2-Axis OIS Gyroscopes: Technology Analysis

Description: 2-Axis Gyroscope for OIS is a market where 123M units have been shipped in 2015 according to Yole Development. This market is only made with high-end smartphones and mainly two players shared the pie: InvenSense with 49% and STMicroelectronics with 39% of the market.

The 2-axis gyroscopes are located inside the camera module of high-end smartphones and the main constraint consists on providing a small footprint and more importantly a small thickness.

The thickness was the same than standard LGA or QFN packages some years ago, close to 1mm. Now the standard is 0.65mm, and both InvenSense and STMicroelectronics released a device with this thickness.

InvenSense has been the first, with the IDG-2030, a 2.3x2.3x0.65mm gyroscope which is still the smallest on the market. Since its introduction we found it in several smartphones from various OEM. The IDG-2030 uses the same Nasiri platform as other InvenSense inertial devices, making the wafer-level integration of the MEMS sensor on top of the ASIC, thus providing only one die in the final LGA package.

STMicroelectronics on its side released the L2G2IS some month after the IDG-2030 and shares the same dimensions. The device is manufactured using the same THELMA process than all STMicroelectronics inertial devices. This THELMA platform requires a two dies approach which became to be very challenging for very thin package integration. At the end both players have been able to propose very low cost gyros due to die size reduction and process optimization.

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