

Electronics Business

Capitalizing on unique ceramic technology to drive technological innovation

Current Situation and Future Outlook

■ Solid business from data centers and growing 5G-related investment

Results for the period ended March 31, 2020 were generally in line with expectations, apart from the impact felt from stagnating investment in macrocell base stations due to the economic slowdown in China. Demand for bonded wafers for SAW filters, piezoelectric micro-actuators for hard disk drives (HDDs), and other core products exceeded expectations.

The spread of COVID-19 impacted first-quarter shipments to customers in China and South Korea, and we are currently investigating continued and future impacts. In the Chinese market, government investment in 5G-related technology continues. However, it has been impacted by trade frictions between the U.S. and China, as well as by the worldwide downturn in automotive sales. This likely will have an impact on products like ceramic packages. The outlook for products from our New Metals Division and Soshin Electric is uncertain, and the level of impact to expect moving forward is also uncertain. However, despite all of this, we forecast an overall recovery.



Growth Strategy

■ Capitalizing on global change as an opportunity to create new products

In our electronic components business, we have been focusing our time and resources in recent years into launching new products, including the EnerCera[®] lithium-ion rechargeable battery, micro-lenses for ultraviolet LEDs, and gallium nitride (GaN) wafers. For each of these, there is the twofold challenge of market development and cost reduction.

In the case of the EnerCera battery, applications are being developed in a variety of areas. In addition to smart cards and wearable devices, industrial applications are also being studied, such as in IoT for factories and stores, and in quality control for shipping. Alongside promotional tie-ups with IC manufacturers and power generation/power supply device manufacturers, we are exploring digital marketing and other new methods that allow us to reach out to companies that we have conventionally been unable to access.

Our micro-lenses for ultraviolet LEDs are manufactured using a unique mold casting technology. We can now expect a steady level of sales based on the fact that they have been well received for their high degree of design flexibility, which allows them to be tailored to the optical properties sought by customers.

Furthermore, the same mold casting technology is used in the development of the HICERAM[®] carrier wafer used in the semiconductor packaging process, and this has had a positive impact on customer assessment. We are accelerating the pace of commercialization in order to accommodate the demand

accompanying recovery in the semiconductor market.

For GaN wafers, we are working to make improvements that will differentiate us from our competition in terms of reliability and customer process yield. Although it will take a bit more time until environmental regulations lead to full demand for alternatives to mercury lamps, GaN wafers have future potential in the power semiconductor market beyond current laser oscillation applications.

With regard to our metal-related business, we are expanding sales of beryllium copper strips aimed at meeting the expected growth in demand for 5G base stations and EVs (electric vehicles). For our new copper-nickel-tin alloy, we are currently working on new applications that will complement our existing applications. We had been having difficulty developing applications for our zirconium-copper alloy wire, but we were able to surmount customers' electrical discharge wire-related difficulties and thereby facilitate improvement in machining setup. We have now moved it into mass production.

Factors such as the aftereffects of the COVID-19 pandemic, the expansion in 5G-related investment, and more widespread utilization of video data and IoT sensing are causing rapid change in market needs in the medium-to-long term. For us, these represent excellent opportunities to create new products and expand sales.



Main market

【Amount of digital data generated and transmitted worldwide】
Average annual growth rate of approximately 30%
Amount in 2025 will be more than five times that of 2018: 175 ZB (zettabytes: 1 trillion gigabytes) (IDEMA Japan estimate)

Main customers

【Piezoelectric devices for HDDs, bonded wafers, etc.】
Manufacturers of HDDs, 4G/5G-related devices, and base stations

Core products

■ **Piezoelectric micro-actuators for HDDs**

Micro-actuators are indispensable for performing precise control of magnetic heads in HDDs. As the key device enabling both high capacity and reliability in HDDs, our ultra-compact micro-actuators are used in data centers throughout the world.

■ **Bonded wafers**

Bonded wafers are substrates for electronic devices developed by proprietary bonding technologies and ultra-high-precision wafer polishing technologies cultivated in the ceramics business. Combining different materials makes it possible for bonded wafers to deliver performance and functionality beyond wafers made from a single material.

■ **Beryllium copper alloy**

From 0.045 mm sheets and coils to bars and wire a mere 0.05 mm in diameter, we can provide the right alloy mix with a variety of hardness to meet customer needs. Beryllium copper alloys boast outstanding strength, conductivity, fatigue resistance, high-temperature characteristics, workability, and resistance to corrosion.

Initiatives to Address Social Challenges

■ **Anticipating global changes and providing products that help address social problems**

Our philosophy can be summed up as “Creating new products and business models that contribute to the growth of our society, company, and business.” Our goals align with those of the SDGs, as we believe in leveraging technology for the benefit of the world and in using our products to improve society and the lives of everyone around us. We have created our own handbook to cultivate a shared philosophy and shared goals among our employees.

Our business group has also set for itself the goal of being an organization that learns, and we therefore build up human resources who are capable of contributing to the growth of the group. We cultivate a broad perspective and encourage independent goal-setting and the pursuit of better methods and approaches.

Our vision for ourselves is to be an organization that anticipates global change and provides products that facilitate the sort of technological innovation that will help address society’s challenges. And we believe that by capitalizing on the unique ceramic technology that we have to offer, this vision is within reach.



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