

Initiatives in Manufacturing



Contributing to sustainable growth through the realization of next-generation production lines.

Katsumi Azuma
Member of the Board
Senior Managing Executive Officer, COO
President of ROHM Apollo Co., Ltd.

Competitive superiority through *Monozukuri* (Manufacturing) focusing on IDM

ROHM's stated corporate objective is "quality first." This objective originates from the founder's idea of creating compact and durable parallel lead fixed resistors to solve the problem of extremely fragile radio resistors at the time. To achieve quality and supply stability, it is important that we carry out integrated, in-house production (vertical integration), visualize processes, and improve traceability. Based on this IDM-oriented stance, ROHM also develops its own facilities and equipment. After starting from resistor manufacturing, ROHM expanded into

semiconductors, ICs, transistors, and silicon wafer manufacturing as an extension of that idea. These attempts to design, develop, and manufacture new products not only help to improve quality but also enable our engineers to fully demonstrate their capabilities, which leads to a sense of fulfillment. These efforts contribute to the realization of ROHM's stable supply, high product quality, and short lead times, etc. while also becoming a source of competitive superiority with respect to other companies.

Promoting efficiency through organizational reform and human resource development across the entire Group

Over the past few years, the SiC power device market has rapidly taken off. ROHM also has a pipeline (business discussions with customers) of 1.78 trillion yen focusing on EVs over the three-year period from FY2025 to FY2027. Due to an overwhelming lack of capacity with respect to demand, we are planning large-scale investments of over 500 billion yen in the SiC business alone from FY2021 to FY2027, and we are also systematically increasing the number of production operators as well. At the same time, it is important that we develop low-power consuming, high-efficiency fifth and sixth generation SiC MOSFETs. Engineers are needed in areas such as high voltage and high current products as well as thermal simulation. Luckily, since we have several engineers from our core generation of employees in their mid-40s, who have studied outside of their specialization to develop world-class products in power devices, if we reskill people with the right backgrounds, the training should be completed in a short period of time. Data scientists are another type of human capital which we need. As for the personnel to perform the practical work,

we could hire from the large pool of excellent IT human resources in India, but we need to increase the number of key members to provide guidance in Japan. Furthermore, I was appointed as the head office COO and President of ROHM Apollo Co., Ltd. in June 2023. The reason the President of ROHM Apollo was appointed from the head office was to promote the "ONE ROHM" vision. Going forward, I would also like people at the plants to not only manufacture products according to instructions from the head office but to also understand the upstream ideas and have the autonomy to voice their opinions about design in some cases. Therefore, in addition to increasing the degree of interaction by having human resources at the section and division manager levels transfer back and forth to the head office, we are considering shifting some of the head office functions to mother plants. By promoting and streamlining the "ONE ROHM" vision in a manner which integrates the head office and the Group companies, we will expand our share of the power device market.

Issues and initiatives in becoming a major global player

In aiming to become a major global player, we believe that it is essential to steadily improve quality, costs, and delivery terms (QCD) in manufacturing divisions. Moreover, we are developing flexible lines that can provide customers with the right amount of products when they need it. To realize work sites and management without human intervention, we are currently tackling the challenge of fully-automated operation at night, and our ultimate objective is to eventually expand this approach to our mass production lines. As for the

management structure, we believe it is necessary going forward to consider globalization through measures such as assigning Board members not only in Japan but also to each of our overseas business sites. The roles and social responsibilities which global companies fulfill for the world and the global environment are even greater. I hope that ROHM grows into the kind of company that the world needs by not only providing good products but also by improving the scale and nature of our ESG investments.

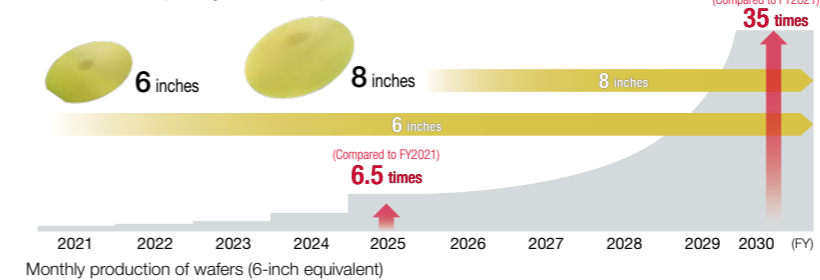
Material issues	Stable Supply of High-quality Products <ul style="list-style-type: none"> Strengthen production systems through IDM activities Improve productivity by introducing flexible lines Implement rigorous quality control and employee quality training 	Strengthening Product Safety and Quality <ul style="list-style-type: none"> Establishment and entrenchment of a quality assurance system through front loading Achieving appropriate quality by incorporating the customer's perspective
-----------------	--	---

Enhancing our production capacity around SiC power devices

The role of ROHM's mainstay semiconductor products in the realization of a decarbonized society is becoming bigger and bigger. In particular, technological innovation around electrification is advancing in the automotive and industrial equipment markets to reduce the environmental impact and achieve carbon neutrality, and the demand for semiconductors is running ahead of schedule with further expansion of the market anticipated. To achieve a stable supply of products, ROHM is seeking to expand its production capacity around SiC power devices through prior investment. ROHM's capital investments aimed at SiC power devices were approximately 10 billion yen in FY2021 and 20 billion yen in FY2022 and 80 billion yen is

planned for FY2023. ROHM will invest a total of 510 billion yen from FY2021 to FY2027 with 400 billion yen being invested from FY2024 to FY2027 and plans to increase production capacity compared to FY2021 by 6.5 times in FY2025 and 35 times in FY2030. For the time being, we will build a system for increasing production at the Chikugo and Miyazaki plants, but new plants are also being acquired. In July 2023, we announced a basic agreement with Solar Frontier K.K. to acquire the assets at their former Kunitomi plant in Miyazaki. The acquisition is scheduled to take place in October of this year, and the plant will be utilized as the main production site for ROHM going forward.

Production capacity increase plan for the SiC business



Solar Frontier K.K.'s former Kunitomi plant (Miyazaki)

Flexible lines

In April 2021, ROHM started operation of its "flexible lines," which consolidate our independently developed technologies and automate the assembly process. Based on Failure Mode and Effects Analysis (FMEA), we improved product quality by increasing the capability of the processing itself, minimized the variation by automating production order tasks, transportation and supply of materials and products, tool changes, and manual tasks/operations, and doubled human productivity through manpower savings. In addition, the lead time shrank to 10% of the previous figure by implementing the process design from the planning stages. Because there are many customers who wish to have a stable supply of products over the long term despite the small volumes as in the automotive

and industrial equipment markets, flexible lines satisfy the needs of such customers and enable high-mix small-lot production at high quality. We are currently carrying out various technical verifications while conducting mass production on these lines, and our mission for the time being will be to apply the elemental technologies obtained there to the fully-automated wide lines which will be developed in the future and deploy them to our overseas plants. In addition, we are planning to complete the "Manufacturing Innovation Center" as ROHM's new development technology site. We aim to achieve a stabler supply of products and strengthen our BCM system through comprehensive quality improvement, automation, and manpower savings.

Flexible line implementation plan and outlook

