Fabrication of Miniature CMOS Image Sensor Using Novel Glass Cover Chip Packaging Technique

This study develops a novel glass cover chip (GCC) technique for the packaging of CMOS image sensors (CIS), in which the glass cover plate is attached directly to the chip using a nonconductive adhesive film. Taking the adhesive force between the glass plate and the chip as a performance indicator, a series of Taguchi trials are performed to establish the optimal GCC processing conditions. The experimental results confirm the feasibility of the proposed packaging technique and indicate a volume reduction of 59.47% compared with the traditional CIS package. Furthermore, the simulation results reveal that the heat dissipation efficiency of the proposed CIS package exceeds that of the traditional package by 245%. [DOI: 10.1115/1.4000363]

Keywords: glass cover chip, CMOS image sensor, Taguchi method, packaging process