

**[T-08]**

## **The Fabrication of Solidly Mounted BAW Resonator Based on ZnO**

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As the wireless communications have been developed, studies on wireless communication components such as filters, oscillators, and duplexers used in a range of GHz are rapidly increasing. But surface acoustic wave(SAW) devices faced many limitations for their application to this range. On the other hand bulk acoustic wave (BAW) resonator has many advantages in miniaturization, mass production, high quality, especially monolithic microwave integrated circuit (MMIC).

The solidly mounted resonator (SMR) consisted of top and bottom electrodes of Al and Au films, a piezoelectric layer of ZnO film, W/SiO<sub>2</sub> films for reflector layers, and Si substrate. The electrodes were deposited by E-beam evaporator. The piezoelectric layer and the reflector layers were deposited by rf magnetron sputtering. The SMR devices were fabricated by the basic semiconductor fabrication process. Finally the resonant properties of the SMR-type FBAR devices were measured by using Cascade Summit 9100 probing station, Cascade GSG-150 probes, and Agilent E8364A network analyzer.