Abstracts

Enhancement of Surface-Acoustic-Wave Piezoelectric Coupling in Three-Layer Substrates (Short Papers)

A. Venema and J.J.M. Dekkers. "Enhancement of Surface-Acoustic-Wave Piezoelectric Coupling in Three-Layer Substrates (Short Papers)." 1975 Transactions on Microwave Theory and Techniques 23.9 (Sep. 1975 [T-MTT]): 765-767.

Numerical results with respect to the piezoelectric coupling of a three-layer substrate (CdS-SiO/sub 2/-Si) are presented. <111> -cut Si is used, and the direction of propagation is [112], the SiO/sub 2/ layer is amorphous and the CdS layer (hexagonal, 6 mm) has the c axis normal to the substrate. The choice of these materials is connected with the integration of acoustic surface-wave devices on silicon. The interesting result is that, depending on the applied transducer configuration for particular values of kh of the SiO/sub 2/ and CdS layer, an increase in the piezoelectric coupling occurs. Its maximum exceeds the value of the coupling in the two-layer substrates: CdS-SiO/sub 2/ and CdS-Si, therefore more effective interdigital transducers can be designed for three-layer substrates.

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