MEMS and Sensors Market Research Report- Global Forecast to 2023

Description:

Global MEMS and Sensors Market Research Report, Material (Silicon, Polymer, Metal, Ceramic), Type (Inertial, Pressure, Microphone, Environmental, Optical), Application (Consumer Electronics, Healthcare, Aerospace & Defense, Automotive)— Forecast till 2023

Market Scenario

The micro-electro-mechanical systems (MEMS) is a technology that consists of both electronic and mechanical components. It consists of various components, such as sensors, actuators, miniaturized structures, and microelectronics. In most of the countries such as Japan & Europe, these are also known as micromachines & microsystems technology (MST).

The MEMS & Sensors market is increasing due to growth in the demand of IoT technology and increasing adoption of connected devices. These sensors are widely used in wearable devices and consumer electronics such as smartphones, tablets, laptops, digital cameras, portable media players, and navigation devices.

In the recent years, the MEMS are used in various verticals including healthcare sector, for diagnostic and treatment equipment positioning applications, imaging applications, and medical devices such as bionic limbs and other artificial body parts.

The MEMS sensors including pressure sensors, inertial sensors, and flow sensors are widely used in the automotive industry to improve the safety and comfort of automobiles. MEMS pressure sensors are used for measurement of manifold air pressure (MAP), fuel tank, and engine oil. The deployment of MEMS accelerometers has eliminated the use of g-switches in the automotive industry for air bag control; this is due to its low cost and vigorous self-testing capability.

The increase in the adoption of smart connected devices including connected cars, smart homes, smart wearable devices, and huge growth in the automotive industry are some of the drivers that are impacting the growth of this market.

However, complex manufacturing and packaging process of MEMS to prevent electrical and other device components from air and water contamination may hamper the growth of MEMS & sensors market.

The global MEMS & sensors market is expected to reach approximately USD 26.1 billion by 2023 growing at ~10.2% CAGR over the forecast period 2018—2023.

The Global MEMS & Sensors Market, 2018—2023 (USD Billion)

Source: MRFR Analysis

Key Players

Some of the key players of global MEMS & sensors market includes STMicroelectronics (Europe), Robert Bosch GmbH (Germany), NXP Semiconductors (Netherlands), Texas Instruments (US), Panasonic (Japan), Murata Manufacturing Co (Japan), Invensense (US), Hewlett Packard (US), Honeywell (US), Qualcomm (US), Infineon (Germany), Allegro Microsystems (US), Mega Chips Corporation (Japan), Denso Corporation (Japan), Hitachi Ltd
Segmentation
The global MEMS & sensors market is segmented on the basis of material, types, and application. By application, the market is segmented into consumer electronics, healthcare, industrial, aerospace & defense, and automotive among others. The MEMS accelerometer sensors are widely used in electronic devices such as laptops and smartphones. The accelerometer is integrated in laptops as it detects the sudden free fall and immediately turns off the hard drive to prevent its damage. The accelerometers are integrated in smartphones to provide various features such as image stability, shock detection, menu navigation, text scrolling, gaming control, silent mode activation, and motion dialing, and others. Moreover, the capability to accurately track the motion using sensors based on MEMS technology has led to the adoption of MEMS sensors in the health and fitness devices. By type, the market is segmented into inertial, pressure, microphone, environmental, and optical. By materials, the market is segmented into silicon, polymer, metal, and ceramic.

Regional Analysis
The geographical analysis of the global MEMS & sensors market is studied for North America, Europe, Asia-Pacific, and the rest of the world. North America is one of the early adopters of technology and holds a significant market share among other regions due to the presence of leading market players such as Texas instruments, InvenSense, Qualcomm, Honeywell, Allegro microsystems, and Bosch. The other factors which are impacting the growth of MEMS & sensors market in this region are increasing adoption of smart devices such as smartphones, smart wearables, PDAs, and computing devices. Whereas, Asia-Pacific holds the largest market among other regions due to the proliferating Chinese market owing to the growing number of smart consumer electronics devices and the presence of major key players such as Mega Chips Corporation, Panasonic, Denso Corporation, and Hitachi Ltd. This region is expected to witness a consistent growth rate throughout the forecast period (2018–2023)

Target Audience
- Raw material and manufacturing equipment suppliers
- Electronic design automation (EDA) and design tool vendors
- Original equipment manufacturers (OEMs)
- Integrated device manufacturers (IDMs)
- Original design manufacturers (ODMs)
- ODM and OEM technology solution providers
- Assembly, testing, and packaging vendors
- Technology, service, and solution providers
- Intellectual property (IP) core and licensing providers
- Suppliers and distributors
- Governments and other regulatory bodies
- Technology investors
- Research institutes and organizations
- Market research and consulting firms

Contents:
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Executive Summary</td>
</tr>
<tr>
<td>2 Scope of the Report</td>
</tr>
<tr>
<td>2.1 Market Definition</td>
</tr>
<tr>
<td>2.2 Scope of the Study</td>
</tr>
<tr>
<td>2.2.1 Research Objectives</td>
</tr>
<tr>
<td>2.2.2 Assumptions &amp; Limitations</td>
</tr>
<tr>
<td>2.3 Markets Structure</td>
</tr>
<tr>
<td>3 Market Research Methodology</td>
</tr>
<tr>
<td>3.1 Research Process</td>
</tr>
<tr>
<td>3.2 Secondary Research</td>
</tr>
<tr>
<td>3.3 Primary Research</td>
</tr>
<tr>
<td>3.4 Forecast Model</td>
</tr>
<tr>
<td>4 Market Landscape</td>
</tr>
<tr>
<td>4.1 Porter’s Five Forces Analysis</td>
</tr>
<tr>
<td>4.1.1 Threat of New Entrants</td>
</tr>
<tr>
<td>4.1.2 Bargaining power of buyers</td>
</tr>
<tr>
<td>4.1.3 Threat of substitutes</td>
</tr>
<tr>
<td>4.1.4 Segment rivalry</td>
</tr>
</tbody>
</table>
4.1.5 Bargaining power of suppliers

4.2 Value Chain/Supply Chain of Global MEMS & Sensors Market

5 Industry Overview of Global MEMS & Sensors Market
5.1 Introduction
5.2 Growth Drivers
5.3 Impact analysis
5.4 Market Challenges

6 Market Trends
6.1 Introduction
6.2 Growth Trends
6.3 Impact analysis

7. Global MEMS & Sensors Market by Materials
7.1 Introduction
7.2 Silicon
7.2.1 Market Estimates & Forecast, 2018-2023
7.2.2 Market Estimates & Forecast by Region, 2018-2023
7.3 Polymers
7.3.1 Market Estimates & Forecast, 2018-2023
7.3.2 Market Estimates & Forecast by Region, 2018-2023
7.4 Metals
7.4.1 Market Estimates & Forecast, 2018-2023
7.4.2 Market Estimates & Forecast by Region, 2018-2023
7.5 Ceramics
7.5.1 Market Estimates & Forecast, 2018-2023
7.5.2 Market Estimates & Forecast by Region, 2018-2023

8. Global MEMS & Sensors Market by Type
8.1 Introduction
8.2 Inertial
8.2.1 Market Estimates & Forecast, 2018-2023
8.2.2 Market Estimates & Forecast by Region, 2018-2023
8.3 Pressure
8.3.1 Market Estimates & Forecast, 2018-2023
8.3.2 Market Estimates & Forecast by Region, 2018-2023
8.4 Microphone
8.4.1 Market Estimates & Forecast, 2018-2023
8.4.2 Market Estimates & Forecast by Region, 2018-2023
8.5 Environment
8.5.1 Market Estimates & Forecast, 2018-2023
8.5.2 Market Estimates & Forecast by Region, 2018-2023
8.6 Optical
8.6.1 Market Estimates & Forecast, 2018-2023
8.6.2 Market Estimates & Forecast by Region, 2018-2023

9. Global MEMS & Sensors Market by Application
9.1 Introduction
9.2 Consumer Electronics
9.2.1 Market Estimates & Forecast, 2018-2023
9.2.2 Market Estimates & Forecast by Region, 2018-2023
9.3 Healthcare
9.3.1 Market Estimates & Forecast, 2018-2023
9.3.2 Market Estimates & Forecast by Region, 2018-2023
9.4 Industrial
9.4.1 Market Estimates & Forecast, 2018-2023
9.4.2 Market Estimates & Forecast by Region, 2018-2023
9.5 Aerospace & Defense
9.5.1 Market Estimates & Forecast, 2018-2023
9.5.2 Market Estimates & Forecast, 2018-2023
9.6 Automotive
9.6.1 Market Estimates & Forecast, 2018-2023
9.6.2 Market Estimates & Forecast, 2018-2023

10. Global MEMS & Sensors Market by Region
10.1 Introduction
10.2 North America
10.2.1 Market Estimates & Forecast, 2018-2023
10.2.2 Market Estimates & Forecast by Materials, 2018-2023
10.2.3 Market Estimates & Forecast by Type, 2018-2023
10.2.4 Market Estimates & Forecast by Application, 2018-2023
10.2.5 U.S.
10.2.5.1 Market Estimates & Forecast, 2018-2023
10.2.5.2 Market Estimates & Forecast by Materials, 2018-2023
10.2.5.3 Market Estimates & Forecast by Type, 2018-2023
10.2.5.4 Market Estimates & Forecast by Application, 2018-2023
10.2.6 Canada
10.2.6.1 Market Estimates & Forecast, 2018-2023
10.2.6.2 Market Estimates & Forecast by Materials, 2018-2023
10.2.6.3 Market Estimates & Forecast by Type, 2018-2023
10.2.6.4 Market Estimates & Forecast by Application, 2018-2023
10.3 Europe
10.3.1 Market Estimates & Forecast, 2018-2023
10.3.2 Market Estimates & Forecast by Materials, 2018-2023
10.3.3 Market Estimates & Forecast by Type, 2018-2023
10.3.4 Market Estimates & Forecast by Application, 2018-2023
10.3.5 Germany
10.3.5.1 Market Estimates & Forecast, 2018-2023
10.3.5.2 Market Estimates & Forecast by Materials, 2018-2023
10.3.5.3 Market Estimates & Forecast by Type, 2018-2023
10.3.5.4 Market Estimates & Forecast by Application, 2018-2023
10.3.6 France
10.3.6.1 Market Estimates & Forecast, 2018-2023
10.3.6.2 Market Estimates & Forecast by Materials, 2018-2023
10.3.6.3 Market Estimates & Forecast by Type, 2018-2023
10.3.6.4 Market Estimates & Forecast by Application, 2018-2023
10.3.7 Italy
10.5.5.3 Market Estimates & Forecast by Type, 2018-2023
10.5.5.4 Market Estimates & Forecast by Application, 2018-2023
10.5.6 Latin America
10.5.6.1 Market Estimates & Forecast, 2018-2023
10.5.6.2 Market Estimates & Forecast by Materials, 2018-2023
10.5.6.3 Market Estimates & Forecast by Type, 2018-2023
10.5.6.4 Market Estimates & Forecast by Application, 2018-2023

11. Company Landscape
12. Company Profiles
12.1 STMicroelectronics
12.1.1 Company Overview
12.1.2 Product/Business Segment Overview
12.1.3 Financial Updates
12.1.4 Key Developments
12.2 Robert Bosch GmbH
12.2.1 Company Overview
12.2.2 Product/Business Segment Overview
12.2.3 Financial Updates
12.2.4 Key Developments
12.3 NXP Semiconductors
12.3.1 Company Overview
12.3.2 Product/Business Segment Overview
12.3.3 Financial Updates
12.3.4 Key Developments
12.4 Texas Instruments
12.4.1 Company Overview
12.4.2 Product/Business Segment Overview
12.4.3 Financial Updates
12.4.4 Key Developments
12.5 Panasonic
12.5.1 Company Overview
12.5.2 Product/Business Segment Overview
12.5.3 Financial Updates
12.5.4 Key Developments
12.6 Murata Manufacturing Co
12.6.1 Company Overview
12.6.2 Product/Business Segment Overview
12.6.3 Financial Updates
12.6.4 Key Developments
12.7 Invensense
12.7.1 Company Overview
12.7.2 Product/Business Segment Overview
12.7.3 Financial Updates
12.7.4 Key Developments
12.8 Hewlett Packard
12.8.1 Company Overview
12.8.2 Product/Business Segment Overview
12.8.3 Financial Updates
12.8.4 Key Developments
12.9 Honeywell
12.9.1 Company Overview
12.9.2 Product/Business Segment Overview
12.9.3 Financial Updates
12.9.4 Key Developments
12.10 Qualcomm
12.10.1 Company Overview
12.10.2 Product/Business Segment Overview
12.10.3 Financial Updates
12.10.4 Key Developments
12.11 Infineon
12.11.1 Company Overview
12.11.2 Product/Business Segment Overview
12.11.3 Financial Updates
12.11.4 Key Developments
12.12 Allegro Microsystems
12.12.1 Company Overview
12.12.2 Product/Business Segment Overview
12.12.3 Financial Updates
12.12.4 Key Developments
12.13 Mega Chips Corporation
12.13.1 Company Overview
12.13.2 Product/Business Segment Overview
12.13.3 Financial Updates
12.13.4 Key Developments
12.14 Denso Corporation
12.14.1 Company Overview
12.14.2 Product/Business Segment Overview
12.14.3 Financial Updates
12.14.4 Key Developments
12.15 Hitachi Ltd
12.15.1 Company Overview
12.15.2 Product/Business Segment Overview
12.15.3 Financial Updates
12.15.4 Key Developments

13 Conclusion

List of Tables
Table 1 Global MEMS & Sensors Market, by Region, 2018—2023
Table 2 North America: MEMS & Sensors Market, by Country, 2018—2023
Table 3 Europe: MEMS & Sensors market, by Country, 2018—2023
Table 4 Asia-Pacific: MEMS & Sensors market, by Country, 2018—2023
Table 5 The Middle East & Africa: MEMS & Sensors market, by Country, 2018–2023
Table 6 Latin America: MEMS & Sensors market, by Country, 2018—2023
Table 7 Global MEMS & Sensors material Market, by Region, 2018–2023
Table 8 North America: MEMS & Sensors material Market, by Country, 2018–2023
Table 9 Europe: MEMS & Sensors material Market, by Country, 2018–2023
Table10 Asia-Pacific: MEMS & Sensors material Market, by Country, 2018—2023
Table11 The Middle East & Africa: MEMS & Sensors material Market, by Country, 2018—2023
Table12 Latin America: MEMS & Sensors material Market, by Country, 2018—2023
Table13 Global MEMS & Sensors type Market, by Region, 2018—2023
Table14 North America: MEMS & Sensors type Market, by Country, 2018–2023
Table15 Europe: MEMS & Sensors type Market, by Country, 2018–2023
Table16 Asia-Pacific: MEMS & Sensors type Market, by Country, 2018—2023
Table17 The Middle East & Africa: MEMS & Sensors type Market, by Country, 2018—2023
Table18 Latin America: MEMS & Sensors Memory type Market, by Country, 2018—2023
Table19 Latin America: MEMS & Sensors Market, by materials, 2018—2023
Table20 Latin America: MEMS & Sensors Market, by type, 2018—2023
Table21 North America: MEMS & Sensors Market, by Country
Table22 North America: MEMS & Sensors Market, by materials
Table23 North America: MEMS & Sensors Market, by type
Table24 Europe: MEMS & Sensors Market, by Country
Table25 Europe: MEMS & Sensors Market, by materials
Table26 Europe: MEMS & Sensors Market, by type

LIST OF FIGURES
FIGURE 1 Global MEMS & Sensors Market Segmentation
FIGURE 2 Forecast Methodology
FIGURE 3 Porter’s Five Forces Analysis of Global MEMS & Sensors Market
FIGURE 4 Value Chain of Global MEMS & Sensors Market
FIGURE 5 Share of Global MEMS & Sensors Market in 2018, by country (in %)
FIGURE 6 Global MEMS & Sensors Market, 2018-2023,
FIGURE 7 Global MEMS & Sensors Market size by materials, 2018
FIGURE 8 Share of MEMS & Sensors Market by materials, 2018 TO 2023
FIGURE 9 Global MEMS & Sensors Market size by type, 2018
FIGURE 10 Share of Global MEMS & Sensors Market by type, 2018 TO 2023
FIGURE 11 Global MEMS & Sensors Market size by application, 2018
FIGURE 12 Share of MEMS & Sensors Market by application, 2018 TO 2023