

Abstracts

Acoustic Sensor Technology

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The recent development in monolithic devices has enabled a breakthrough in the applications of acoustic sensors in navigation and communications signal processing. A piezoelectric thin film material, such as ZnO, AlN or PZT, permits both acoustoelectric SAW and semiconductor electronic device components to be fabricated on the same monolithic substrate. Here, we discuss acoustic sensor applications such as pressure, gas and vapor sensors and microaccelerometers. In general, micromachined sensors such as pressure sensors and accelerometers have made their way into autos for control and deployment of airbags, and silicon-based accelerometers and rate gyros eventually will find use in vehicle navigation systems. All these recent market demands are pulling development of acoustic sensor technologies. For low-cost volume production, new methods of acoustic sensing and processing of thin film piezoelectric materials are essential to the development of monolithic technology.

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