Mems Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 174 pages | Mordor Intelligence

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Report description:

The MEMS market is expected to reach USD 20,488.2 million in five years, registering a CAGR of 7.07% over the forecast period. The MEMS sector is witnessing rapid growth due to the increasing demand for MEMS in multiple applications, from automotive to consumer electronics.

Key Highlights
The market numbers stated in the study indicate MEMS in terms of the revenue accrued by products offered in the market by the vendors, sold across different geographical regions, based on their type and applications.
With emerging applications and business models, IoT has an enormous requirement for tiny and low-cost sensors that can monitor all aspects of production. These sensors will likely communicate the information to other nodes in the factory network. They are expected to operate reliably in harsh conditions of the electrical and mechanical environment.
MEMS plays a key role in the field of automation. The MEMS technology offers sensitivity, reliability, scalability, and a cost-effective design. This provides more opportunities in the field of automation. The industry relies on these technologies for higher throughput and production rates in less time. MEMS accelerometers and gyroscopes are ideal for use in various industrial automation applications. With their minute size, high reliability, and low power credentials, MEMS sensors can play a vital role in virtually any piece of industrial automation machinery.
MEMS devices vary from a relatively simple structure to extremely complex ones, i.e., multiple moving elements under the control of integrated microelectronics. Hence, the market faces various challenges during the complex manufacturing process.
The usage of MEMS in the chip industry has witnessed immense growth as technology companies around the world accelerated innovation in the fight against the COVID-19 pandemic. The need for tiny devices drives advancements in electronics, ranging from thermal imaging and faster point-of-care testing to microfluidics-based polymerase chain reaction (PCR) tools and techniques to detect SARS-CoV-2.

MEMS Market Trends

Increasing Demand for Smart Consumer Electronics Driving the Market

MEMS is widely used in wearable devices and smartphones owing to its enhanced electrical performance at high frequencies. As the consumer electronics industry shifted its focus from traditional sensors to MEMS technology, these applications drive innovations in the MEMS industry.

As smart consumer electronics get loaded with high-performance devices, the stress on energy efficiency is growing. Piezoelectric MEMS devices are being continuously researched to develop energy harvesters that can independently power the devices without batteries. The MEMS energy harvester is likely to follow the complementary metal-oxide-semiconductor (CMOS) fabrication technology and adopt the developments in related technologies, such as wireless sensor networks (WSN) and very-large-scale integration (VLSI). This MEMS energy harvester may be a noble application to look forward to, which is likely to help drive the market.

Moreover, in the consumer electronic sector, MEMS pressure sensors have reached a maturity phase in smartphones and are expected to fluctuate over the forecast period. However, smartphones have witnessed significant success in MEMS gyroscopes in the last few years owing to their low cost, miniature size, and lightweight.

Voice-enabled smart devices have witnessed increased adoption over the past few years. The adoption of smart devices, like Amazon Echo, Google Home, and Sonos, significantly increased in 2022 as the youth view these devices as a smarter, faster, and easier way to perform everyday activities. A recent survey conducted by Accenture revealed that more than 50% of all internet users worldwide use digital voice assistance. India leads the way with an adoption rate of 72%. The adoption in the country is expected to increase further, as users reported a 97% satisfaction rate. This signifies the high use of MEMS microphones, driving the market's growth.

Emerging applications, such as wearables, AR/VR headsets, and outdoor navigation systems, provide significant opportunities for MEMS vendors. Wearable devices witnessed an increased adoption globally, and the players are significantly innovating MEMS sensors for deployment in wearable devices. Moreover, AI-enabled technology has enhanced the capabilities of wearable devices, which are partly enabled by MEMS sensors.

Asia-Pacific is Expected to Hold Significant Market Share

Asia-Pacific is a massive market for MEMS sensor technologies. The region dominates the global semiconductor manufacturing industry and holds dominance in many manufacturing segments of other end-user industries. Countries like China are offering low-cost products in the market studied. ?

The Chinese government views its automotive industry, including the auto parts sector, as one of the prominent industries. The Central Government expects China's automobile output to reach 35 million units by 2025. This is posed to make the automotive sector one of the prominent users of MEMS sensors in China.

In the automotive market of China, pressure MEMS will continue to grow due to the evolution toward increased autonomy levels that demand enhanced safety and greener driving. China 6 regulations will boost various applications like diesel particulate filters and gasoline particulate filters, evaporative emissions control systems, exhaust gas recirculation, and tire pressure monitoring systems to grow. ?

India is one of the substantial markets for consumer goods and the latest gadgets worldwide. According to India Brand Equity Foundation (IBEF), the Indian appliances and consumer electronics (ACE) market is anticipated to register a CAGR of 9% to reach INR 3.15 trillion (USD 48.37 billion) this year.

The Indian government has taken several initiatives to boost this product, including the National Policy on Electronics, which aims to promote domestic electronic manufacturing and export a complete value chain to achieve a turnover of approximately USD 400 billion by 2025. Such government initiatives in the region are estimated to drive the growth of the market studied.?

Countries like Japan, India, China, Singapore, South Korea, and Taiwan are increasingly advancing their semiconductor industry and investing in MEMS development. Taiwan-based Vanguard International Semiconductor Corporation (VIS) acquired US-based Globalfoundries' Fab 3E in Singapore by investing over USD 236 million in its MEMS business.?

MEMS Market Competitor Analysis

The MEMS market comprises many large-scale vendors capable of backward and forward integration who command significant revenue generation capabilities. The intensity of competitive rivalry in the market is moderately high and is expected to increase over the coming years. Major players in the market include Broadcom Inc., Robert Bosch GMBH, StmicroelectronicsNV, Texas Instruments Inc., and Qorvo Inc.

In September 2022, Knowles Electronics LLC announced the availability of the true wireless stereo (TWS) named KN2 for the best music listening experience. KN2 incorporates a robust collection of TWS features. The product features include Qualcomm QCC5144 BT SoC with aptX Adaptive and aptX codec for low-latency HD audio that is robust and has a low bit rate. Also within the products are earbuds with multiple SiSonic MEMS microphones to enable voice call algorithms for enhanced noise-canceling performance.

In June 2022, STMicroelectronics, one of the semiconductor leaders serving customers across the spectrum of electronic applications, announced its newest FlightSense Time-of-Flight (ToF) ranging sensor for smartphone camera management and augmented/virtual reality. The VL53L8 direct Time-of-Flight (dToF) sensor is ideal for smartphones, smart speakers, human-machine interfaces, consumer LiDAR, and AR/VR/MR. The sensor combines new revolutionary metasurface lens technology with a more powerful and efficient laser and improved on-chip processing.

Additional Benefits:

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

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