

# Bosch Sensortec BMA250

## Triple-Axis MEMS Accelerometer

Reverse Costing Analysis – December 2011

### Physical Analysis of the Device

#### Step by Step Reconstruction of the Process Flow

#### Cost of Manufacturing and Estimation of Selling Price

System Plus Consulting is proud to publish the reverse costing report on the BMA250 3-axis MEMS accelerometer from Bosch Sensortec.

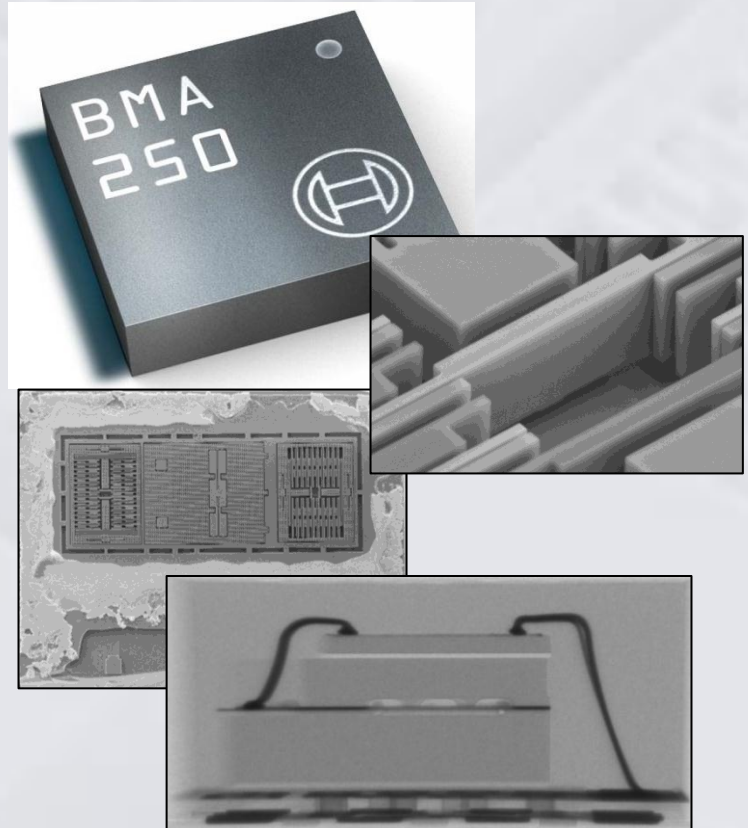
The BMA250 is a low power digital accelerometer packaged in a tiny 2x2x0.9mm<sup>3</sup> QFN package.

Major changes in the MEMS process were necessary to reduce the die area and the overall thickness.

The BMA250 is targeted for game controllers, mobile handsets, digital still and video cameras, 3D remote controls/mice, portable navigation devices, security and health.

This report provides complete teardown of the inertial MEMS with:

- Detailed photos
- Material analysis
- Schematic assembly description
- Manufacturing Process Flow
- In-depth economical analysis
- Manufacturing cost breakdown
- Selling price estimation



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\*For price in dollars please use the day's exchange rate

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The present document is valid 6 months after its publishing date: 1<sup>st</sup> December 2011.

## ABOUT SYSTEM PLUS CONSULTING

System Plus Consulting is specialized in the **cost analysis** of electronics from **semiconductor devices** to **electronic systems**.  
Around this main line System Plus Consulting developed a complete range of services and costing tools to provide **in-depth production cost studies** and estimation of the **objective selling price** of the product.

### COSTING SERVICES

- ✓ **On demand Reverse Costing studies** are performed on ICs, ASICs, MEMs, Power Devices, ECUs, electronic boards and full electronic systems
- ✓ **The catalog of available reports** includes cost analyzes on MEMS, Electronic components and Electronic systems (Telecom terminals, Power systems, Consumer products)

All these studies are performed using in-house developed costing tools and their technological databases.

### COSTING TOOLS

#### Software

- ✓ IC Price+ to calculate the cost of any integrated circuit
- ✓ Power Price+ to calculate the cost of any power component or module
- ✓ SYS.Cost which is a costing tool for electronic boards and systems

#### Costing Models

- ✓ Board Assembly – System in Package – System on Chip – Memory Chip – Smart Card – Plastic Part
- ✓ Other costing models can be developed according to customer specification

#### Cost Simulation Tools

- ✓ Powerful flow builders including exhaustive databases to simulate a device processing cost
- ✓ Available now: MEMS CoSim+ • Power CoSim+ • LED CoSim+ • TSV CoSim+ • PV CoSim+ (photovoltaic)

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System Plus Consulting may change its prices whenever the company thinks it necessary. However, the company commits itself in invoicing at the prices in force on the date the order is placed.

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If the payment does not reach System Plus Consulting on the deadline, the Buyer has to pay System Plus Consulting a penalty for late payment the amount of which is 3 times the French legal interest rate. The legal interest rate is the current one on the delivery date. This penalty is worked out on the unpaid invoice amount without taxes, starting from the invoice deadline. This penalty is sent without previous notice.

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The delivery schedule on the purchase order is given for information only and cannot be strictly guaranteed. Consequently any reasonable delay in the delivery of services will not allow the buyer to claim for damages or to cancel the order.

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