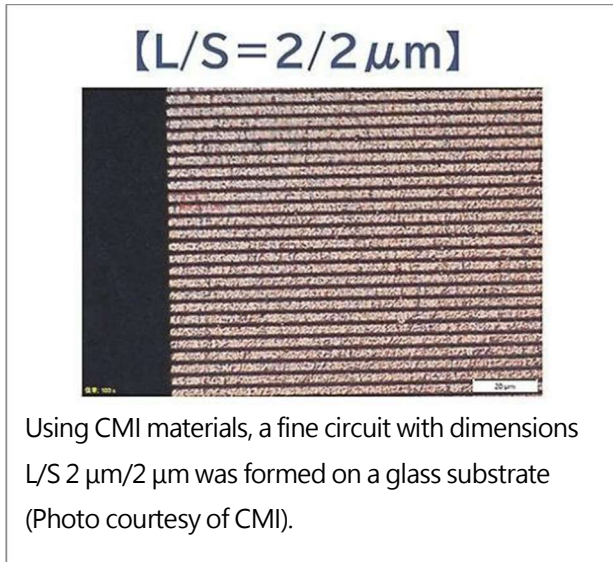


CIRCUIT MATERIALS develops low-elasticity resin, enabling L/S 2 μm wiring.



CIRCUIT MATERIALS INC.(CMI, Aoba-ku, Yokohama), which develops and provides consulting services for circuit board materials such as high-frequency compatible components, has developed a low-elasticity, high-adhesion interface resin for glass core substrates and advanced package substrates, and has also established a pattern printing process for glass substrates. They plan to market it as a resin-coated copper foil (RCC) material as early as fiscal year 2027 .

This resin forms a thin film layer of 5 to 15 μm at the interface between copper and glass, taking advantage of its low elasticity and high adhesion properties.

Therefore, it can be used in conjunction with interlayer insulating materials for build-up methods such as ABF, which are industry standards in the high-performance package substrate market, allowing existing package substrate manufacturing infrastructure to be utilized. Low elasticity is achieved by weaving in a special monofilament resin cloth. Furthermore, this resin exhibits excellent low dielectric properties, with a Dk value of 2.5 and a Df value of 0.0019, making it ideal for high-performance package substrates suitable for high-speed signal processing and other applications.

The basic properties of this resin include sufficient heat resistance with a Tg of 170°C and a CTE of 40 ppm/°C, while its elastic modulus is approximately one-tenth that of typical interlayer insulating materials. On the other hand, it exhibits high adhesion strength (1.3 kgf/cm) to both copper and glass. In particular, it can maintain stable peel strength (equivalent to the conventional VS937 material) without surface roughening treatment. Therefore, it can suppress the reduction in glass strength and adverse effects on fine wiring. It can also reduce the occurrence rate of glass splitting around TGV (through-glass vias) and at the edges of the substrate.

The company will use this material in the bonding process between copper and glass substrates in advanced package substrates such as glass core substrates and large FCBGA substrates. The product line includes thicknesses of 5 μm, 10 μm, and 15 μm, and will be marketed as an RCC material in combination with interlayer insulating materials.

Using this material and employing special printing techniques, we have also established a technology for forming fine wiring with a line-to-space (L/S) of 2 μm /2 μm on glass substrates. This technology can also be applied to interposers. Furthermore, by utilizing the MSAP method, it is possible to further refine patterns with an L/S of 30 μm/30 μm down to 10 μm/10 μm. This enables the miniaturization and high performance of systems and modules.