Abstract

The study presents three-port reflecting cell model for analyzing SAW structures employing strong electrode reflections. Basic objective is to analytically approximate all the p-matrix elements for a SAW structure in terms of reflection, transduction, and transmission strengths. This model is an approximate one and it does not take into account the effects of bulk wave excitation, diffraction, and propagation loss etc for convenience. This 3-port reflecting cell model has been used to show that it is possible to realize Infinite Impulse Response (IIR) filters on SAW devices, which can result in much smaller size as compared to very high order Finite Impulse Response (FIR) SAW filters for given specifications. Simulation results for this new 3-port reflecting cell model and IIR filter realization are presented for validation purpose.

Reference

Reflecting Cell Model for SAW Structures


Index Terms
Electronics
Information Systems

Key words
SAW structures
reflecting cell model