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Development of glasses for supporting semiconductor wafers with various CTE

*CTE: Coefficient of thermal expansion

Nippon Electric Glass Co., Ltd. (Head office: Otsu, Shiga Prefecture, Japan; President: Motoharu Matsumoto) has developed glasses for supporting semiconductor wafer with various CTE and excellent flatness. Samples of the new glass are now available for shipment.

In processes in which semiconductors are combined with materials with different CTE such as redistribution layers and resin on the same substrate to manufacture, for example, a fan out wafer level package (FOWLP) (*1), anticipated as a next-generation semiconductor technology, a substrate having a CTE compatible with the specific combination is needed to prevent warping as a result of the difference in CTE.

As a substrate to respond to such a need, the newly developed glasses for supporting semiconductor wafer varies from versions with a CTE of 3.3 ppm/°C—about the same as that of a silicon substrate—and has a CTE of over 10 ppm/°C, which is compatible with packages with higher resin composition. This allows the most suitable glass to be selected in accordance with the design materials for a semiconductor package.

Starting sales of this newly developed glasses in mass production in the first quarter of 2016 for FOWLP applications, we expect sales of one billion yen in FY2016. In addition, we will pursue the development of applications of production-process-use support glass intended for semiconductor-related products such as power devices (*2) that have increasingly used in the fields of home appliances and industrial equipment, with the FY2018 sales target set at three billion yen.

*1 FOWLP : A package that forms redistribution layers over a wide domain exceeding the area of a chip

*2 Power device : A semiconductor element for use in power equipment

(Product outline)

- Product dimensions : 300 mm diameter × 0.55 - 1.00 mm thickness
- Surface flatness : Total thickness variation (TTV) within 2 μm
- CTE : 3.3 - 11.0 ppm/°C (20 - 260 °C)
- Other characteristics : Optically transparent. The product is correspond to the use of UV-hardening resin.
- Start of sales: First quarter of 2016 (scheduled)

*For products with specifications other than those described above, please contact us.

(Photograph of the product)

