

SILICON MICROPHONE MARKET 2007

A sustainable market for 15+ silicon microphone manufacturers?

EXHAUSTIVE ANALYSIS OF SILICON MICROPHONE MARKETS

First signs of MEMS microphone massive introduction

MEMS microphones are already widely used in mobile phones. For example, Knowles SiSonic is in use in more than 20 mobile phone models from handset manufacturers worldwide. The company has announced over 300 million units shipped in mid 2006.

This attractiveness for MEMS microphones started in 2003 when Motorola introduced the exceptionally thin RAZR. MEMS microphones enabled these thin profiles thanks to bottom-port microphones. Designers benefited from the very low component height by using them on the front-side of the PCB.

MEMS microphone advantages

The development of the MEMS microphone business is the results of the numerous benefits of this technology vs. the traditional ECM microphones for handset applications. MEMS microphones were the first to be directly solderable by reflow process for example. ECM manufacturers answered within less than three years with ECMs featuring equivalent capability. The additional advantages, such as the immunity to EM and RFI interference beings significant, benefit the handset industry, but it is expected to be much more valuable for other applications such as integration into notebooks and automotive applications.

20+ MEMS microphone manufacturers

Yole Développement's latest report "Silicon microphone market 2007 » features 8 MEMS microphone players currently in production (or sampling).

The MEMS microphone manufacturers have definitely emerged in 3 waves

- 2003: Knowles Acoustics
- Mid 2005 – mid 2006: SonionMEMS, Akustica and MEMStech started to tackle the leadership of Knowles
- End 2006 - mid 2007: 4 new players entered Infineon, Panasonic, Yamaha and Omron

The presence of the last 4 players is setting new rules for the industry. Yole forecasts a consolidation of the market in 2008 – 2009. It will strongly impact the ability of the other 12 players still in development to enter the market successfully. As the industry becomes more competitive, the right IP and the technical choices are key to achieve performance and cost challenges.

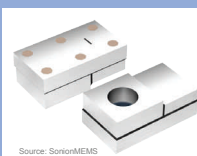
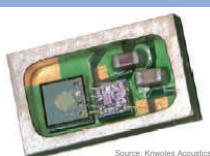
To provide this in depth technological overview of the industry, Yole's report include a detailed company profiles describing all development efforts and product features: design, process, partnership and company strategy.

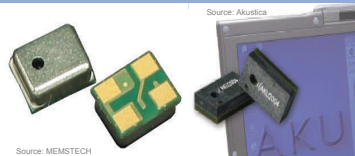
MEMS market opportunity

The MEMS microphone market is estimated to have reached 117M\$ in 2006. The 2005-2006 periods has shown a 90% volume increase. As Yole forecasts a 43% volume CAGR over the 2006 - 2011 period, the MEMS microphone opportunity is clearly one of the fastest growing applications within the MEMS industry.

Content of the report
"150+ slides giving a complete understanding of the silicon microphone markets "

	Technology	Process / Materials	Devices	Systems
Markets	Overview of detection principle	Description of the main manufacturing challenges	Market estimation per applications: Handsets – VoIP – Consumer electronics – Hearing heads – Automotive - Security	Evaluation of the system market and requirements
Players	20+ Company profiles describing the activity, the products, the technology, the processes, R&D works and the main patents			
R&D	20+ Company profiles describing the activity, the products, the technology, the processes, R&D works and the main patents			
Trends	Technology trends among industrial players	Impact on the equipment and material market	Trends of product size and power consumption	Product introduction schedule

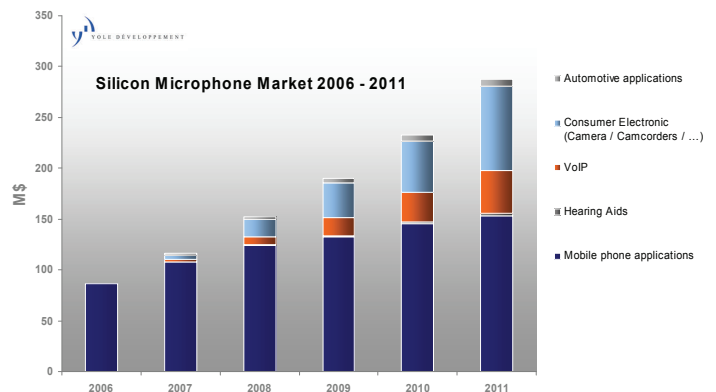




Yole forecasts a slowdown of the market value by 2011 due to very strong price pressure. It highlights a key question not often answered by the companies: is the market large enough to make margin?

- Price pressure is extremely high due to the maturity of the handset industry and the very cheap well established ECM technology
- Competitors start to be numerous
- Considerable investment is required for these complex acoustic devices.

With the silicon microphone industry now riding its 3rd wave, this report give inputs predicting how big and how dangerous will be the fourth one!



GET A UNIQUE GLOBAL AND IN-DEPTH VIEW OF THE SILICON MICROPHONE MARKET:

- Elaborate business strategies per application and market described
- Build your competitive positioning thanks to the exhaustive and detailed competitive analysis
- Estimate silicon microphone market business attractiveness given the technical and business challenges

Description of the report

This report gives an accurate segmentation of the market potential of Silicon Microphones. It investigates the advances of the silicon microphones penetration across five fields: Telecom, Consumer electronics, Medical, Automotive and Security.

It analyses each application in details using the following criteria:

- Description of the application and the benefit of Silicon Microphones
- Function and specification requirements for Silicon Microphones
- Description of the market drivers and the integrators
- Analysis of the competitive technologies and players
- Analysis of the Silicon Microphones market
 - Evaluation of market volume, average selling price, and market value on the 2006-2011 period
 - Major players market share and potential new entrants
 - Analysis of the technical and business trends

The report provides over 20 detailed company profiles (in production, sampling or still in development). Each profile analysis deeply the activity of silicon microphone company: products, technology, processes, R&D works and main patents...

Finally the main challenges facing the MEMS microphone industry are discussed:

- Product introduction roadmap
- Player development status mapping
- Business model comparison
- Evolution of the ECM competition
- Technology winners: monolithic vs. several chip solution? Analog vs. Digital?
- Key drivers of microphone and handset manufacturers relationship
- From microphone device to microphone module

This report not only describes the market at the players and applications level, but it provides a global view of the MEMS microphone market allowing to build diversification strategies taking into account the technical requirements.

- **Report:** **Silicon Microphone Market 2007**
A sustainable market for 15+ silicon microphone manufacturers?
- **Price in Euro:** **3,990 - for a single user license**
- **Format:** **The report is a PowerPoint® presentation delivered in a pdf® format**
- **Publication date:** **August, 10th 2007**
- **Author:** **Mathieu Potin**

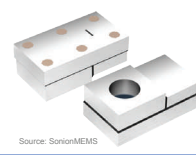
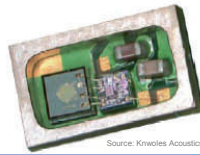


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Who should buy the report?

- Business development manager will plan and tailor the product development activities to fit first product introduction or plan diversification strategies
- Sales managers will have market potential (# Munits/year, ASP) and an overview of joint markets
- Technical directors will find global overview will find the market/technical requirement data to evaluate and scale their new product development projects
- Marketing executives of component and system companies will find key figures for their strategic plans and offer design
- Purchasing departments will find data to evaluate risks or new solutions for their sourcing strategies

Companies in the report

AAC, Akustica, Analog Devices, Auxitrol, BSE, Changzhou Tongda-WK Electronic, Dover Electronics, Draper Laboratory, Fujitsu, GN Resound, Hosiden, Infineon, INN, Intensity Electronic, Tachima Tech Corp, Kenwood, Knowles acoustics, Memscap, MEMStech, Microflown, Motorola, NASA, NCT, Neonode, NHK, Nokia, NXP, Omron, Panasonic, Panasonic Mobile Communication, Phone-OR, QinetiQ, Ricoh, Ringford Product Ltd, Samsung, Shenzhen Horn Electroacoustic Technology, Siemens, Siemens Hearing, SonionMEMS, SPK Electronics, Toshiba, Transound Electronics, VTT Electronics, Wolfson, Yamaha...

Bio



Mathieu Potin is leading the MEMS market research activities at Yole particularly inertial MEMS, RF MEMS and MEMS microphone. He is working with Yole on marketing analysis & research, due diligence and business plan activities. He was granted a master degree of technology management and a science master degree in semiconductor physics.

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About Yole Développement

Our commitment is to facilitate market access for innovative technology, devices, equipment and materials in the disruptive semiconductor businesses. Founded in 1998, Yole Développement is involved in the following fields, with strong leadership worldwide:

- MEMS Devices and Equipment & Materials for MEMS manufacturing
- Compound Semiconductors
- Nanomaterials
- Photovoltaic
- Microfluidics
- 3D IC/TSV & Advanced Packaging

Our services and publications:

- Market research
- Market reports & databases
- Technology analysis
- Magazine Publication Micronews (print version and on line services)
- Strategy consulting
- Exclusive newsletters in MEMS, 3D IC, photovoltaic, compound semiconductors and microfluidics
- M&A support and due diligence

Yole Développement is the world leader in the analysis of disruptive semiconductor applications and markets. Each day, Yole Développement's team of 20 consultants is in contact with industrial companies, R&D institutes and investors worldwide in order to help them understand the market and technology trends. In its analysis, Yole Développement takes into account the complete value chain including materials, equipment suppliers, device & system manufacturers and end users.

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