LTCC Packaging for Microsystems

K. Persson, C. Rusu, and B. Ottosson

Imego Insitute, Göteborg, Sweden

A novel packaging platform for the integration of sensors, actuators, fluidic and optical elements together with electronics into a single package is being developed. LTCC is a mature component carrier system with a complete infrastructure for electrical signals, buried passives and production processes. One advantage of using LTCC instead of silicon and glass is the simplicity of making conductors and vias. The newly developed low CTE LTCC gives the opportunity of direct wafer bonding to silicon. The stress caused by the bonding process due to CTE mismatch (3.4 ppm in comparison to 2.6 ppm) can to some extent be compensated by a slightly higher bonding temperature. Silicon and LTCC show similar behavior when used for packaging (low pressure inside the package) while glass tends to be poorer. Simulations for stress induced in the wafer packages during the anodic bonding process has been performed and will be presented.