



Making Every Connection Better

Precise Clock for Seamless Synchronization & Ultimate Data Transmission

Xterniti™ OCXO

Product Brief



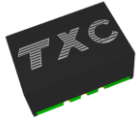
Think of Frequency
Think of TXC



Bridge Smarter Connectivity for
Advanced Networks

<https://www.txccorp.com>

Xterniti™ OCXO Family

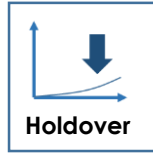


MC Series
14mm x 9mm
[Sample Available](#)



MX Series
7mm x 5mm
[Q4/2024](#)

Features



Holdover

24 Hours
Holdover



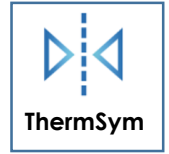
**Miniature
Size**

7mm x 5mm



**Multi-Freq.
Selection**

10~50MHz



ThermSym

Thermal
Symmetry

Extended Holdover for 5G-Advanced & AI RAN Synchronization

Introduction

TXC's latest Xterniti™ OCXO is industry-first "frequency hysteresis" versus temperature compensation of an IC-based miniature OCXO using its patented design to extend holdover performance.

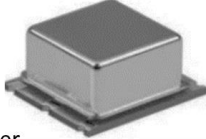
Traditional 24-hour OCXOs have been demonstrated by high-end PPS Disciplined OCXO with aging compensation and Stratum 2 OCXO with its ultra-high stability and aging performance. Those traditional OCXOs are large package with discrete circuitry, power hungry, unable to process frequency hysteresis compensation, and higher cost. The Xterniti™ OCXO with "thermal hysteresis" versus temperature and aging compensation enables a "stratum 3 level OCXO" in a miniature 14 x 9 mm package to achieve extended longer than 24 hours phase holdover in a constant temperature and 8~24 hours in a dynamic real world temperature conditions by using a IEEE 1588 available synchronizer and a network processor.

The Xterniti™ OCXO is sample available now in a 14 x 9 mm package. Samples of the 7x5 mm package will be available in Q4/2024. [Contact our team for sample request, and further support.](#)

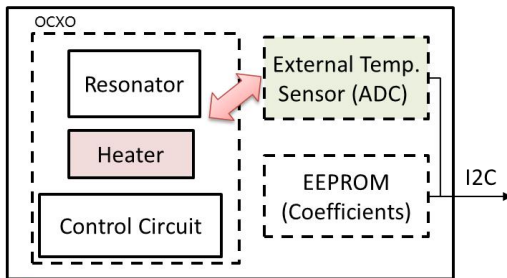
Xterniti™ OCXO versus traditional post compensation OCXO

Traditional Post Compensation OCXO

25mm x 22mm



- Large Power
- Large Size
- >100 components
- External Temperature Sensor (**Hysteresis Issue**)



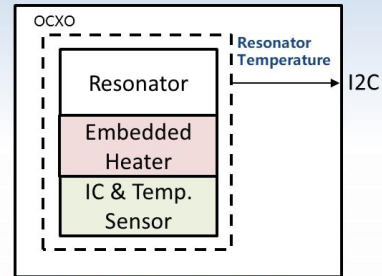
☹️ Temperature mismatch between external temp. sensor and resonator

Xterniti™ OCXO

14mm x 9mm

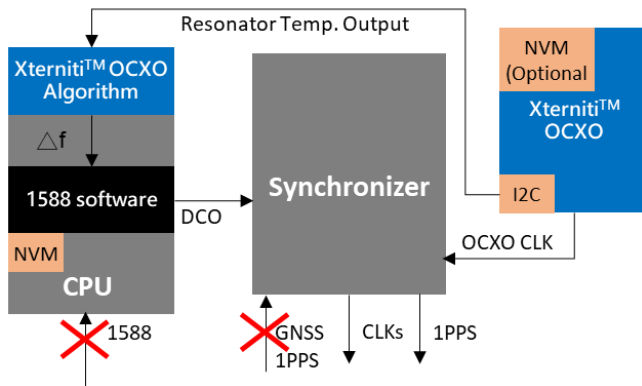


- 3X Lower Power** <0.8W
- 9X Less Volume** 14mm x 9mm, Integrate Solution
- 10X Less Components** Less Failure Risk
- Higher Sensing Accuracy** Resonator Temperature Output
- Advanced Algorithm** Hysteresis+ Aging+ Temperature Error



😊 Built-in Resonator Temperature Output

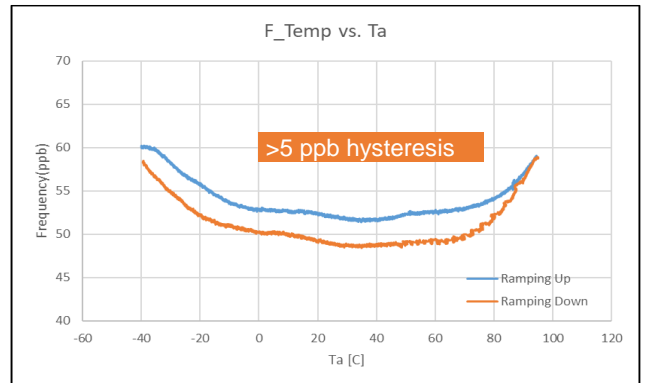
Xterniti™ OCXO works with a IEEE1588 available Synchronizer and a CPU during holdover mode



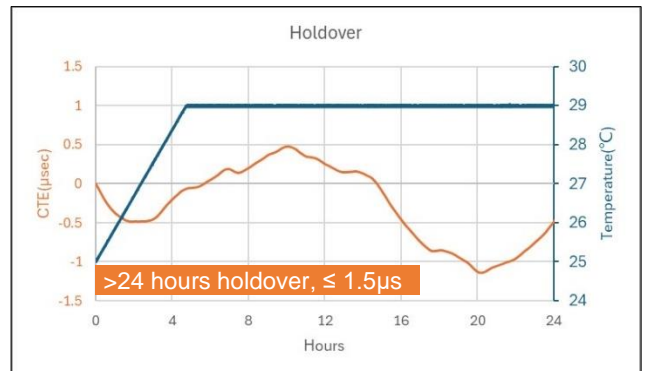
10 hours holdover under a profile of 30 °C window with ramp rate of 1 °C/minute after compensation



Frequency hysteresis of a Xterniti™ OCXO from -40 to 95 °C before compensation



24 hours holdover with 4 °C (0.83 °C/hour) temperature variation after compensation



Comparison with existing 24-hour holdover OCXOs

Key Specs	Xterniti™ OCXO	Stratum 2 OCXO	PPS Disciplined OCXO
Holdover (1.5μs)	>24 hrs ✓	>24 hrs ✓	>24 hrs ✓
Compensation	V	X	V
Temperature	-40~105C ✓	-20~70C	-40~85C
Stability	±10~20ppb ✓	±0.1ppb	±0.5ppb
Hysteresis	5~10ppb ✓	0.1ppb	0.3ppb
Aging	3ppb/day ✓	±0.02ppb/day	±0.2ppb/day
Size	14x9 mm 7x5mm (Q4/2024) ✓	52x42 mm	25x22 mm

Applications & Compliance Support

- BBU/DU/CU
- Radio access networks (RAN)/O-RAN
- PTP enable Switch/Router
- Datacenters
- Phase Holdover Requirement
- Packet Based Telecom Time Slave Clock on G.8273.2
- SyncE Ethernet Equipment Clocks based on G.8262
- Enhanced Ethernet Equipment Clocks based on G.8262.1
- Telecom Transparent Clocks based on G.8273.3
- Packet Equipment Clock based on G.8263 and G.8266
G.812 Type III

Benefits

Feature	Benefits
ThermSym Technology Thermal Symmetry patented technology	<ul style="list-style-type: none"> • Thermal Symmetry patented technology with a heater-embedded ceramic package provides excellent thermal performance. • Better reliability compared to the solution that uses the embedded heater in the IC.
ThermSymHercules Technology Industry widest operating temperature IC OCXO over -40 to 105°C	<ul style="list-style-type: none"> • Advanced OCXO IC support wider operating range. • Multi-order oven control algorithm to enhance stability over temperature.
Integrated Circuit Technology Advanced oven control algorithm	<ul style="list-style-type: none"> • IC based, superior reliability compared to traditional discrete OCXO
Optional Built-in non volatile memory (NVM) For customized registers	<ul style="list-style-type: none"> • I2C interface available for system level post compensation. • Aging and temperature coefficients can be stored in the NVM. • Other mandatory registers are available.
Resonator Temperature Output Thermal Hysteresis Compensation	<ul style="list-style-type: none"> • Thermal Hysteresis Compensation enables a Stratum 3 OCXO to achieve 8~24 hours holdover performance under real world dynamic temperature conditions.
Extended Holdover Performance >24 Hours Holdover (constant temperature) 8~24 Hours Holdover (under real world temperature conditions)	<ul style="list-style-type: none"> • “Stratum 3 OCXO” works like Stratum 2 clock. • TXC’s own algorithm on hysteresis compensation or co-worked IDHs algorithm, easily embedded in a network processor with IEEE1588 available synchronizer.