

High-performance CMOS-MEMS manufacturing technology

A new technology for low-cost and high-performance MEMS sensor design using a standard CMOS process has been patented. This allows for virtually any microprocessor and integrated circuit to become aware of its physical operating environment thanks to the multiple sensory information that it provides at minimum additional cost. Partners to further develop the system and/or to establish commercial agreements along with technical cooperation are sought.

The Challenge

Microprocessors have dramatically increased their performance over the years, yet they are no more than powerful arithmetic calculators. In order to take the next step on their evolution, physical awareness is needed. The monolithic sensor integration that this technology enables will allow any microprocessor and integrated circuit to become aware of their environment without needing complex packaging solutions or dramatic area increase, opening the door to a myriad of new applications and innovative game-changing products. However, MEMS manufacturing inside CMOS poses several challenges in terms of reliability, repeatability and performance, issues that can be addressed using our patented technology, design techniques and skill set.

The Technology

Our technology allows CMOS-MEMS monolithic volume manufacturing without losing any significant yield and reliability due to manufacturing imperfections. We have currently developed several base sensors, as accelerometers, magnetometers and barometers, integrated monolithically with their signal-conditioning electronics. They take full advantage of our patented technology to provide multiple sensor data to a microprocessor integratable on the same electronics die while only increasing its manufacturing cost by less than \$0.01 per chip.

Innovative advantages

- CMOS-compatible monolithic sensor integration
- High-yield, high-performance, low-cost, low power consumption
- Multiple sensor data (inertial / accelerometer, magnetic / compass, pressure / barometer...) readily available in any chip
- IP and reference designs blocks available
- Silicon-proven technology

Current stage of development

The core technology has been demonstrated in a relevant environment (TRL6). Technology demonstrators are available for inertial sensors (TRL6), laboratory prototypes are available for magnetometers (TRL4) and proof of concept tests are available for pressure sensors (TRL3).

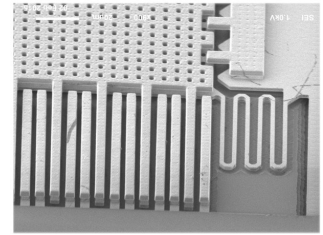
Applications and Target Market

- Consumer / wearables, enabling more compact and movement-aware products
- Consumer / security, making chips aware of changes in their environment
- Health / implants, allowing for medical-data gathering in a minimum volume

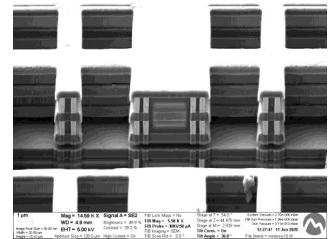
Reference number

MKT21/0176_I

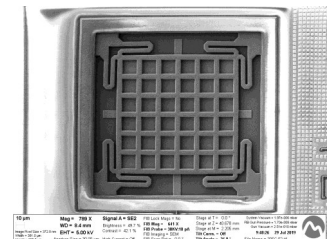
Manufactured devices



Inertial sensor / accelerometer



Magnetometer / compass



Pressure sensor / barometer

Business Opportunity

Technology available for licensing

Protected by patent

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