News Release

November 19, 2024

Nippon Electric Glass Co., Ltd.

Joint Development Agreement Signed with Via Mechanics

Accelerating the development of core substrates with promising potential for use in next-generation semiconductor packages

Nippon Electric Glass Co., Ltd. (Head Office: Otsu, Shiga, Japan; President: Akira Kishimoto; "NEG") and Via Mechanics, Ltd. (Head Office: Atsugi, Kanagawa, Japan; CEO: Hideaki Shimizu; "Via Mechanics") have signed a joint development agreement in order to accelerate the development of inorganic core substrates made of glass or glass-ceramics for semiconductor packages.

In current semiconductor packages, organic material-based substrates such as glass-epoxy substrates are the mainstream as the core substrate. However, for high-end semiconductor packages such as those for generative AI, which are expected to see increasing demand in the future, there is a demand for further miniaturization, higher density, and electrical characteristics that enable high-speed transmission in the circuits and micromachined holes (vias) on the core substrate. Because it is difficult for organic material-based substrates to meet these requirements, glass has been attracting attention as an alternative material.

Meanwhile, when drilling holes in ordinary glass substrates with a CO_2 laser, they tend to develop cracks, which are likely to cause breakage of the substrate. For this reason, it is necessary to use laser modification and etching to create vias, but this involves issues such as highly difficult processing and a lengthy processing time.

With the aim of enabling via formation using a CO_2 laser in the future, NEG has entered into a joint development agreement with Via Mechanics to combine its long-cultivated expertise in glass and glass ceramics with Via Mechanics' laser processing technology, and NEG will introduce Via Mechanics' laser processing equipment to quickly develop inorganic core substrates.

Roles in the Joint Development

Nippon Electric Glass Co., Ltd.

(1) Design and development of core materials for glass and glass-ceramics substrates used as inorganic core substrates

(2) Technology development for mass production of glass and glass-ceramics substrates

(3) Providing prototypes and proposals for solving technical issues

Via Mechanics, Ltd.

(1) Support for developing crack-free via formation technology using CO_2 laser

(2) Proposal of an evaluation method for inorganic core substrates for commercialization

Glass-ceramics core substrate GC Core™

Please see the news release below.

Development of GC Core™ – Glass-Ceramics Core | Nippon Electric Glass Co., Ltd.

■ About Nippon Electric Glass Co., Ltd.

Nippon Electric Glass Co., Ltd. is a world-class specialty glass manufacturer headquartered in Otsu City, Shiga Prefecture. Special glass that creates novel functionality is transformed into a variety of products, such as sheets, tubes, threads, and powder, and is used in a wide range of fields, including semiconductors, displays, automobiles, electronic devices, medical care, and energy. The special glass developed using the technology and track record that we have honed over our 70-year history is highly regarded in a wide range of fields, from everyday life to cutting-edge industry.

Company name:	Nippon Electric Glass Co., Ltd.
Representative:	Akira Kishimoto
Head office location:	7-1 Seiran 2-chome, Otsu, Shiga 520-8639, Japan
Founded:	December 1, 1949
Business details:	Manufacture and sale of special glass products and fabrication and sale of glass manufacturing machinery
URL:	https://www.neg.co.jp/en

■ About Via Mechanics, Ltd.

Via Mechanics, Ltd. is a leading company in PCB drilling equipment. The company produces a wide range of cutting-edge mechatronics products by utilizing comprehensive and cutting-edge system data technology, from the development of precision machining technology that meets sub-micron precision requirements, automatic control, and computerized automatic control, to software development, system design, integration with information systems, and maintenance. Leveraging the technology it has developed since its founding, the company continues to support the production of printed circuit boards, which are essential for all electronic products.

Company name:	Via Mechanics, Ltd.
Representative:	Hideaki Shimizu
Head office location:	9-32 Tamura-cho, Atsugi-shi, Kanagawa-ken 243-0016,

Japan
Founded: August 1, 1968
Business details: Research and development, design, manufacture, sale, and service of electronic component processing equipment
URL: https://en.viamechanics.com/

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