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(54) SURFACE ACOUSTIC WAVE DEVICE WITH HIGH ELECTROMECHANICAL COUPLING COEFFICIENT BASED ON DOUBLE-LAYER ELECTRODES AND PREPARATION METHOD THEREOF

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ABSTRACT (57)

A surface acoustic wave (SAW) device having a high electromechanical coupling coefficient based on doublelayer electrodes and a preparation method thereof. A structure of the SAW device includes a Cu electrode, a piezoelectric film and an Al electrode on a substrate in sequence. A signal terminal of the Cu electrode is opposite to a ground terminal of the Al electrode. A ground terminal of the Cu electrode is opposite to a signal terminal of the Al electrode. Since Sezawa wave mode that is adopted is formed by coupling film thickness vibration and transverse vibration, a longitudinal electric field (in a direction of thickness of a film) and a transverse electric field (in a propagation direction of SAW) are excited through the double-layer electrodes so that the electromechanical coupling coefficient of the SAW device is improved by changing a coupling pattern between the electric fields and the piezoelectric film.

