Abstracts

Realistic equivalent circuit model of coplanar waveguide open circuit: lossy shunt resonator network

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Realistic equivalent circuit model of coplanar waveguide (CPW) open circuit is proposed and formulated as a lossy shunt resonator network based on the fact that the electromagnetic (EM) wave propagates at the transverse direction around the open-end. A "short-open calibration" (SOC) technique is applied in the full-wave method of moments (MoM) to effectively extract all the model parameters over a wide frequency range. After the extracted capacitance at low frequency is confirmed by the previous static results, extensive investigation is implemented to reveal the high-frequency dynamic features of CPW open circuit, e.g., shunt resonance and radiation loss. A CPW open-end circuit is then fabricated and measured to provide an experimental verification of the proposed model.

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