Abstracts

CPW Resonator Modelling on GaAs Using the Mixed Potential Integral Equation

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With the advance of coplanar waveguides in monolithic millimeter wave integrated circuits (M^3ICs) accurate modelling of planar geometries is going to take on more and more significance. Fully electromagnetic models for arbitrary geometries are required in order to include effects such as dispersion, radiation and coupling. A coplanar waveguide (CPW) resonator on grounded GaAs substrate is presented and investigated numerically using a space-domain integral equation method. The numerical results are compared with on wafer measurements and show excellent agreement. The exact calculation of the input impedance as well as the verification of unwanted parasitic resonances is reported. The coupling capacitance, the most sensitive design parameter, is used to tune the circuit and therefore its dependence of the gap width is plotted additionally.

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