

rakon

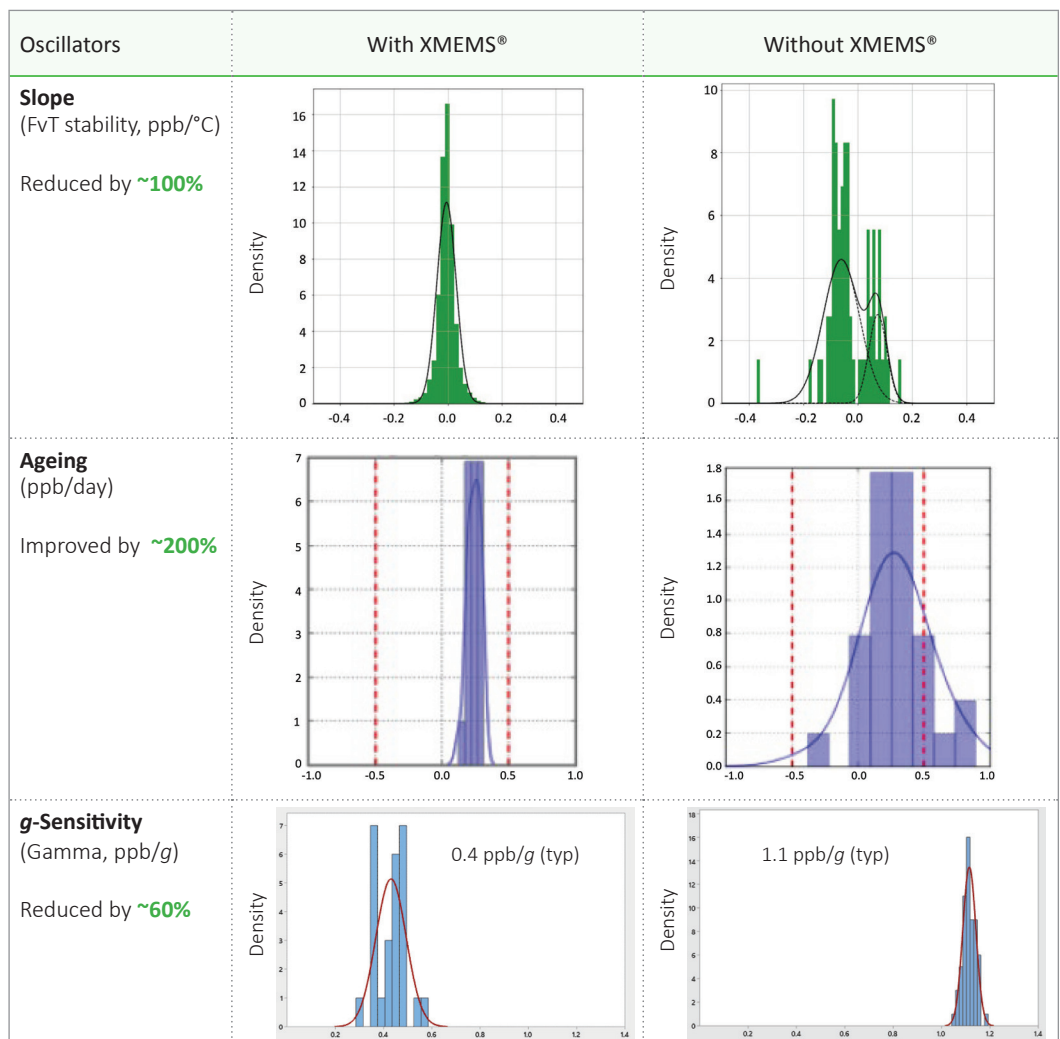
XMEMS® crystal technology for 5G applications

Rakon's new quartz MEMS technology, XMEMS®, is based on NanoQuartz™. A proprietary wafer level photolithographic process that significantly decreases part-to-part variation, resulting in more consistent quality. The technology also enables the manufacturing of unorthodox resonator structures that improve ageing performance. NanoQuartz™ allows tighter tolerance control of fundamental resonator properties such as high Q, better frequency stability, and suppression of unwanted modes. The natural properties of quartz generate a high quality factor (Q), and when coupled with state-of-the-art processing technology, offer unprecedented levels of oscillator performance.

Why XMEMS®

Crystal oscillators use proven quartz technology that has been refined for decades by a large ecosystem of vendors and used in billions of field deployments globally.

Our strategy of combining NanoQuartz™ processing with our proprietary ASICs has resulted in industry-leading products for many years. XMEMS® and our next generation ASICs, MercuryX™ and Niku™, are the latest iteration of this strategy, promising unparalleled oscillator performance in decades to come.





XMEMS® crystal technology for 5G applications

Why XMEMS® for 5G applications

5G is an enabler for new applications in many industries. Data centres, Industry 4.0, autonomous driving, financial trading applications, as well as AR and VR, all heavily depend on precision timing and synchronisation for their success. Network synchronisation is fast becoming mission-critical and this calls for a new generation of high-performance timing and frequency control products.

XMEMS®-based oscillators provide excellent performance when it comes to the 3 most important features for 5G synchronisation:

Excellent stability in a smaller package

Achieve minimal intrinsic time error with high stability oscillators.

- XMEMS® based oscillators deliver <0.2 ppb/°C slope while minimal frequency slope required for packet based synchronisation applications is <0.5 ppb/°C.

Lower close in phase noise performance

Enable better modulation and higher spectral efficiency necessary for 5G with low phase noise clocks.

- XMEMS® based oscillators deliver -148 dBc/Hz at 1kHz offset when the common recommendation is -140 dBc/Hz (@ 122.88 MHz. $<1\%$ contribution to EVM).

Holdover

Mitigate the risk of loss of synchronisation from higher streams by selecting oscillators offering extended holdover.

- The XMEMS® small form factor OCXOs achieve 8 hours holdover when most common requirements are 4 to 6 hours of holdover.

Why our customers like working with us



Customers first

We treat our customers as our partners. With local technical teams around the world, a broad range of products and consistent quality, delivery and support, we make it easy for our customers to do business with us.

Flexible supply chain

With three manufacturing sites worldwide, we are able to rely on independent streams of manufacturing. We have put in place a global multiple source strategy, which includes the design and manufacturing of proprietary ASICs, providing us with robust supply chains.

Technology innovation

We have a strong pioneering culture and a history of innovation 'firsts', raising the bar in terms of product performance at ever-smaller form factors. Rakon continues to invest in resonator, ASIC, oscillator and test technology innovation.

Ecosystem benefits

Our customers prefer to spread their risks across multiple vendors. Being at the heart of the quartz industry, we are part of a larger ecosystem giving our customers more choice and flexibility, mitigating risks around supply.

