Abstracts

Analysis of Shielded CPW Discontinuities with Air-Bridges

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The effect of air-bridges on the performance of various coplanar waveguide (CPW) discontinuities is studied. Specifically, the coupled open-end CPWs and the short-end shunt CPW stub discontinuities are considered. The high frequency effect of the air-bridge is evaluated using a hybrid technique. At first, the frequency dependent equivalent circuit of the planar discontinuity without the air-bridge is derived using the Space Domain Integral Equation (SDIE) method. Then, the circuit is modified by incorporating the air-bridge's parasitic inductance and capacitance which are evaluated using a simple quasi-static model. The frequency response of each discontinuity with and without the air-bridge is studied and the scattering parameters are plotted in the frequency range 30-50 GHz for typical CPW dimensions.

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