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## 5. Conclusions

This study demonstrated a novel pressure sensor packaging using patterned ultra-thick photoresists. The photoresist materials used for both sacrifice-replacement and dam-ring approaches can prevent the sensing-channel of the pressure sensor packaging from EMC contamination under molding transfer conditions of 165 °C and 1.86 MPa. The thermal signal drift of the packaged pressure sensors with a large sensing-channel opening for sacrifice-replacement approach significantly reduced packaging induced thermal stress, and hence a low TCO response of -0.065% span/°C. Both packaged pressure sensors of sacrifice-replacement and dam-ring approaches still met the specification -0.2% span/°C of the unpackaged pressure sensor. In addition, the size of proposed packages was  $4 \times 4 \times 1.5 \text{ mm}^3$  which was about seven times less than the commercialized packages. With the same packaging requirement, the proposed packaging approaches can be an adequate solution for use in other open-cavity sensors, such as gas sensors, image sensors, and humidity sensors.

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