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AGC launches sales of back-grinding substrate for high-performance and thin semiconductors—Slims down and increases the functionality of mobile terminals including smartphones

AGC Asahi Glass Co., Ltd.

AGC (Asahi Glass Co., Ltd.; Head Office: Tokyo; President & CEO: Kazuhiko Ishimura) announced today that it will start sales of a glass substrate used in back-grinding processes to reduce the thickness of a semiconductor chip. The new substrate is indispensable for producing thin, high-performance semiconductors, leading to slimmer mobile terminals, such as smartphones, with enhanced functionality. With production launched at AGC Electronics Co., Ltd. (Head Office: Fukushima Prefecture), AGC aims to capture a 50-percent share of a market that is forecasted to grow to 10 billion yen by 2014.

While stacking chips vertically enhances the functionality of semiconductors used in mobile terminals, the thickness of individual chips must be reduced to enable such a vertical structure. These thin semiconductor chips are produced by supporting silicon wafers on a glass substrate called a back-grinding substrate (BG substrate) and grinding them to reduce their thickness to about 50 μm . Meanwhile, it is essential to control warpage of silicon wafers caused by differences in the coefficient of thermal expansion of the wafer and the BG substrate, which can occur during high-temperature treatment after the grinding process.

AGC applies precise in-plane processing, which is required by customers, to a special low-expansion glass that has similar properties to silicon using high-level grinding, cleaning, and inspection technologies derived from producing semiconductor-related products, including photo masks, and has started supplying the product as a BG substrate. The new product has the following characteristics:

- Achieves a coefficient of thermal expansion that is closest to that of silicon among competing products.
- Achieves an excellent in-plane total thickness variation (TTV: less than 1 μm), which is superior to that of other companies, through high-level grinding technology.
- Satisfies strict customer demand for defect density by applying semiconductor-cleaning technology.

Leveraging its technologies in the electronics and display fields ranging from designing and manufacturing glass materials to high-precision processing such as grinding, AGC will focus on supplying total solutions from raw materials to materials for production processes.

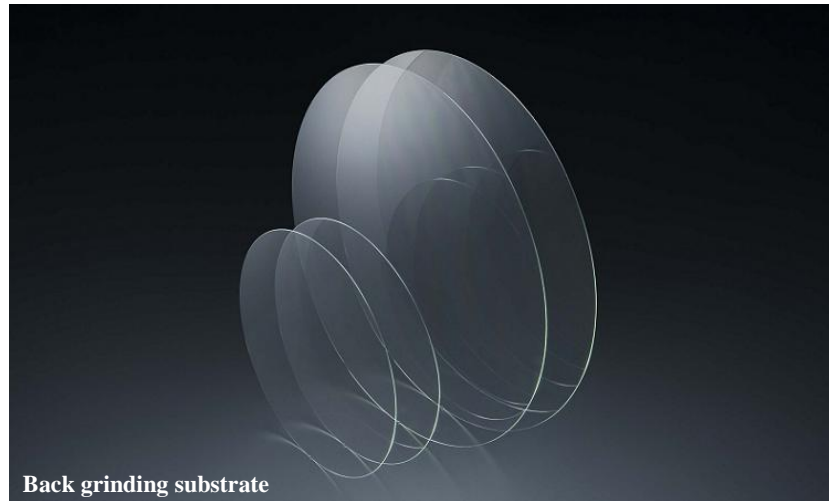
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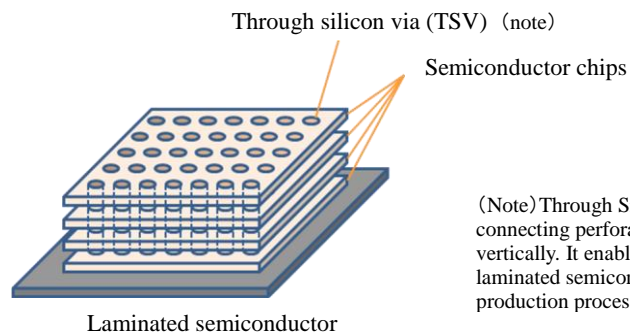
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Reference Materials

1. External appearance of back-grinding substrate



2. Structure of laminated semiconductor chips (through-silicon-via-type)



(Note) Through Silicon Via: A technology for electrically connecting perforated semiconductor chips that are stacked vertically. It enables increased functionality and downsized laminated semiconductor chips compared to conventional production processes.

3. Production process of semiconductors using back grinding substrates

