Notice:	This document has been translated from the Japanese original document for reference purposes only. In the event of any discrepancy between this translated document and the Japanese original, the original shall prevail.

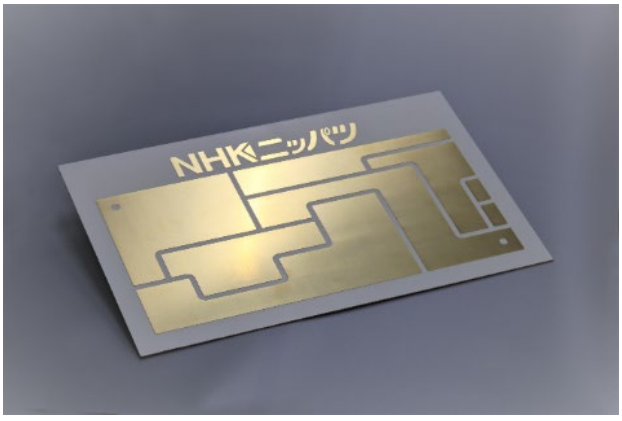
NHK SPRING CO.,LTD.

January 15, 2026
Company Name: NHK Spring Co., Ltd.
Securities Code: 5991 (TSE Prime Market)

NHK Spring Becomes First in the World to Mass-Produce Resin-Insulated Metal Substrates for EV Traction Systems

Adopted in DENSO CORPORATION's new inverter*1

NHK SPRING CO., LTD. (Head office: Yokohama, Japan; President & COO: Kazuhisa Uemura) has developed a metal substrate using a high-thermal-dissipation resin insulator, which has been adopted, for the first time in the world, for use in power modules for traction inverters in electric vehicles. The resin insulator, which plays a key role in heat dissipation, incorporates a thermally conductive insulating sheet manufactured by Sumitomo Bakelite Co., Ltd. Leveraging its long-cultivated metal substrate processing technologies, the Company has maximized the performance of this material, which offers both high thermal conductivity and low dielectric properties. Through the integration of the strengths of both companies, NHK SPRING has successfully achieved the development and mass production of this new product.



Integrated metal substrate using resin insulation (image)*2

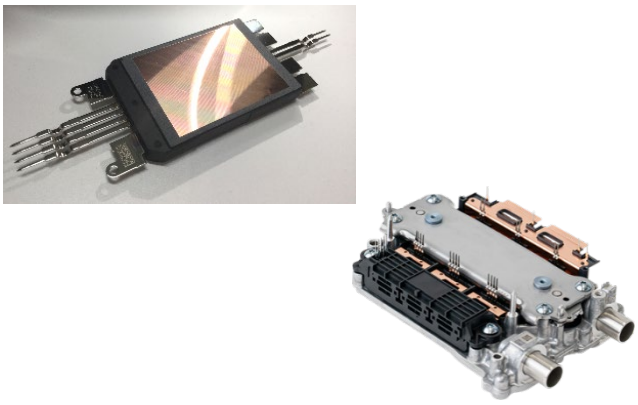


Image courtesy of DENSO CORPORATION

Power card (left) and power module (right) incorporating the integrated metal substrate

＜Product Features＞

Traditionally, ceramic insulated substrates have been used in applications such as traction systems for electric vehicles, where high heat dissipation is required. In contrast, the Company's new product adopts a resin-based insulator and offers the following

advantages compared with ceramic substrates:

・High heat dissipation

With heat-dissipation performance comparable to ceramic substrates, the product contributes to improving the output of power modules.

・Reduced electrical loss and noise

The low-dielectric-constant insulator contributes to reducing inductance*3 by approximately 50% compared with conventional products*4. This reduction enables higher-speed switching, allowing the performance of the power semiconductor devices to be fully maximized.

*Quoted from materials released by DENSO CORPORATION.

・Improved assembly thanks to reduced warpage

Unlike ceramic substrates, which are prone to warpage after temperature changes, this product exhibits minimal deformation, making assembly into power modules easier and improving overall productivity. In addition, it allows for flexible design: the thickness of the circuit and base metal can be adjusted more easily, enabling thick-copper circuit designs, while also allowing the base metal to be made thinner. This supports a wider range of power-module design requirements.

<NHK SPRING Technologies Enabling Mass Production>

For more than 40 years, the Company has continued to develop metal substrates and refine its processing technologies. The following technologies—cultivated through our experience in products for industrial power modules and in-vehicle DC–DC converters—have been applied to the development of the new product:

- Proprietary lamination technology that maximizes the performance of the insulating material
- Thick-copper circuit formation enabled by high-precision etching

Mass production of this product began in December 2024 at the renovated Komagane Plant. Through increased automation of manufacturing processes, the plant is achieving both labor savings and greater consistency in product quality.

<Future Outlook>

In the integrated metal substrate business, the Company plans to expand its production capacity, including the completion of a new production building at the Komagane Plant in May 2026. We are targeting integrated metal-substrate-related sales of ¥39 billion in fiscal 2030. Going forward, while maintaining a strong focus on quality, the Company will further enhance productivity and substrate-processing technologies, contributing to the broader advancement of an electrified society.

*1 Adoption information based on the announcement by DENSO CORPORATION

*2 The image shown is for illustrative purposes and differs from the actual mass-produced product.

*3 Inductance: A property of coils and similar components in which changes in current generate induced electromotive force. Lower inductance offers advantages such as improved circuit efficiency and responsiveness, as well as reduced switching losses.

*4 Quoted from materials released by DENSO CORPORATION.

【Contact for inquiries regarding this announcement】
NHK Spring Co., Ltd. Corporate Communications Dept. Corporate Planning & Control Division
Tel. +(81)- 45-786-7513