Abstracts

Surface Charge and Field Distribution in a Finite SAW Transducer

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Using the moment-method technique, closed-form expressions for the surface charge, potential and electric fields of a finite transducer over a low coupling substrate are derived. The influence of the end effects on the total capacitance of the transducer are studied and the field patterns of three different electrode sequences are computed. It is shown that for Y-Z lithium niobate, the surface-charge density is proportional to the normal component of the electric field under the transducer. The moment-method technique was also used to study the total input admittance of finite transducers on Y-Z lithium niobate as a function of the number of finger pairs. Numerical results indicate that the increase in capacitance and conductance with the number of finger pairs, when the number of finger pairs exceeds three, is approximately constant.

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