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Nippon Light Metal Company, Ltd.
DOWA Holdings Co., Ltd.

Power module circuit board built-in type cooler with the highest level performance in the world developed

DOWA Metaltech Co. Ltd. (Main Office: Chiyoda-ku, Tokyo; President Hiroyuki Kai), a subsidiary company of DOWA Holdings Co., Ltd. (Main Office: Chiyoda-ku, Tokyo; President Masao Yamada), and Nippon Light Metal Co., Ltd. (Main Office: Shinagawa-ku, Tokyo; President: Takashi Ishiyama) have jointly developed a lightweight cooler with a built-in type circuit board for power modules with high level cooling performance.

Power modules have attracted attention as one of the energy saving products and have been conventionally constructed by mounting circuit boards, heat dissipation parts, and cooling parts with solder or grease. However, since it was sometimes difficult to sufficiently dissipate heat generated from power devices, the product with higher heat dissipation performance has been required.

This developed product attained high cooling performance by integrating the metal sheet bonded ceramics board as a circuit board and the heat sink as a cooling part. The product aims the improvement of heat transfer by 50% or more in comparison with the conventional one. Therefore, it can realize highly efficient power control in order to achieve higher density and higher heat dissipation of power devices.

Moreover, weight reduction and cost reduction were realized by using aluminum with a specific weight lighter than copper as the members for the cooler and adopting simpler construction. This product enabled significant cost reduction because integrated structure results in the 50% decrease of the number of parts.

Since this product can be applied to the power modules for railroad vehicles, including Shinkansen, hybrid cars, electric cars, which have attracted attention because of the higher awareness of environmental problems these days, the demand is expected to increase hereafter. Furthermore, the expansion of application to new energy generation, such as wind power and power modules for industrial use, is expected.

The product was developed by combining technology of metal sheet bonded ceramics boards of DOWA Metaltech and general aluminum technology of NLM. Both companies will

hereafter make efforts to jointly develop products utilizing the strong point of each company.

Inquiry for this information

Yoshioka and Kamakura, Publicity Department, DOWA Holdings Co., Ltd.

TEL: +81-3-6847-1106 FAX: +81-3-6847-1121

Nonaka, Publicity and IR Section, Nippon Light Metal Company, Ltd.

TEL: +81-3-5461-9333 FAX: +81-3-5461-9344