

New Packaging Method Using PDMS for Piezoresistive Pressure Sensors**

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In this paper, we propose a novel wafer-level packaging (WLP) method carried out at room temperature for piezoresistive pressure sensors. We use a polydimethylsiloxane (PDMS) sheet to replace a Pyrex glass wafer for sealing the backside (or back-surface) V-grooved chambers of the pressure sensor chips. PDMS is now a well-known material in micro electronic mechanical system (MEMS) technology. It is not only cheap but also has the advantage of a simple process. We fabricated piezoresistive pressure sensors, made from the same batch, with different packaging materials of Pyrex glass and PDMS sheets. Spin coating is used to control the thickness of PDMS sheets by choosing silicon and Teflon disks as supporting substrates for the PDMS sheets. The sensors packaged by PDMS room-temperature bonding exhibited a similar performance to those packaged by conventional anodic bonding, as verified through pressure testing.

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