July 22, 2022

New 8-inch Direct Bonded SiC Substrate Development Line to be Established

Sicoxs Corporation (Head Office: Minato-ku, Tokyo; President and Representative Director: Takayuki Iino), a 100% subsidiary of Sumitomo Metal Mining Co., Ltd. (Head Office: Minato-ku, Tokyo; President and Representative Director: Akira Nozaki), has made the decision to establish a new 8-inch direct bonded SiC substrate development line. The company will establish a development line at Sumitomo Metal Mining group company Ohkuchi Electronics Co., Ltd. (Head Office: Isa City, Kagoshima Prefecture; President and Representative Director: Kaoru Hishiki), and plans to complete the construction in March 2024. Furthermore, Sicoxs will expand its production lines to meet growing demand, and will aim for a total monthly production of 10,000 pieces (6-inch equivalent) in 2025 for the new line and the existing 6-inch direct bonded SiC substrate mass-production prototype line.

Silicon-Carbide (SiC) is a semiconductor material that is used in power semiconductors whose main use is the control of electric power. SiC can handle higher voltages than conventional silicon and can greatly reduce energy loss. Given these characteristics, SiC has been in the spotlight over recent years, particularly in the high-capacity field (large current, high withstand voltage) of drive controllers used in vehicles such as electric and hybrid vehicles as an excellent material that enables the reduction of the overall size of such controllers and supports improvements in the cruising range of electric vehicles. The SiC power device market is growing rapidly and is estimated to reach approximately 350 billion yen by 2025 - a five-fold increase over 2021.

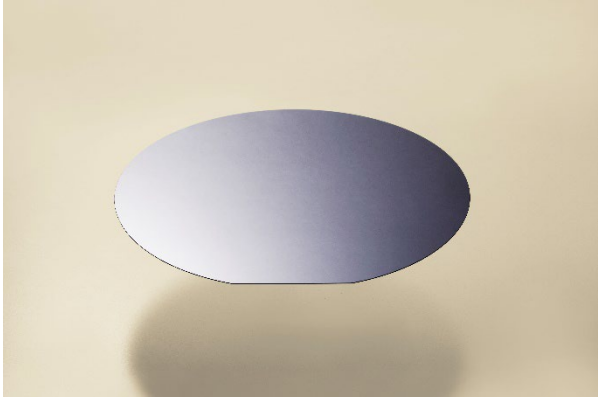
The direct bonded SiC substrates that Sicoxs manufactures and sells (brand name: SiCkrest) use unique bonding technology to create two wafer layers, thus achieving both high-performance and a competitive price. These products are able to maintain the characteristics of a monocrystalline SiC while realizing a low resistance and a high strength throughout the entire substrate. This is accomplished through bonding a low-resistance polycrystalline SiC support substrate with a thin, high-quality monocrystal. Furthermore, since Sicoxs can manufacture more than 50 direct bonded substrates from a single monocrystalline substrate, we can flexibly respond to the rapidly growing demand for SiC substrates and contribute to reducing environmental impact.
Sicoxs has been working on the construction of a mass-production prototype line for 6-inch SiCkrest since 2017 and has commenced sales to some customers, and this introduction of an 8-inch development line enables a swift response to customers' needs for large-size substrates.

In our Vision for 2030, the SMM Group sets out its vision for becoming a company that actively undertakes climate change countermeasures, by reducing emissions and stably supplying products contributing to a low-carbon society, toward a future with zero greenhouse gases (GHGs) emissions. SiC power devices are key devices for the achievement of a low-carbon society, and the SMM Group's SiCkrest, which is used as the substrate in such devices, is a product that contributes to GHG reduction. SMM will continue to work on the development of products, new technologies and processes to help achieve carbon neutrality going forward.

※ Vision for 2030 (https://www.smm.co.jp/sustainability/vision/)

(Reference)

(1) SiCkrest from Sicoxs



(2) The excellence of SiCkrest from Sicoxs
We are able to contribute to improving your products and processes through the numerous characteristics shown below.
See the Sicoxs website (https://www.sicoxs.com/) for details.

SiCkrest characteristics

- ✓ Low resistance
- ✓ Maintains high thermal conductivity
- ✓ High bend strength
- ✓ Easy ohmic contact

Benefits for customers

- ✓ Lower on-resistance
- ✓ Smaller chip sizes
- ✓ Reduced defects resulting from cracking, process simplification

Address inquiries concerning this News Release to:

Sumitomo Metal Mining Co., Ltd.
Public Relations & Investor Relations Department
TEL: +81-3-3436-7705 E-mail: Smm_Koho@smm-g.com