Quartz Crystal Oscillators - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Quartz Crystal Oscillators Market is expected to register a CAGR of 5.7% during the forecast period.

Key Highlights
- These products are preferred in multiple applications due to their technical advantages. For example, quartz crystals in oscillators result in high-frequency stability, a high-quality factor of resonance, and low-temperature drift, making it an obvious choice for applications with such needs. Additionally, quartz crystals are cheap to produce and procure. Hence, they find many applications in clock circuits in microprocessor boards, radiofrequency applications, the timing element in digital watches, and telecommunications and data transmission.
- Further, automotive system developers use quartz crystal and oscillator timing solutions that are prone to shock and vibration issues. With the advent of ADAS, the requirement for clocking, complex data acquisition rates, and low jitter reference clocks is increasing. Therefore, vendors in the market studied are expected to focus on developing and offering such solutions over the forecast period.
- The growing incorporation of the quartz crystal oscillator in healthcare devices such as pacemakers further drives the demand. Crystal oscillators are part of the communication modules in the pacemakers and are part of the growing healthcare monitoring IoT devices. In line with this, Ercoms solutions offer ultra-miniature quartz crystal oscillators for medical markets.
- However, many new variants of oscillators in the market are offering strong competition to Quartz Crystal Oscillators, which acts as a restraint to the market growth. For instance, Microelectromechanical systems (MEMS) resonator-based oscillators have been cited for having increased ruggedness, and smaller size compared to quartz crystal oscillators and have the potential of replacing them in many applications.
- The outbreak of the COVID-19 pandemic halted the manufacturing operations of many electronic devices, which is one of the key areas of applications of quartz crystal oscillators. Besides, the supply chain disruptions caused by the pandemic affected the

procurement of raw materials for many of the major manufacturers. However, with the pandemic-related restrictions easing up, the market is expected to exhibit renewed growth in the coming years.

Quartz Crystal Oscillators Market Trends

Military and Aerospace Industry is Expected to Drive the Market Growth

- The military and aerospace segment is always in definite need of a comprehensive portfolio of reliable and precise products and advanced technical capabilities that may support high-performance needs. Additionally, the use of crystal oscillators has always remained relevant. They form an integral part of an electronic circuit that produces an electrical signal of accurate frequency using the vibrating crystals made of piezoelectric material, mechanical resonance, which is driving its demand from this sector.
- Crystal oscillator sold for military and aerospace applications needs to be highly accurate and must be able to work in harsh environments and under adverse circumstances. High end-products, such as OCXOs, and precision TCXOs, are in high demand in these applications. Like Vectron, Rakon, and Q-Tech, vendors in the market offer crystal oscillators for military and space applications.
- Furthermore, with the increasing defense budgets of various countries, threats of enemies, and the need for surveillance across multiple elements of military and defense, the avionics and military electronics industries are expected to expand, thereby driving the adoption of oscillators.
- Companies such as Q-Tech Corp have been focusing on innovating their products. For instance, in May 2021, Q-Tech Corp announced the extensive in-stock availability of full space-qualified and B-level quartz crystal oscillators in different types of traditional and ultra-miniature packages. The company also stated that the immediate availability of these components could alleviate supply chain problems that are delaying the production of space, military, avionics, and high-temperature applications that require thoroughly tested and certified devices.
- Further, the synthesized transceivers are also featuring increased deployment of crystal oscillators. For instance, Frequency Electronics Inc. offered a next-generation wideband microwave quad-channel synthesized transceivers named EW series VPXTR6000. It enables aircraft, UAVs, and other mobile platforms to detect signals in high RF pulse density environments. The system deploys OCXOs, with a low g-sensitive option, to integrate into the VPX chassis for reference signal distribution to multiple VPX modules over a VITA-67 coaxial backplane.

Asia-Pacific to Witness Highest Growth

- The Asia-Pacific is projected to have the fastest growth, owing to a rapidly expanding smartphone consumer base primarily in the major economies, such as India and China in the region. The latest technological breakthroughs have assisted the advancements in new crystal oscillators that can make the overall processes more efficient and significantly improve accuracy in different applications.
- China has one of the largest electronics industries in the world, and the government is taking many initiatives to further boost the industry growth in the country. For instance, in January 2021, the Chinese government announced plans to expand the domestic market for electronic components to CNY 2.1 trillion (USD 327 billion) by 2023. Such initiatives create a positive growth outlook for the market as crystal oscillators find applications in many electronic devices.
- Further, in Asia-Pacific, South Korea is also one of the important markets for quartz crystal oscillators, owing to the massive adoption of the technology by the end-user industries in the country. Like consumer electronics, semiconductors, telecommunication equipment, and 5G services, the industries in the country are some of the significant adopters of crystal oscillators. In addition, the increased level of production of electronic devices, due to the rising competition in the market, and the

growing adoption of VCOs in the production of electronic music devices are among the significant factors driving this growth.
- There had been a series of new product launches, mergers, and acquisitions in Asia-Pacific to take advantage of this opportunity. The primary driver behind the investments has been the continuous evolution and application of new technologies to unlock enormous volumes previously considered non-commercial.
- With these series of investments, consumer electronics, and industrial and automotive applications, Asia-Pacific is set to boom in the coming years. For instance, Epson, a Japanese electronics company, extended the highest available frequency on low-jitter crystal oscillators. The company increased the upper-frequency limit to 500 MHz from 200 MHz. This move was in line with the expected network requirement for high speed and wideband, due to the 5G communication traffic growth.

Quartz Crystal Oscillators Industry Overview

The quartz crystal oscillators market is consolidated. Moreover, the high competition among the existing players makes it tough for new players to enter. Players in the market are launching new products and taking strategic initiatives like collaborations, mergers, and acquisitions to capture the market share.

- May 2022 - Q-Tech Corporation introduced the QT625xL/xN Multiple Output series of space-qualified crystal oscillators providing up to four identical CMOS outputs designed to simultaneously drive multiple FPGAs.
- September 2021 - RFX announced the launch of a high-performance OS936-10 series Oven Controlled Crystal Oscillator (OCXO). Typical applications of the device include base stations, instrumentation, military communications, optical networking, radar, repeater stations, satellite test, and measurement equipment.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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