Abstracts

Comparative Study of Homogeneously and Inhomogeneously Doped MIS Coplanar Transmission Lines

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This paper presents a hybrid mode analysis of slow-wave modes in microsize MIS CPW's on heavily doped thin- and thick-film semiconductor wafers. It was found that in homogeneously doped MIS CPW's a slow-wave mode can be maintained up to 40 GHz if the center conductor strip width is in the order of 0.5µm. To circumvent fabrication and interconnection problems associated with such small line dimensions, a gradually inhomogeneous doping profile has been introduced, resulting in much wider strip dimensions which are in the range of 50µm. In this case a slow-wave mode can be maintained up to 20 GHz. The study was carried out by using alternatively the spectral domain approach and the method of lines.

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