Abstracts

Microsound Components, Circuits, and Applications

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Surface acoustic wave components have been realized which perform the functions of transduction, amplification, and coupling. Applications are suggested which make use of these components. Exploratory work in connection with surface acoustic waveguides suggests the feasibility of acoustic analogs of conventional microwave transmission line (microsound) components on the surface of crystal and substrates. These microsound transmission lines, hybrids, and directional couplers interconnect microsound transducers, amplifiers, isolators, and phase shifters to form microsound circuits capable of autocorrelation, Fourier transformation, and cross correlation functions. Compatible component configurations are proposed and evaluated which perform these basic functions. The anticipated difficulties with their realization are discussed and the current status of critical problems including the epitaxial growth of thin films and submicron etching procedures will be given. Several circuits capable of performing correlation functions are given.

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