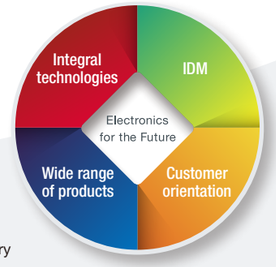
# ROHM's Unique Qualities

**As a manufacturer of semiconductors and electronic components, ROHM has accumulated design and manufacturing technologies, quality assurance technologies, and solution proposal capabilities for over 60 years since our founding. Developed over our long history, these technologies and capabilities can be characterized by four key features: integral technologies, IDM, a wide range of products, and customer orientation. Combined with a quality-first culture deeply ingrained in our employees, these features ensure the stable supply of high-quality products. Moving forward, ROHM will continue to focus on power and analog technology areas, where we can leverage our strengths to deliver the unique value that only ROHM can provide.**



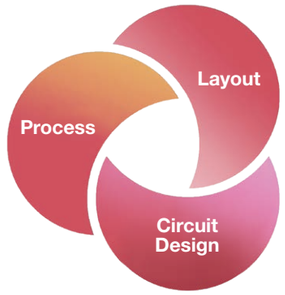

* Explained in the Glossary

## Integral technologies — Development capability to maximize value by integrating elemental technologies

The source of ROHM's competitiveness in the power and analog areas on which we focus lies in understanding and optimal design of our own processes, such as circuit design, layout, and processes, based on customer needs. Additionally, the optimization of comprehensive technologies, including heat dissipation design, package technology, and measurement technology during assembly, is one of ROHM's major strengths.

The realization of this technology optimization is achieved through integral technologies. Engineers from the development and manufacturing divisions in Japan and overseas combine their specialized element technologies and expertise at a high level, working together to develop high value-added products that meet customer and market needs.

### Elemental Technologies




**Process**

We develop the manufacturing processes that will be necessary in the future by working closely with design engineers who are familiar with customer requirements and expectations. The wafer processes are optimized by adjusting factors such as pressure resistance, size, and device characteristics.

We design packages to have compact structures with excellent heat dissipation characteristics suited to the mounting environment of the customer's product. For example, for power devices like flip-chip packages, it is important to align the layout to reduce connection resistance between the chip and the package in order to enable the supply of large currents.

**Layout**

When integrating a circuit diagram received from a circuit design engineer into a wafer, the circuit functions and performance must be satisfied while keeping the chip size lean. Based on an understanding of the system, discrete semiconductor devices and blocks are arranged and wiring is routed in consideration of variations and other factors to fully realize circuit performance. This technology ensures reliability by preventing malfunctions caused by external factors such as noise or static electricity.

**Circuit design**

When designing specifications, we not only listen to customer requirements but also investigate and understand the environment in which the system or application will be used, and the operations or functions expected. We then select the optimal processes and package for these expected specifications.

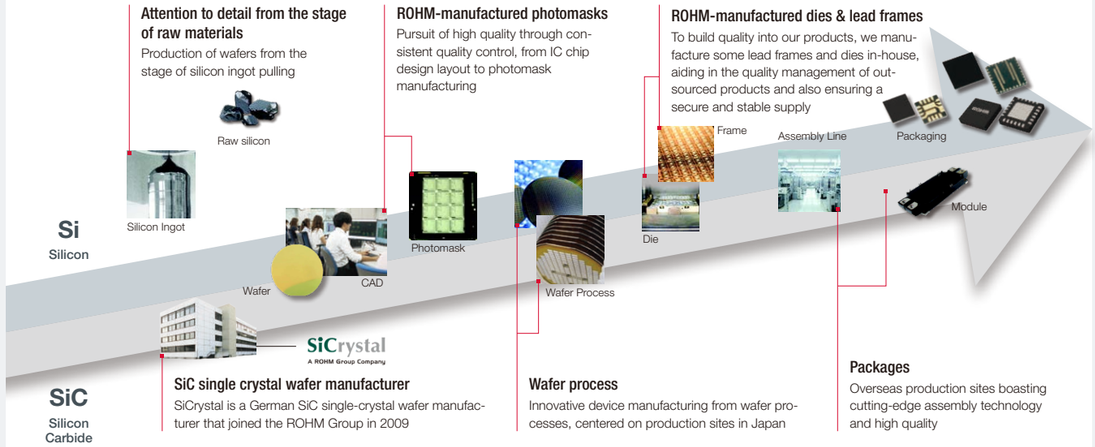
Circuit design requires techniques that account for variations in specifications and electrical characteristics, and ensure sufficient operating margins. In particular, analog technology requires assembly of circuits by considering the process characteristics of each discrete semiconductor device in transistors.

## IDM — Rigorous quality control, stable supply, and cost competitiveness

For over 60 years, ROHM has pursued a quality-first approach to manufacturing. This is supported by our vertically integrated device manufacturing (IDM) business model. We complete all production processes within the Group, from raw materials to finished products, enabling us to establish a consistent quality assurance and stable supply system, and build a Business Continuity Management (BCM*) system that ensures continued supply even in natural disasters and other unexpected situations.

At ROHM, we manufacture in-house items typically outsourced, such as wafers, photomasks, lead frames, and even dies. This enables a level of traceability only possible through IDM and reflects the deep commitment of ROHM employees to the principle of quality first.

### Vertically Integrated Production System




## Employees' Perspective

### Taking on the challenge of advancing integral technologies with a strong mindset to develop high value-added products

**Tetsuo Yamato**
Group Leader, PME*G
Power Management & Standard LSI Segment
LSI Business Unit

I work as a Product Marketing Engineer (PME*) for semiconductor switches called Intelligent Power Devices (IPDs). My job involves accurately identifying product market trends and developing products in anticipation of customer needs.

IPDs are products created through coordination between engineers specializing in manufacturing processes, packaging, and circuit design. They realize the previously challenging issues of heat suppression and low on resistance. These advancements were made possible thanks to ROHM's technologies and capabilities accumulated over more than 60 years of history. This technology offers a higher level of protection upon load short circuits and heat generation and is widely used in automotive and industrial equipment applications to improve safety and comfort.

ROHM's engineers have a mindset of gathering experience, element technologies and know-how to develop high value-added products that meet customer and market needs. I also believe that ROHM's great strength is its ability to propose products and solutions that maximize customer value and have a thorough customer support system by gathering technologies accumulated over many years and utilizing integral technologies. Moving forward, we aim to contribute to solving energy issues and reducing environmental impact by developing products that promote energy savings and miniaturization. Additionally, we intend to focus on nurturing highly specialized human resources to further refine our unique development capabilities.

## Employees' Perspective

### Building a next-generation production line unbound by conventional thinking

**Yuki Tanaka**
Manager, System Department
AP Advanced Manufacturing Division
Hirokawa Plant
ROHM Apollo Co., Ltd.

Our next-generation post-process production line "flexible line*," is based on the concept of an unmanned, high-mix production line. When developing this, we had to significantly change our approach while basing it on existing process controls. ROHM Apollo Co., Ltd., with its expertise in process design, worked together with the Manufacturing Innovation Division and other business divisions at the head office, to realize a completely new production line that defies common practice. The ability to handle all aspects of manufacturing in-house through the IDM business model, including production lines, is ROHM's strength. This model allows seamless feedback of production process insights into design and development, enabling front-loading. Additionally, by developing many of our own production systems and product testing equipment, we can make improvements in production efficiency and reduce costs.

Our production lines are infused with an abundance of technology and know-how accumulated in the development and tuning of manufacturing equipment since our founding, and operate at production sites around the world every day. I feel that the challenges in making further quality and productivity improvements hereon include both an aspect of having not yet achieved what we should, and an aspect of having to choose a new direction if we are to succeed. While steadily working on what we have cultivated so far, I think we should aim to maintain a perspective of breaking through the status quo with ideas that defy conventional thinking like the flexible line.

# ROHM's Unique Qualities

## Wide range of products — Comprehensive capabilities; from passive components to ICs and power devices

Since our establishment as a manufacturer specializing in small-sized resistors, ROHM has consistently worked to develop unique products. In the 1960s, after gaining recognition for the high quality and reliability of our resistors and steadily increasing sales, ROHM decided to take on the challenge of diving into the field of ICs. However, Japan had few engineers and scarce literature on the subject at that time, making it a daunting challenge for ROHM, which was still a small company. What made this bold endeavor possible and led to the development of groundbreaking ICs was the spirit of challenge passed down from our founder: the belief in actively finding a way forward in the face of any adversity.

In the process of pursuing ambitious goals, ROHM created products such as diodes, transistors, and LEDs one after another. We continued to expand our business areas to include optical devices and modules, and in recent years, have also focused on power devices including SiC. ROHM has continued taking on challenges in response to market and customer needs, expanding its product range. As a result, we are able to offer comprehensive proposals that resolve customer issues.

### Product Lineup

ROHM's broad range of products and accumulated technical expertise supports a wide variety of electronic devices and enables us to offer solution proposals and comprehensive technical support to our customers.

**Power Management / Power Supply ICs**

**Motor / Actuator Driver ICs**

**General-Purpose ICs**

**Sensor ICs**

**Microcontrollers** powered by LAPIS TECHNOLOGY

**Video ICs** powered by LAPIS TECHNOLOGY

**SiC Power Devices**

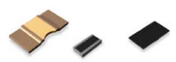
**GaN* (Gallium Nitride) Power Devices**

**Transistors**

**Diodes**

**LEDs / Laper Diodes**

**Resistors**



**Thermal Printheads**

## Employees' Perspective

### Enhancing our proposal capabilities by leveraging our strength in designing new circuits that combine various products

As a Field Application Engineer (FAE*), my job is to provide technical support and propose applications to customers. Specifically, I offer circuit proposals using ROHM products, provide application support, evaluate device applications, handle customer inquiries, and design evaluation boards and sets. I visit customers with sales and business unit engineers to resolve issues that arise during customer evaluations.

For example, while switching from Si to SiC enables high-speed switching, surges and the like can make SiC unusable. Since ROHM handles both Si and SiC, we can propose products that capture the characteristics of each and match customer needs. In this case, we proposed a circuit combining ROHM's ICs and general-purpose devices, successfully suppressing SiC surges and leading to customer adoption.

I believe our corporate culture that encourages tackling new technologies is unique to ROHM. We can design circuits that combine various products to form new technologies, and incorporate them into customer proposals. To leverage this strength in solving social issues, we need to develop products that customers truly need. I aim to gather feedback from customers about the functions and characteristics that ROHM currently lacks and provide this input to business units to drive next-generation development.

**Sae Sugimoto**
Automotive High Power Solution G
Electric Power Train FAE Section
FA E2 Department
System Solutions Engineering Headquarters

## Customer orientation — Solution proposals from the customer's point of view

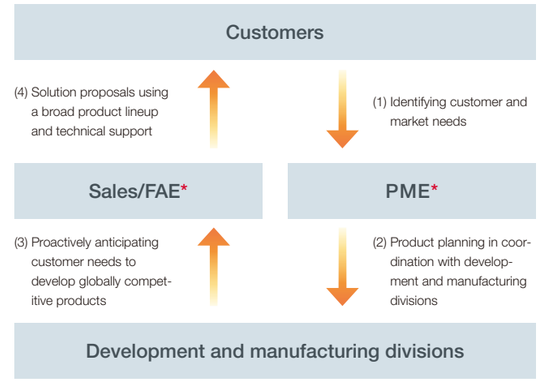
During the 1980s and 1990s, ROHM achieved significant growth through custom ICs. Our strength lay in our ability to respond to the latest needs rapidly and reliably while also developing products that were one step ahead. This proposal-driven business model has been passed down to the present, where we conduct product development and provide proposals with an emphasis on communication with customers.

When determining product development specifications, engineers familiar with both electronic device technology and ROHM's design and manufacturing capabilities carefully consider optimal circuit configurations, characteristics, and reliability to achieve the performance customers seek, also taking into account product functions and features, as well as the configuration of surrounding circuits. In the prototyping stage, we fine-tune characteristics based on customer validation results, enabling us to quickly provide products and solutions that optimize the characteristics of electronic devices.

Additionally, ROHM conducts an annual Quality Satisfaction Survey with customers. By gathering feedback not only on product specifications and quality but also on delivery and support systems, we carefully listen to customer opinions and strive to provide products and services that meet their quality requirements.

### Our Ability to Plan and Propose Products that Anticipate Customer Needs

In areas with notable growth, such as xEVs, our strategy is to develop application specific standard products (ASSPs) already equipped with the functions required by markets. It is important to determine how best to incorporate functions based on market needs, and our Product Marketing Engineers (PMEs*) investigate the performance and functions required by markets worldwide and refine product planning accordingly. Field Application Engineers (FAEs*), who are well-versed in customers' development trends and other technical information, are responsible for proposing optimal solutions sought by customers and providing them with detailed technical support. With this dual structure of PMEs and FAEs, we are strengthening our ability to propose solutions on a global basis.




## Employees' Perspective

### Building trust with customers through our strong commitment to quality

As the Director of Sales for ROHM Semiconductor USA, my work revolves around selling ROHM's products to customers across various applications within the Southwest Region of the USA. This entails understanding the needs and requirements of our customers, providing them with tailored solutions, and ensuring satisfaction throughout the sales process.

An episode that highlighted the strength of ROHM's customer orientation occurred when we were working with a customer who required a highly specialized component. Despite initially facing challenges in meeting the exact specifications, ROHM's engineers collaborated and communicated closely with the customer to understand their requirements thoroughly, and developed a customized solution that not only met but exceeded the customer's expectations. ROHM's culture is customer-centric and customer-oriented. We deliver the highest quality products and services to our customers, and instead of focusing solely on short-term transactions, we prioritize the establishment and maintenance of long-term relationships. This is supported by core values of integrity, trust, and ethical conduct in our interactions. To respond to evolving customer needs and contribute to solving social issues, ROHM must prioritize efforts to further strengthen our customer-oriented values and support systems. By staying true to customer-centric values while also addressing broader societal challenges, I believe ROHM will continue to prosper as a leading semiconductor company.

**Clint Studebaker**
Director of Sales, SW Region
OVERSEAS SALES (USA)
AMERICAN SALES USA WEST