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Abstract

The authors perform sensitivity analysis theoretically on three surface acoustic wave (SAW) pressure sensor structures and two material selections. The analyses take into consideration the effects of mounting structures, ways of transferring pressure to the sensing element, and various physical and geometrical parameters. It is shown that pressure-induced bending produces a larger change of wave speed than pressure-induced extension. A proposed shallow shell structure is demonstrated to increase the sensitivity of SAW pressure sensors, and for this structure, Si SAW exhibits a slightly higher sensitivity than Ge SAW.

Keywords

Wave, Sensor