Progress in Creating Future Businesses

CFB Technology Pioneering the Future of Semiconductors

With the rapid growth of generative AI, electric vehicles, and smartphones in recent years, the importance of semiconductor devices continues to rise. At the same time, new social challenges have emerged, including increasing strain on data center power supply and demand and the risk of disruptions in the supply of rare resources.

At the core of its initiatives, OKI is leveraging its proprietary semiconductor bonding technology for dissimilar materials—crystal film bonding (CFB)—and accelerating commercialization through three strategic pillars: Technology Strategy, Innovation, and Global. By maximizing the advantages of CFB and building ecosystems around technologies such as photonics-electronics convergence devices and gallium nitride (GaN), OKI aims to contribute to solving social issues related to power supply and demand at data centers and the efficient use of scarce resources. Targeting mass production in 2026, OKI will continue to advance global co-creation with partners and further develop CFB into a core business.

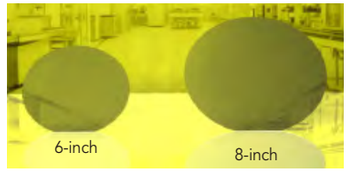
Initiatives toward the Realization and Commercialization of Vertical GaN Power Semiconductor Devices

In 2023, OKI successfully developed a technology to separate GaN functional layers formed on Shin-Etsu Chemical Co., Ltd.'s QST® substrates and bond them to heterogeneous material substrates.

Currently, the two companies are working toward the realization and commercialization of vertical GaN power semiconductor devices by further improving crystal quality, optimizing QST substrates for CFB technology, and collaborating with device manufacturers to move into the device verification stage. To take advantage of the large-diameter feature of QST substrates, OKI plans to complete the installation of an 8-inch pilot production line at its Nishiyokote Plant within fiscal year 2025.

Note: QST substrate
A composite substrate developed exclusively for GaN growth by Qromis, Inc. (California, USA; CEO: Cem Basceri). Shin-Etsu Chemical obtained a license for the technology in 2019.

Please refer to the press release below for details of the technology.
Develops GaN Lifting off/Bonding Technology on QST Substrates of Shin-Etsu Chemical

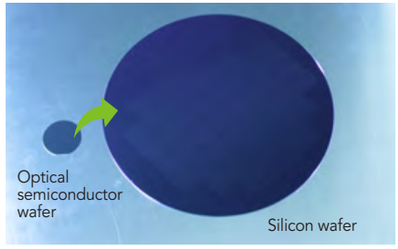


Expansion of 8-inch pilot production line at the Nishiyokote Plant

Development of Tiling CFB Technology for Heterogeneous Integration of Optical Semiconductors onto 300 mm Silicon Wafers

OKI has developed a tiling CFB technology using its proprietary CFB technology. This technology overcomes the long-standing challenge of integrating small-diameter optical semiconductor wafers with large-diameter silicon wafers, achieving heterogeneous material integration across different wafer sizes. It contributes to the rapid advancement of photonics-electronics convergence technology. Going forward, OKI will work in collaboration with partner companies and universities to accelerate the practical application of this technology.

Please refer to the press release below for details.
OKI Develops Tiling crystal film bonding (CFB) Technology for Heterogeneous Integration of Optical Semiconductors onto 300 mm Silicon Wafers



Wafer size conversion using tiling CFB technology

Received the 2025 Semiconductor of the Year Award for Excellence for the First Time
Awarded for 3D integration of thin-film analog ICs developed jointly with Nisshinbo Micro Devices

OKI received the 2025 Semiconductor of the Year Award for Excellence for the first time for the 3D integration of thin-film analog ICs developed jointly with Nisshinbo Micro Devices Inc. This technology combines OKI's proprietary CFB technology with analog IC technology to achieve miniaturization while maintaining analog IC performance. Through this collaboration, the two companies aim to contribute to the revitalization of Japan's semiconductor industry and will continue working toward mass production and the creation of greater social value.

Please refer to the press release below for details.
Received the 2025 Semiconductor of the Year Award for Excellence for the First Time

2025 Semiconductor of the Year Award Ceremony