

Micro-Electro-Mechanical System (MEMS) Market by Sensor Type (Inertial Sensor, Pressure Sensor, Microphone), Actuator Type (Optical, Radio Frequency), Vertical (Automotive, Consumer Electronics, Industrial) and Region - Global Forecast to 2029

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Abstracts

The MEMS market is projected to grow from USD 16.5 billion in 2024 and is projected to reach USD 24.2 billion by 2029; it is expected to grow at a CAGR of 7.9% from 2024 to 2029. Heightened demand for IoT devices by manufacturing firms, growing demand for RF MEMS technology in consumer electronics and LTE networks, rising trend towards miniaturization of devices to fuel the growth of MEMS market.

“Market for inertial sensor to hold the largest share during the forecast period.”

The ongoing technological advancements and increasing integration of MEMS sensors into new applications, the demand for MEMS inertial sensors is expected to continue growing in the foreseeable future. In December 2023, Panasonic introduced a 6-in-1 inertial sensor for auto safety, measuring acceleration and angular rate across three axes. Adhering to ISO26262 standards, it enhances vehicle safety and stability in critical applications. This level of accuracy and adherence to safety standards enhances trust in MEMS technology, driving its adoption in automotive systems aimed at enhancing safety and performance.

“Market for Radio Frequency Actuator holds for largest market share during the forecast period.”

RF MEMS devices encompass microsystems designed to deliver RF functionality across a broad frequency spectrum, ranging from DC to sub-millimetre wavelengths. They utilize MEMS actuators to generate resonators for applications such as filters, reference oscillators, switches, switched capacitors, and varactors. While many RF MEMS devices employ vibrating mechanical structures actuated by various mechanisms, some may lack electromechanical functions yet still fall under the RF MEMS category. RF MEMS technology holds promise for reducing power consumption, enhancing antenna performance and radiated power, and minimizing power loss within systems.

“Market for Consumer electronics segment is projected to hold for largest share during the forecast timeline.”

MEMS (Micro-Electro-Mechanical Systems) technology has become instrumental in consumer electronics, offering a multitude of benefits and applications across various product categories. Its integration into devices like gaming consoles, smartphones, wearables, and navigation systems has revolutionized user experiences. MEMS accelerometers and gyroscopes enable intuitive gaming interactions and context-aware interfaces in smartphones, while also contributing to extended battery life and cost-effective mass production. Their small size allows for compact device designs, ideal for space-constrained gadgets like smartphones and wearables. Their exceptional performance and accuracy enhance entertainment standards, making MEMS a preferred choice for manufacturers and consumers alike. MEMS also contribute to projectors, speakers, and smart home devices, promising enhanced user experiences and integrated functionalities.

“North America is expected to have the largest market share during the forecast period.”

The Asia Pacific region leads the global market for Micro-Electro-Mechanical Systems (MEMS), driven by its status as a hub for electronics manufacturing and consumption. The surge in smartphone adoption in countries like China and India propels the demand for MEMS sensors, utilized in various features by smartphone giants such as Huawei and Samsung. Advancements in the automotive sector, particularly in Japan and South Korea, see major automakers like Toyota and Hyundai integrating MEMS sensors for safety and performance enhancements. China's rapid industrialization fuels MEMS sensor demand across robotics, healthcare, and aerospace sectors, with companies like DJI Innovations and Airbus leveraging MEMS technology. Supportive government initiatives in China and South Korea foster a conducive environment for MEMS

innovation and market expansion. Furthermore, Asia Pacific's dynamic MEMS ecosystem features established players like Bosch and emerging startups like InvenSense, driving competition, innovation, and affordability. A comparative analysis with other regions highlights Asia Pacific's dominance in MEMS technology.

Extensive primary interviews were conducted with key industry experts in the MEMS market space to determine and verify the market size for various segments and subsegments gathered through secondary research. The break-up of primary participants for the report has been shown below:

The break-up of the profile of primary participants in the MEMS market:

By Company Type: Tier 1 – 40%, Tier 2 – 35%, and Tier 3 – 25%

By Designation: C Level – 45%, Director Level – 35%, Others-20%

By Region: North America – 35%, Europe – 18%, Asia Pacific – 40%, ROW- 7%

The report profiles key players in the MEMS market with their respective market ranking analysis. Prominent players profiled in this report are Robert Bosch GmbH (Germany), Broadcom (US), Qorvo, Inc (US), STMicroelectronics (Switzerland), Texas Instruments (US), Goertek microelectronics Inc (China), Hewlett Packard Enterprise Development LP (US), TDK Corporation (Japan), Knowles Electronics, LLC (US), Infineon Technologies AG (Germany), Honeywell International (US), Analog Devices, Inc (US), among others.

Apart from this, TE Connectivity (Switzerland), NXP Semiconductors (Netherlands), Panasonic Holdings Corporation (Japan), Murata Manufacturing Co., Ltd (Japan), AAC Technologies (China), Amphenol Corporation (US), Sensata Technologies, Inc, (US), Melexis (Belgium), SiTime Corporation (US), Alps Alpine Co., Ltd (Japan), Collins Aerospace Systems (US), Teledyne FLIR (US), Flusso Ltd. (UK), Usound (Austria), Merit Medical Systems, Inc. (US), Mikrosens Elektronik (Turkey), Fibersystem AB (Sweden), Menlo Micro, Inc (US), Winsen (China), Safran (France), are among a few emerging companies in the MEMS market.

Research Coverage: This research report categorizes the MEMS market based on Sensor Type, Actuator Type, Verticals, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the MEMS market and

forecasts the same till 2029. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the MEMS ecosystem.

Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall MEMS Market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (Growing use of RF MEMS technology in consumer electronics and LTE networks, Rising demand for miniaturization of devices, Rising demand for Smart consumer electronics, Proliferation of IoT devices by manufacturing firms) influencing the growth of the MEMS market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the MEMS market.

Market Development: Comprehensive information about lucrative markets – the report analysis the MEMS Market across varied regions

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the MEMS Market

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Robert Bosch GmbH (Germany), Broadcom (US), Qorvo, Inc (US), STMicroelectronics (Switzerland), Texas Instruments (US), among others in the MEMS Market.

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