

## **MEMS - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

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### **Report description:**

The MEMS Market size is estimated at USD 16.81 billion in 2024, and is expected to reach USD 25.19 billion by 2029, growing at a CAGR of 8.43% during the forecast period (2024-2029).

The MEMS sector is witnessing rapid growth due to the increasing demand for MEMS in multiple applications, from automotive to consumer electronics.

#### Key Highlights

- Microelectromechanical system (MEMS) sensors have gained significant traction over recent years due to advantages such as accuracy, reliability, and the scope for making smaller electronic devices. Among the significant factors driving the MEMS market are industrial automation and the demand for miniaturized consumer devices, such as wearables and IoT-connected devices.
- The increasing demand for IoT devices worldwide is spearheading the adoption rate of MEMS in these devices; when coupled with the miniaturization trend, the connected devices benefit as well. According to Cisco Systems, the number of connected is expected to reach 1,105 million by 2022, thus driving the market.
- Further, industrial demand for IoT is expected to eclipse the demand for consumer-connected devices over the coming years, with the sheer number of connected devices required and adoption in the industrial space on the rise. By 2025, industrial-connected devices are expected to be more in number than consumer-connected devices, according to GSMA. At CES 2021, TDK Corp. announced the availability of its range of MEMS platforms and sensors for industrial applications.
- However, the market faces challenges in product production and a lack of a standardized fabrication process. Considering the sensor interface design used in the automotive industry, the MEMS produces capacitance changes of tiny magnitudes. This must be addressed with precision and accuracy, increasing the lead time to manufacture the products and slightly offsetting the market's growth.

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-Continuous sensorization of both consumer and automotive applications and advances in the medical and industrial end markets and associated applications are important factors contributing to the market growth. Owing to the unprecedented demand for MEMS sensors, many MEMS players are currently investing in new production fabs. For instance, Bosch announced plans to invest more than EUR 400 million (USD 426.07 million) in 2022 in expanding its wafer fabs in Dresden and Reutlingen, Germany, and its semiconductor operations in Penang, Malaysia. As part of the investment, a total of more than 4,000 square meters will be added to the current 35,000 square meters of clean-room space in Reutlingen, in two stages. The first stage, which involved adding 1,000 square meters of production area for 200-millimeter wafers to bring the total to 11,500 square meters, has already been completed.

-In addition to this, COVID-19 has also accelerated the pace towards a more patient-centric approach and increased the need for remote patient monitoring, including telehealth, point-of-care devices, and wearables. There is a growing demand for wearables owing to their ability to track people's temperature and blood pressure. This trend has created new opportunities in the wearables market, as well as for integrated MEMS sensors, such as pressure, inertial, microphones, thermopiles, etc.

## Micro-Electro-Mechanical System Market Trends

### Consumer Electronics Application Segment is Expected to Hold Significant Market Share

- MEMS technology has improved several crucial communication and medical biotechnology applications, but its use in consumer electronics holds great promise for future advancements. MEMS has ingrained itself into people's daily lives by appearing in various products, from smartphones to other consumer goods.

- MEMS is widely used in smartphones, wearable devices, and other electronic devices due to its improved electrical performance at high frequencies. As the consumer electronics sector shifts its attention away from conventional sensors and toward MEMS technology, the market is anticipated to grow in popularity. As the main technology driver for MEMS, consumer electronics, driven by smartphones, gradually replaced automotive applications.

- Accelerometers and gyroscopes are two of the most well-known MEMS (micro-electro-mechanical systems) applications found in smartphones. The proliferation of multiple chips for various sensor and actuator applications in smartphones is one of the main drivers of the MEMS market's explosive growth. During the forecast period, MEMS for mobile devices is anticipated to expand significantly due to rising smartphone sales and business opportunities.

- For instance, global mobile subscription penetration was 106percent by Q4 2022, according to the Ericsson Mobility report for the fourth quarter of 2022. With a net addition of 39 million subscriptions during the quarter, the total number of mobile subscriptions surpassed 8.4 billion in Q4 2022. Such developments are anticipated to increase demand for MEMS devices and provide vendors with various business opportunities to increase their market share and meet the demand for MEMS in smartphones.

- Smartphones use optical image stabilization (OIS) and electronic image stabilization (EIS), enabled by MEMS sensors. During the forecast period, these broad features and innovative functions will likely augment the demand for MEMS sensors, especially for use in smart mobile devices.

- The advancement and evolution of technologies like optical image stabilization, projection displays, fingerprint technology, and others have significantly influenced the designs of MEMS sensors. Technology trends, consumer preferences, and other factors are significant in shaping developments in the electronics industry for consumer electronics and smart devices. These patterns are driving the demand for MEMS sensor miniaturization.

### Asia Pacific is Expected to Hold Significant Market Share

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- Asia Pacific is likely to dominate the MEMS market. The micro-electro-mechanical system (MEMS) market is expanding due to the presence of major consumer electronics manufacturers in this area. The market is anticipated to be driven by increasing smartphone penetration, 5G penetration, and advancements across numerous end-user industries.
- China, South Korea, Japan, and India, among others, are major Asian-Pacific countries. Asia-Pacific is a massive marketplace for MEMS sensor technologies. The area dominates many manufacturing subsectors of other end-user industries and the global semiconductor manufacturing sector. Nations like China are supplying low-cost goods to the market.
- For instance, many Chinese MEMS sensor firms, including MEMSIC Semiconductor, Senodia Technologies, and others, are investing heavily in the Internet of Things (IoT). The Chinese government views its automotive industry, including the auto parts sector, as one of its most prominent industries. The Central Government expects China's automobile output to reach 35 million units by 2025. This is intended to make the automotive sector one of the most prominent uses of MEMS sensors in China. China recently instructed automakers to sell 40percent more electric vehicles (EVs) than conventional vehicles by 2030. As a result of these advancements in the automotive industry, MEMS technology will become increasingly in demand.
- In the Chinese automotive market, pressure MEMS are expected to continue to grow due to the evolution towards increased autonomy levels that demand enhanced safety and greener driving. China 6 regulations are expected to boost various applications like diesel particulate filters and particulate gasoline filters, evaporative emissions control systems, exhaust gas recirculation, and tire pressure monitoring systems. ?
- Moreover, due to advancements in the healthcare sector, the Asia Pacific region is anticipated to grow significantly during the forecast period. Government programs and policies supporting the markets for healthcare equipment and devices, increasing investments in research and innovation facilities, and other factors contribute to this growth.

#### Micro-Electro-Mechanical System Industry Overview

The MEMS market is moderately fragmented with the presence of significant players like Broadcom Inc., Robert Bosch GmbH, STMicroelectronics NV, Texas Instruments Inc., and Qorvo Inc. Players in the market are adopting strategies such as partnerships and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

- May 2023 - SPEA and Gongjin Microelectronics have entered into a strategic partnership that is expected to strengthen the development of their MEMS testing and calibration business in the Mainland China territory. The agreement brings together GJM's leading manufacturing services and quality management capabilities with SPEA's world-class testing technologies and expertise and is expected to accelerate growth for both companies in the fast-growing MEMS field in China.
- June 2023 - Rogue Valley Microdevices announced its acquisition of a 50,000 sqft commercial building in Florida to serve as its second microfabrication facility. The space will be reconfigured for a cleanroom and office space, with initial production of its first MEMS devices slated for 2025. The company's expansion to Palm Bay will aid it in increasing supply-chain resilience and to boost production volume.

#### Additional Benefits:

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

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