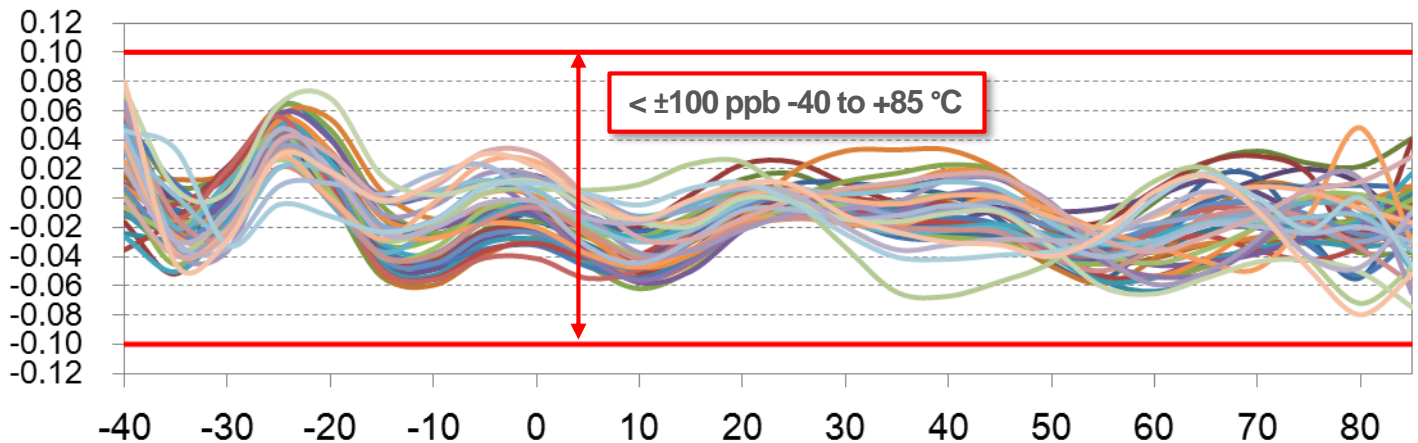
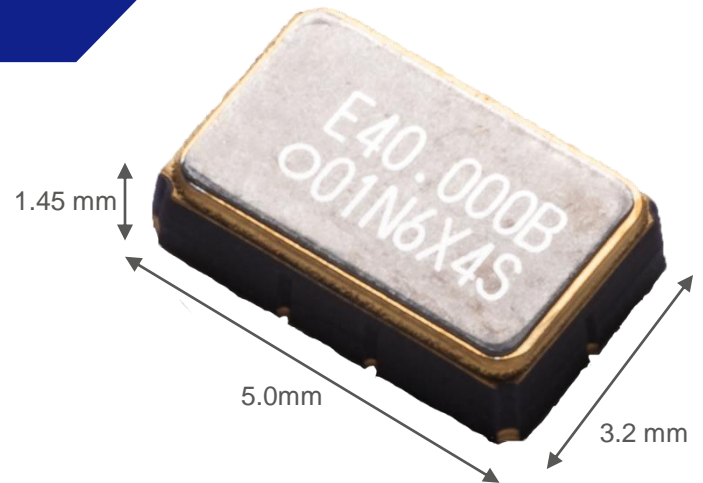


HIGH-STABILITY G-SERIES TCXOS

Industry's Best Stability. DoubleSeal™ Technology.

Epson G-SERIES TCXOs & VC-TCXOs

- **Temperature Stability:** $< \pm 100$ ppb -40 to +85 °C
- **Short-Term Stability:** $2e-10$ @ 1s root Allan variance
- **Holdover:** $< \pm 10$ ppb over 24 hours
- **Frequency Range:** 10-40 MHz
- **Single-Ended Output:** LVCMOS or clipped sine
- **Size:** 5.0 x 3.2 x 1.45



Designed for network synchronization, small cell, and microwave radio applications, Epson's G-series TCXOs deliver superior stability to support all the latest networking standards and requirements.

In addition to $< \pm 100$ ppb Temperature stability, Epson's G-series TCXOs achieve the industry's leading wander, short-term stability, environmental isolation, and airflow isolation.

Epson's G-series TCXOs comply with all the latest networking standards from 3GPP and IEEE-1588 to ITU-T packet clock drafts and recommendations.

Epson G-SERIES TCXOS

Epson's G-series TCXOs are designed to provide the ultimate in stability for synchronization applications. With ± 100 ppb temperature stability, $2e-10@ 1s$ root Allan variance, and $< \pm 10$ ppb 24-hour holdover, Epson's G-series TCXOs are the industry's most stable TCXOs.

Temperature Stability:

With cut-angle and geometry-optimized crystal design, individual factory calibration, and a proprietary fitting-error reduction algorithm, Epson's G-series TCXOs are accurate to better than ± 100 ppb from -40 to $+85$ °C, meeting 3GPP medium-range specifications for indoor and outdoor systems.

Short-Term Stability:

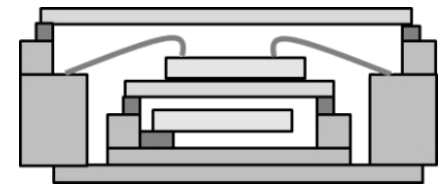
Photolithographic crystal processing allows Epson TCXOs to deliver better wander and short-term stability than competing mechanical designs. Epson's G-series TCXOs achieve root Allan variance of $2e-10@ 1s$ which improves synchronization performance for systems using IEEE-1588 and emerging packet timing standards.

Holdover:

Reduced lattice-strain crystal technology allows Epson's G-series TCXOs to deliver superior drift and aging, achieving $< \pm 10$ ppb over 24 hours which meets G.8262 EEC 1 and 2 holdover requirements and provides wide margin to GR-1244 Stratum 3.

DoubleSeal™ Technology:

Epson's G-series TCXOs employ patented DoubleSeal™ technology to isolate the crystal and temperature sensor from external environmental conditions. As a result, frequency and phase are protected from airflow, temperature gradients, and turbulence.



DoubleSeal™ Technology

Airflow Performance:

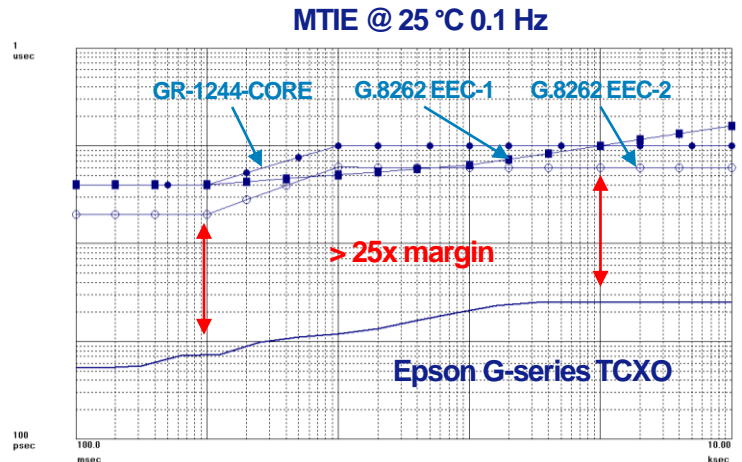
Still air is an unrealistic assumption for networking equipment. Even minimal airflow can degrade wander and stability. For outdoor equipment or equipment with cooling fans and/or nearby hot components, Epson G-series TCXOs are far more stable than conventional TCXOs.

Standards Compliance:

As an active member of ITU-T, Epson contributes to emerging networking standards and is up-to-date on all the latest requirements. Epson's G-series TCXOs comply with multiple wireless and wireline standards, including:

- Wireless: 3GPP LTE Local-Area and Medium-Range
- SONET BITS/SETS: GR-1244-CORE Stratum 3
- Packet Timing (Network Sync.): G.8262 EEC-1 & EEC-2

Epson G-series TCXOs provide large margin to MTIE specifications for multiple standards.



Configuration & Options:

Epson's G-series TCXOs cover a frequency range of 10-40 MHz. Options include VC-TCXO or TCXO, LVC MOS or clipped-sine wave outputs, an optional Temperature sensor output, and 3 stability ranges: ± 100 , ± 250 , and ± 280 ppb.

| Product | Size (mm x mm x mm) | Outputs | I _{DD} @ 3.3V | Frequency | Stability -40 to +85 °C |
|-----------|------------------------|--------------|-------------------------|-----------|--|
| TG5032CGN | 5.3 x 3.2 x 1.45 | LVC MOS | 3.5 mA typ., < 6 mA max | 10-40 MHz | ± 100 , ± 250 , or ± 280 ppb |
| TG5032SGN | 5.3 x 3.2 x 1.45 | Clipped sine | 2 mA typ., < 5 mA max | 10-40 MHz | ± 100 , ± 250 , or ± 280 ppb |

ADVANTAGES

- Tight temperature stability $< \pm 100$ ppb
- Superior short-term stability and wander
- G.8262 EEC-1 and EEC-2 compliant holdover
- Extended temperature range
- Airflow isolation and environmental immunity from patented DoubleSeal™ technology
- Full standards compliance