MEMS Sensors & Actuators
2019 Patenting Activity

What is driving the recent MEMS IP activities?

A stable IP landscape with new opportunities and increasing competition

MEMS sensors and actuators are key components in numerous applications. Indeed, electronic devices need to be more and more linked to the real world in order to provide better experiences to the customer. Sensing and interacting with the environment is thus becoming critical especially in the automotive, consumer and industrial markets. Indeed, the autonomous vehicles, AR/VR and industry 4.0 dreams require the use of numerous sensors.

According to Yole Développement the market will exhibit +8.3% growth in value and +11.9% growth in units, with consumer still having the biggest share (more than 60%) from 2019 to 2024. This growth rate is however smaller than the previous ones and automotive and consumer markets are levelling off. As the growth slows down, the competition is getting tougher and tougher between the different players, since the cake is not as big. On the M&A side, MEMS-related acquisitions declined during the last year, reflecting the weaker, general semiconductor-related M&As and a consolidation of the business. Furthermore, there were no significant new entrants, and existing players struggled to compete against each other.

In this context, this MEMS Sensors & Actuators 2019 Patenting Activity report aims at understanding the recent patenting activities and related R&D developments of MEMS players. This report also track weak signals in order to find new applications or new R&D axes that are currently being investigated, and newcomers which are entering the landscape.

The patents published in 2019 confirm the small decrease that we can see at the market level. Indeed, even if the number of patents remain quite significant, most of the IP segments have remain stable. This is the case for inertial sensors, micro mirrors or pressure sensors. However, despite this general trend, some recent development of MEMS for new applications seem promising. For instance, 2019 patents confirm the strong activity related to piezoelectric MEMS dedicated to automotive (headlamp, head-up display, etc.) or consumer applications (fingerprint sensors, voice machine interface).

2019 is also marked by the strong patenting activity of Chinese players. Indeed, Chinese players filed more than 60% of the patents published in 2019 and even led most of the MEMS devices. This strong activity could be a sign of the strong investments that the Chinese company have made to increase their competitiveness and be able to challenge major European and US companies.
Who are the main IP players and what are their 2019 patenting activity?

This report provides a detailed picture of the patents published in 2019 for MEMS sensors and actuators, including inertial sensors (accelero, gyro, IMUs), microphones, microspeakers, ultrasonic sensors, pressure sensors, micromirrors, microbolometers, gas sensors, etc.

We have selected and analyzed more than 3,000 inventions specifically related to MEMS transducers, MEMS devices and MEMS packaging. All other patents related to materials, wafer manufacturing, driver circuits and systems have been excluded.

The report provides a global view of the most recent patents published in 2019 by MEMS players for each MEMS technology and device. For each player, we highlight and provide information about their recent and future technology developments. A comparison between their 2019 market position and their 2019 patenting activity is also provided.

Analysis of main technology developments

This report provides a detailed analysis of the technologies developed by the main IP players. A detailed description of the most noticeable patents published in 2019 is also provided.

Knowmade highlights any change in the players' activity as well as an analysis on new applications/technologies and their related challenges. Thus, giving an understanding of the current main IP drivers and potential future markets.

Report’s main assets

Understanding the key players’ recent IP and current technology development

More than 1,000 patent applicants are involved in the MEMS 2019 patent landscape. This report reveals the most active IP players for all type of MEMS devices. A detailed analysis of their 2019 patents and their related challenges and applications is provided.

Identifying the opportunities

This report give an overview of the current dynamic and technologies. Opportunities and inventions link to new applications are analyzed. This report provides a detailed analysis of the technology describe in patents. For each segment we identify the new technological approach for the different targeted markets.

Useful Excel patent database

This report also includes an Excel database with the 4,350 patents and patent applications analyzed in this study. This useful patent database allows for multi-criteria searches and includes patent publication numbers, hyperlinks to the original documents, priority date, title, abstract, patent assignees, patent’s current legal status, and technological and application segments.
About Knowmade

Knowmade is a Technology Intelligence and IP Strategy consulting company specialized in analysis of patents and scientific information. The company helps innovative companies and R&D organizations to understand the competitive landscape, follow technology trends, and find out opportunities and threats in terms of technology and patents.

Knowmade's analysts combine their strong technology expertise and in-depth knowledge of patents with powerful analytics tools and methodologies to turn patents and scientific information into business-oriented report for decision makers working in R&D, Innovation Strategy, Intellectual Property, and Marketing. Our experts provide prior art search, patent landscape analysis, scientific literature analysis, patent valuation, IP due diligence and freedom-to-operate analysis. In parallel the company proposes litigation/licensing support, technology scouting and IP/technology watch service.

Knowmade has a solid expertise in Compound Semiconductors, Power Electronics, Batteries, RF Technologies & Wireless Communications, Solid-State Lighting & Display, Photonics, Memories, MEMS Sensors & Actuators, Semiconductor Manufacturing, Packaging & Assembly, Medical Devices, Medical Imaging, Microfluidics, Biotechnology, Pharmaceuticals, and Agri-Food.
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Patent Landscape Analysis – July 2020
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7. Termination

7.1 If the Buyer cancels the order in whole or in part or postpones the date of mailing, the Buyer shall indemnify the Seller for the entire costs that have been incurred as at the date of notification by the Buyer of such delay or cancellation. This may also apply for any other direct or indirect consequential loss that may be borne by the Seller, following this decision.

7.2 In the event of breach by one Party under these conditions or the order, the non-breaching Party may send a notification to the other by recorded delivery letter upon which, after a period of thirty (30) days without solving the problem, the non-breaching Party shall be entitled to terminate all the pending orders, without being liable for any compensation.

8. Miscellaneous

All the provisions of these Terms and Conditions are for the benefit of the Seller itself, but also for its licensors, employees and agents. Each of them is entitled to assert and enforce those provisions against the Buyer.

Any notices under these Terms and Conditions shall be given in writing. They shall be effective upon receipt by the other Party. The Seller may, from time to time, update these Terms and Conditions and the Buyer, is deemed to have accepted the latest version of these terms and conditions, provided they have been communicated to him in due time.

9. Governing law and jurisdiction

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