
- Steady-state power consumption: <3 W
- Warm-up power consumption: 4 to 12 W
- Electronic Frequency Control (EFC)
  - Range: ±5.0E-7 minimum
  - EFC Input: Analog or I²C
  - EFC Linearity: 10% typical
- Load change sensitivity: ±1.0E-9 for ±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 65° 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: 0.16 kg

9633 OUTLINE DRAWING



CONNECTION DESCRIPTIONS

PIN NO.	FUNCTION
J1-1	RF OUT
J2-1	CHASSIS GROUND
J2-2	SCL I ^2C - CLOCK
J2-3	SDA I ^2C - DATA
J2-4	CHASSIS GROUND
J2-5	CHASSIS GROUND
J2-6	DO NOT CONNECT
J2-7	DO NOT CONNECT
J2-8	PWR
J2-9	PWR

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