Endura Epoch Platform OCXOs

Ruggedized Oven-Controlled MEMS Oscillators

- ±1 ppb stability, ±10 ppt/°C dF/dT
- ±0.01 ppb/g g-sensitivity
- Less than 3.0 µs time error after 24 hours without GPS synchronization

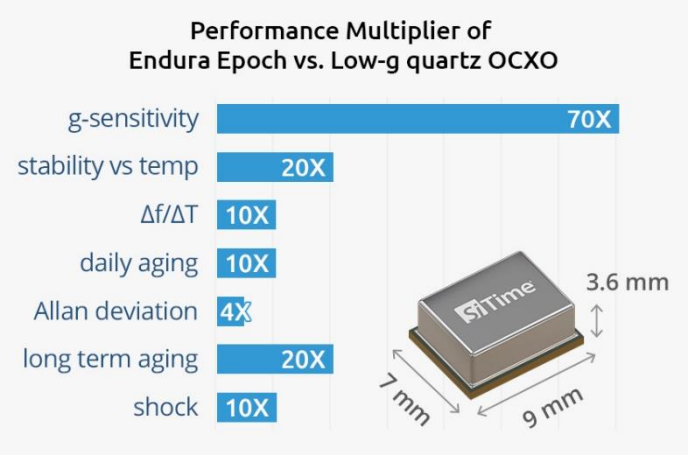
The Endura Epoch Platform™ of ruggedized MEMS OCXOs (oven-controlled oscillators) solve the long-standing problems of legacy quartz OCXOs, which are inherently less reliable, prone to performance degradation under shock and vibrations, and are bulky and power hungry. Endura OCXOs provide benchmark performance in frequency stability, size and power consumption compared to standard ±1 ppb OCXOs. Endura Epoch OCXOs are manufactured in industry standard microelectronics factories that use high-purity materials and environments managed with statistical process control. Endura OCXOs undergo statistical qualification which qualifies the design and process for high volume production. This results in reliability that is 30X higher than quartz OXCOs.

Benefits

- 70X better g-sensitivity and 20X better shock survivability
- 30X higher reliability
- 20X less volume and 3X lower power

Applications

- Assured Positioning Navigation Timing (PNT)
- GNSS Receivers
- Guidance Systems
- Data Comm Systems
- Satcom Terminal
- Radar
- Manpack & Airborne Radios
- Vehicle Communication
- IEEE 1558 Synch



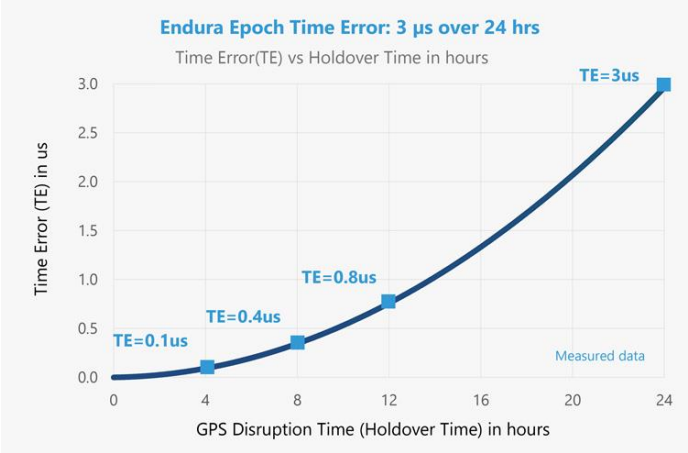
Features

- Benchmark holdover in real world conditions for assured PNT systems
  - Less than 3.0 µs time error after 24 hours without GPS synchronization
  - 5E-12 ADEV at 10 second averaging time
  - Up to 10X better aging with ±0.1 ppb/day aging
- Ultra resilient operation in harsh environments
  - Up to 70X better g-sensitivity than vibration rated quartz OCXOs
  - ±1 ppb over-temp. stability from -40 to 95°C
  - ±0.01 ppb/°C frequency slope (ΔF/ΔT)
  - 20,000 g shock survivability
- Lower size, weight, and power (SWaP)
  - Up to 3X lower power at 420 mW typical power consumption (3.3 V)
  - Up to 20X less volume in a robust 9.0 x 7.0 x 3.6 mm package
  - Up to 300X less weight at 0.35 g
- Best phase noise under vibration, minimizes link drops in high-vibration environments
- No activity dips
- On-chip power supply noise filtering for excellent PSNR
- Digital I^2C and SPI frequency tuning up to ±800 ppm
- Factory programmable from 10 to 220 MHz frequency

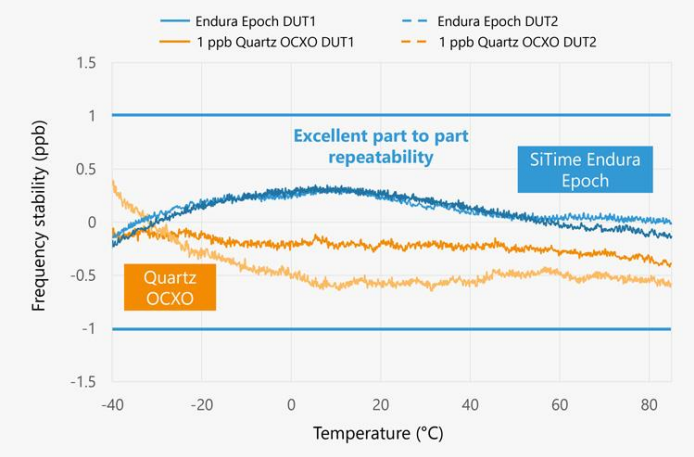
Endura Epoch Platform OCXOs

Ruggedized Oven-Controlled MEMS Oscillators

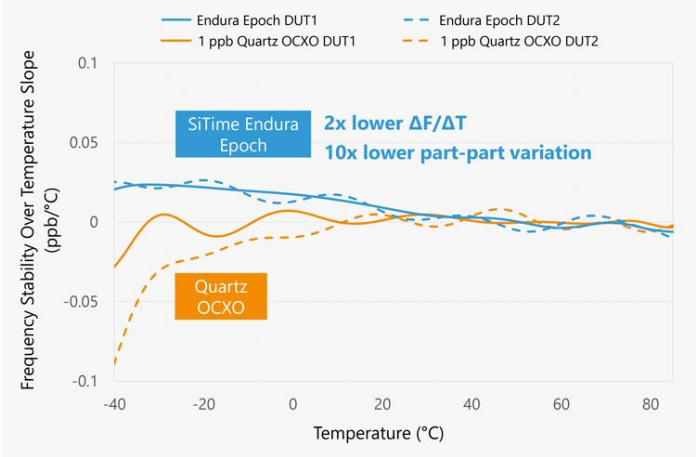
Time Error up to 24 Hours without Aging Compensation



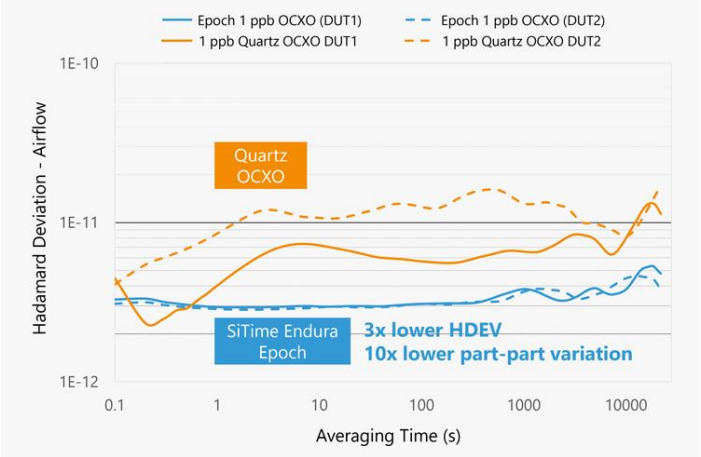
Frequency Stability Over Temperature*



Frequency Over Temperature Slope (dF/dT)*



Hadamard Deviation (HDEV) under Airflow*



**Comparisons of ±1 ppb Endura Epoch OCXO with a best-in-class non-vibration rated, ±1 ppb commercial OCXO*

Device*	Frequency (MHz)	Stability (ppb)	df/dt (ppb/°C)	Temp. Range (°C)	1 day aging (ppb/day)	Package Size (mm x mm x mm)	Digital Control
SiT7111	10 to 60	±1 ppb	±0.01	Up to -40 to 95	0.1	9.0 x 7.0 x 3.6	I²C, SPI
SiT7112	60 to 220						
SiT7101	10 to 60	±3, 5 ppb	±0.02		0.3		
SiT7102	60 to 220						

SiTime is a leader in MEMS timing solutions. We combine innovative MEMS and programmable analog technologies with our systems expertise to deliver industry-best products that overcome the limitations of legacy quartz products. Our configurable products provide ultra-stable timing that enables customers to differentiate their systems with higher performance, small size, and better reliability.