

# Liquid-Phase Membrane-Type Shear Horizontal Surface Acoustic Wave Devices

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(Received January 20, 2014; accepted June 12, 2014)

**Key words:** membrane, surface acoustic wave, sensor, biosensor, immunosensor

In this paper, we describe a liquid-phase shear horizontal surface acoustic wave (SH-SAW) device that is composed of an air-cavity-type SH-SAW device and a membrane on the surface. The air-cavity structure can protect the transducers of the SH-SAW device using unique air cavities. Thus, the air-cavity-type SH-SAW device can be directly dipped into liquids and a liquid can be directly injected onto the surface of the device. In addition, a membrane can be placed directly on the SH-SAW sensor surface and sample liquids can be injected into the membrane. Although a membrane is placed directly on the surface of the device, the frequency response of the SH-SAW devices cannot be degraded. In addition, when liquids are injected, the SH-SAW device with a membrane can work as well as a conventional SH-SAW device without membranes.

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