Abstracts

A new design concept for low-loss SAW filters based on different-width split-finger SPUDT

H. Nakamura, T. Yamada, T. Ishizaki and K. Nishimura. "A new design concept for low-loss SAW filters based on different-width split-finger SPUDT." 2001 Transactions on Microwave Theory and Techniques 49.4 (Apr. 2001, Part II [T-MTT] (Special Issue on Microwave Acoustic Wave Devices for Wireless Communications and Sensing)): 761-768.

A new design concept of a single-phase unidirectional transducer (SPUDT) has been investigated in this paper. The concept has been realized by using a newly developed different-width split-finger-SPUDT structure, in which the adjacent electrode fingers are given different widths. A symmetrical radiation conductance is obtained by adjusting the electrode finger positions. Computer simulations have confirmed that the electrical 1/Q factor and the directivity have a tradeoff relationship with regard to the finger-width ratio, depending on the metallization thickness used. From the simulation results, the optimum finger-width ratio for achieving a low insertion loss has been obtained. An experimental filter was constructed, which shows good performance, with the insertion loss improved by 1 dB when compared to a conventional electrode-width-controlled-SPUDT filter on an ST-cut quartz substrate.

❑ Return to main document.