ELECTRON TECHNOLOGY
ISSN 1897-2381
http://www.ite.waw.pl/etij/
Internet Journal

LASER SOLDERED PACKAGING HERMETICITY MEASUREMENT USING METALLIC CONDUCTOR RESISTANCE

F. SEIGNEUR, T. MAEDER, J. JACOT

Ecole Polytechnique Fédérale de Lausanne, IPR, LPM, 1015 Lausanne, Switzerland

Received Oct. 20, 2006; revised Nov. 23, 2006; accepted Nov. 24, 2006; published Nov. 29, 2006

ABSTRACT

Packaging is the last step of the manufacturing process of microsystems. The LPM is working on the development of a two-part soldered packaging. One part of the package is metallic; the other part is made of glass. The goal of the project is to solder the two parts of the package using a laser diode. The advantages of the laser soldered joint are its hermeticity to water and air in regard to glue and plastics, as well as the possibility to heat only the soldered joint, without affecting its contents. This work presents results of this packaging process, together with a method used to measure the hermeticity based on the oxidation of a heated metal conductor such as tungsten. The resistance of the conductor, which is encapsulated inside the package, increases as oxygen and water diffuse through the seal, which provides a convenient semi-quantitative measurement.