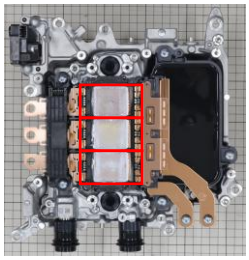
SiC Power Module : DENSO (Equipped on SUBARU SOLTERRA) Module, SiC MOSFET, Electrical Characterization Report

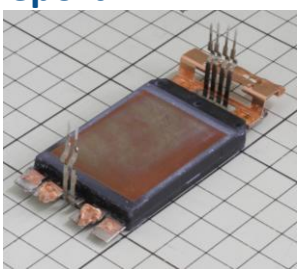


SUBARU SOLTERA

https://www.subaru.jp/solterra/



Inverter core module



Power Module

Report Overview

In November 2025, the updated model of the SUBARU SOLTERRA was released. The vehicle is equipped with a new eAxle manufactured by BluE Nexus, which features DENSO's new inverter core module. In this module, the arrangement of the power modules has been changed from a vertical layout to a flat horizontal layout, and a new double-sided cooling module with a built-in insulated substrate (SiC MOSFET) has been adopted. Focusing on this new DENSO module and the integrated SiC MOSFET, this reports aim to clarify their technical details.

Product Features

Product numbe: unknown, Inverter system voltage : 400V, Vehicle Release date: 2025

eAxle (FRONT) Motor Output: 165 kW

Torque: 268 Nm,

Estimated Maximum Operating Voltage (Vdss): 700–750 V

Analysis result summary

(1) Module Structure Analysis Report (47 pages)

(2) SiC MOSFET Overview Analysis Report (12 pages)

(3) SiC MOSFET Structure Analysis Report (63 pages)

(4) SiC MOSFET Electrical Characteristics Evaluation Report (20 pages)

Please refer to the next page for further details.

Report No : 25G-0772-4,5,6,7 Released day : 2026.07.01

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Analysis result summary

(1) Module Structure Analysis Report (47 pages) : 25G-0772-4

- A double-sided cooling module that uses resin insulated substrates on both sides.
- A heat-dissipating insulating sheet containing BN filler is used for the insulation layer of the resin insulated substrate, resulting in an extremely thin insulation layer compared to standard ones.

(2) SiC MOSFET Overview Analysis Report (12 pages) : 25G-0772-5

- Die image, saize, confirmation of basic cell structures, and a simplified structural comparison with the company's conventional products have been conducted.

(3) SiC MOSFET Structure Analysis Report (63 pages) : 25G-0772-6

- A trench gate structure is adopted for the cell structure. Additionally, a P-shield is formed at the bottom of the trench, resulting in a design that differs from conventional DENSO SiC MOSFETs.
- Junction Termination Extension (JTE) and guard rings are utilized for the edge termination structure.
- A temperature-sensing diode is integrated within the die.

(4) SiC MOSFET Electrical Characteristics Evaluation Report (20 pages) : 25G-0772-7

- BVdss, C-Vds, Idss-Vds-T, Igss-Vgs.
- Based on the correlation between electrical characteristics and device structure, the components of on-resistance (Ron) are analyzed, and the impurity profile of the epitaxial (Epi) layer is extracted.

Report price

Delivered one week after order placement. Please contact us for report pricing.

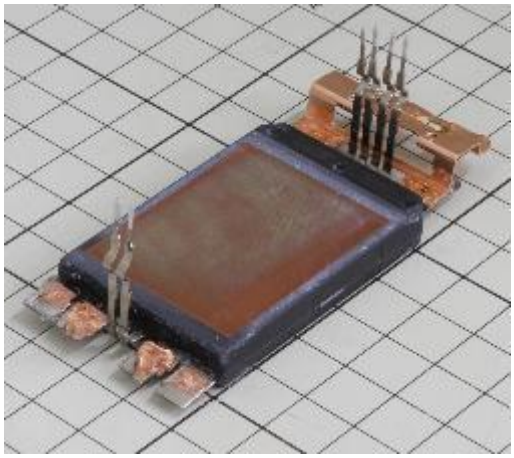
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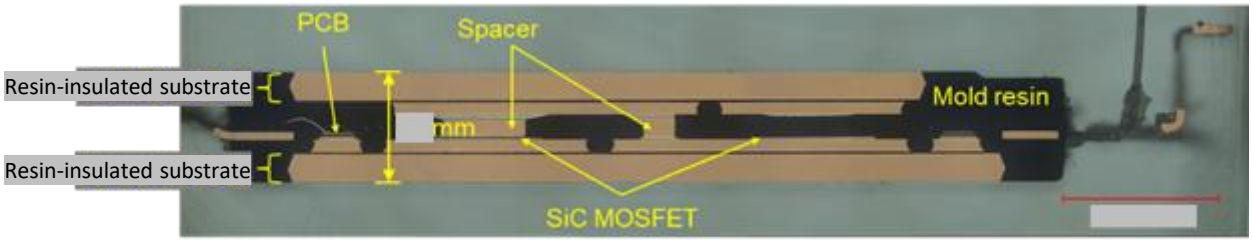
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(1) Excerpt from Module Structure Analysis Report



Power Module



Power module cross-section

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(2) SiC MOSFET Overview Analysis Report　Table of Contents

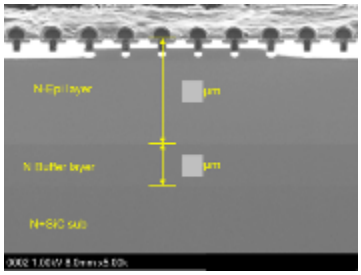
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SiC MOSFET　Die image



SiC MOSFET Epi Layer thickness

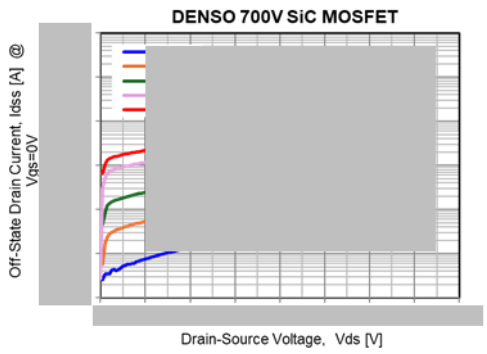
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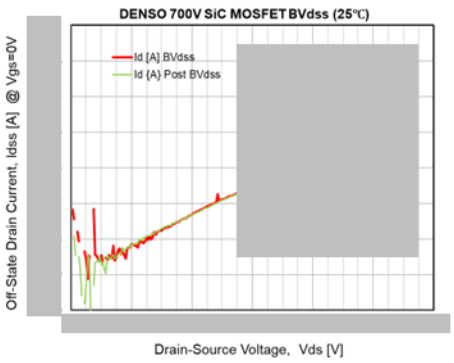
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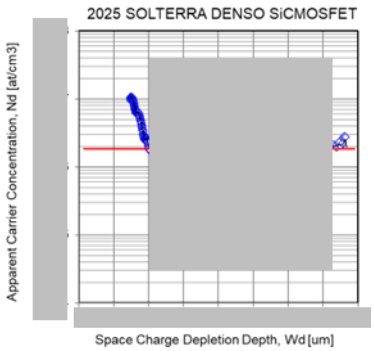
(4) Excerpt from SiC MOSFET Electrical Characteristics Evaluation Report



Idss-Vdss



BVdss



Impurity concentration profile from capacitance measurement results

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