

Matsushita Electric Works, Ltd.

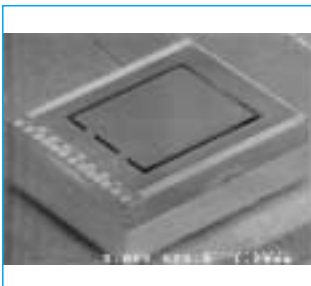
1. Endeavors in Micromachine Technology

Since its establishment in 1981, the Semiconductor Technology Development Center of Matsushita Electric Works has worked on developing and accumulating knowledge on semiconductor device related technologies such as semiconductor relay devices designed for use at our company. Beginning from the mid-90s, we shifted our development emphasis to MEMS and began in earnest to develop technologies for MEMS devices, such as pressure sensors and accelerometers, in order to enhance the silicon wafer processing technology we had developed thus far. Making maximum use of our infrastructure at that point, we began providing a service to develop trial products for users in-house and launched a MEMS foundry service in January 2002. Our foundry service covers everything from device trial manufacturing to mass-production.

2. Development of Micromachine Technology

Matsushita Electric Works has already marketed pressure sensors and accelerometers manufactured through bulk micromachining and has produced a total of fifteen million sensors to date. In addition to these sensor devices, we have developed microrelays, microvalves, and other actuator elements that have been well received by academic societies overseas, for example.

We have also enhanced our machining technology to support this production and have made high-



Accelerometer



Microrelay



Microvalve



High-aspect machining



Hiroshi Kikuchi
Senior Managing Director in Charge of Technology

precision micromachining possible through Deep-RIE etching that can achieve a high aspect ratio and machining using SOI wafers, a technology in which our company specializes.

In addition to wafer machining processes for forming MEMS, our company has the technical knowledge of such processes as packaging design, silicon/glass anodic bonding, low-stress wafer dicing, die bonding, and wire bonding and performs a wide variety of services in the foundry service. We also possess a 3D circuit processing technology called MIPTEC (microscopic integrated processing technology) for forming microcircuits in package.

3. Future Endeavors

We see the applications for MEMS expanding into numerous markets. MEMS are expected to have not only automobiles, as they have in the past, but also a wide variety of applications in mobile communications such as cellular telephones, robots, entertainment, security, environment, energy control, health and medical equipment, and the like.

We have ranked MEMS as the most important device of the future and will contribute to the development of not only our own products, but also the entire MEMS industry, by developing large MEMS projects through our foundry.



MIPTEC (microscopic integrated processing technology)