

Resonac Holdings Corporation

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**DENSO Adopts Resonac's SiC Epi-wafer for Power Semiconductor  
for Use in Inverter**

— The new inverter will be installed in Toyota's new BEV "LEXUS RZ" —

DENSO CORPORATION has decided to adopt silicon carbide epitaxial wafer for power semiconductor (SiC epi-wafer) manufactured by Resonac Corporation (Tokyo: 4004) (President: Hidehito Takahashi) with the aim of using it as material for driver element of DENSO's new inverter. This inverter will be installed in Toyota Motor Corporation's new model "LEXUS RZ," which is the first battery electric vehicle (BEV) of LEXUS brand. This is also the first case for LEXUS to adopt SiC epi-wafer as material for inverter's driver element.\*1

As next-generation devices, SiC power semiconductors reduce power loss and emit less heat than conventional silicon-wafer-based power semiconductors, thereby contributing to energy conservation and reduction of CO<sub>2</sub> emission. Therefore, the markets for SiC power semiconductors are expanding rapidly in various uses including those for BEVs, rapid charging station for xEVs, renewable-energy-based power generation, and railcars. Since the launch of 150mm SiC epi-wafer by then Showa Denko K.K. in 2013, our SiC epi-wafer has been acclaimed by many device manufacturers and applied to various uses due to its high quality including the industry-leading low levels of surface-defect density and basal-plane dislocation. Furthermore, materials for on-board devices, especially for inverter devices, are required to have particularly high quality. This time, DENSO and Toyota decided to adopt Resonac's SiC epi-wafer as material for driver element of the inverter installed in the new model LEXUS RZ because they placed high value on the material's outstanding quality and track record of adoption by other companies. SiC-based inverter has energy loss lower than those of conventional Si-based inverters, thereby extending cruising radius of xEVs.

The Resonac Group aims to be a "Co-Creative Chemical Company" and contribute to the sustainable development of global society. Under this vision, Resonac positions its operation to produce SiC epitaxial wafers, which contributes to efficient use of energy, as a next-generation business, and will allocate much of our business resources. In addition, Resonac has been promoting "The Project to Develop SiC Wafers Technology for Next-generation Green Power Semiconductors," which aims to improve quality of SiC epi-wafer further under the framework of "Green Innovation Fund\*2 Projects." The Resonac Group will continue contributing to the spread of SiC power semiconductors by maintaining "Best in Class" as its motto and ensuring stable supply of high-performance and highly reliable products to the rapidly expanding market.

\*1. For detail, please refer to the following web page which introduces Toyota's LEXUS RZ:

<https://www.lexus.com/models/RZ>

\*2. Green Innovation Fund (GI Fund): GI Fund was established by Ministry of Economy, Trade and Industry and assigned to New Energy and Industrial Technology Development Organization (NEDO) with the aim of achieving carbon neutrality by 2050. Resonac proposed its "Project to Develop SiC Wafers Technology for Next-generation Green Power Semiconductors" to NEDO as a candidate for "Projects to Develop SiC Wafers Technology for Next-generation Power Semiconductors" which was set as a research and development

target of “Next-generation Digital Infrastructure Construction” in “GI Fund Projects.” And Resonac’s Project was selected for Green Innovation Fund Projects by NEDO. For detail, please refer to the news release, “Showa Denko’s Program to Develop 8-inch SiC Wafers for Next-generation Green Power Semiconductor Selected for NEDO’s Green Innovation Fund Projects,” which was announced on May 23, 2022.  
<https://www.resonac.com/news/2022/05/23/2230.html>

[About the Resonac Group]

The Resonac Group is a new company established as a result of the integration of the Showa Denko Group and the Showa Denko Materials Group (former Hitachi Chemical Group) in January 2023. The Group’s annual sales of semiconductor and electronic materials amount to about 400 billion yen, accounting for about 30% of the Group’s annual net sales. The Group especially has global top share of semiconductor materials for packaging process. The integration of the two companies has enabled the Resonac Group to design functions of materials as well as to develop them in-house, going all the way back to raw materials. The new trade name “RESONAC” was created as a combination of two English words, namely, the word of “RESONATE” and “C” as the first letter of CHEMISTRY. The Resonac Group will make the most of its co-creative platform, and accelerate technological innovation with semiconductor manufacturers, material manufacturers, and equipment manufacturers inside and outside Japan.

For detail, please refer to our Website.

Resonac Holdings Corporation: [https:// www.resonac.com/](https://www.resonac.com/)

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