

LED

IC

MEMS

IMAGING

PACKAGING

SYSTEM

POWER

STMicroelectronics LSM6DS3

6-Axis MEMS IMU

*ST's extra small (only 6mm³) and sub-mA IMU named 2014 MEMS device of the year
50% footprint reduction, many process & design innovations*

Combo sensors, and particularly 6-axis IMU, will represent the majority of the inertial MEMS market in the coming years according to Yole. This large adoption has not profited much to STMicroelectronics so far, but their latest innovation in the field could be a game changer. Indeed, the LSM6DS3 has been named "MEMS sensor device of the Year" in 2014 and ST had a big design win with a 6-axis IMU in the Apple Watch this year. Targeting the promising market of wearable, ST has done things right to be competitive in here...

Title: MEMS IMU

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PRICE:

Full report: EUR 2,990

Technology report: EUR 1,990

By achieving 50% footprint reduction and decreasing considerably the power consumption compared to ST's previous generation IMU, the LSM6DS3 is ready to attack the mobile market where the competition on price is stronger than ever. In order to obtain this size of only 2.5x3x0.85mm, STMicroelectronics introduced many new features to its device. Indeed, the classical LGA 2-layer PCB has been replaced by an uncommon 3-layers PCB, the MEMS gyro and accelerometer have also been redesigned to be able to shrink the die size. On the processes side, new techniques borrowed from competitors products has been introduced in the MEMS fabrication and also a whole new process for the ASIC is now used allowing to embed 8KB of FIFO memory.

The LSM6DS3 is targeted for battery-powered smart sensor systems to be embedded in mobile and wearable devices and innovative objects for the Internet of Things (IoT).

The report includes a detailed technology and cost comparison with ST's previous generation LSM6DS0 and with leading edge 6-Axis IMUs from Bosch Sensortec (BMI160) and InvenSense (MPU-6500).

COMPLETE TEARDOWN WITH:

- Detailed Photos
- Precise Measurements
- Material Analysis
- Manufacturing Process Flow
- Supply Chain Evaluation
- Manufacturing Cost Analysis
- Selling Price Estimation
- Comparison of LSM6DS3 vs. LSM6DS0
- Comparison of ST LSM6DS3 vs. Bosch BMI160 & InvenSense MPU-6500

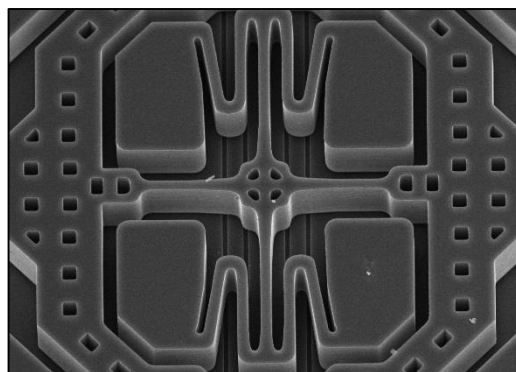
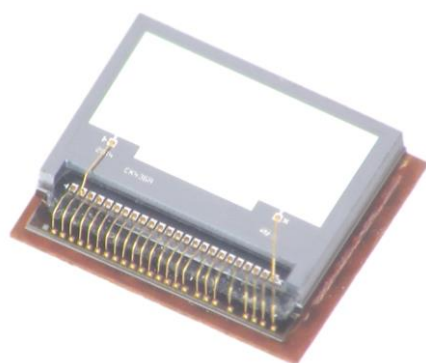


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Fraux

Romain is in charge of costing analyses for MEMS, IC and Advanced Packaging. He has published more than 50 Reverse Costing reports on various MEMS devices including Inertial, Pressure, Microphones or RF Sensors.



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Le Troadec

Véronique is in charge of structure analysis of semi-conductors. She has a deep knowledge in chemical & physical technical analyses. She previously worked for 20 years in Atmel Nantes Laboratory.

ANALYSIS PERFORMED WITH OUR COSTING TOOLS MEMS COSIM+ AND IC PRICE+

	Process-Based Costing Tools	Parametric Costing Tools
Integrated Circuits		IC Price+
MEMS	MEMS CoSim+	MEMS Price+
Power Devices & Modules	Power CoSim+	Power Price+
LEDs	LED CoSim+	
Advanced Packaging	3D-Package CoSim+	
Electronic Boards Substrates		PCB Price+
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Displays		Display Price+

MEMS Cosim+

Cost simulation tool to evaluate the cost of any **MEMS** process or device:

From single chip to complex structures.

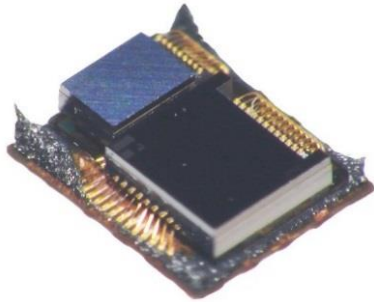
MEMS CoSim+ is a process-based costing tool used to evaluate the manufacturing cost per wafer using your own inputs or using the pre-defined parameters included in the tool.

It is possible to enter any **MEMS** process flow.

RELATED REPORTS

Bosch Sensortec BMI160 6-Axis MEMS IMU

New 6-Axis Inertial Measurement Unit from Bosch Sensortec, with a very low power consumption accelerometer and a footprint of only 3x2.5mm²



Pages: 177
Date: March 2015
Full report: EUR 2,990*

InvenSense MP67B 6-Axis MEMS IMU

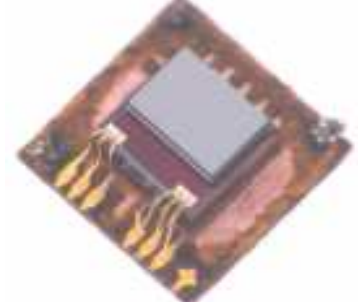
InvenSense's first design win in Apple iPhone
InvenSense's Second Generation 6-Axis Devices for Consumer Applications



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** Technology Analysis report contains only Physical Analysis & Manufacturing Process Flow

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