STMicroelectronics LSM6DS3 6-Axis IMU - Reverse Costing Analysis

Description: 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 lately, but their latest innovation in the field could change that. 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.

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 Indeed, the classical LGA 2-layer PCB has been replaced by an uncommon 3-layers PCB, the MEMS gyro and accelerometer have also been redesigned to be able to shrink the die size.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).

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