

Three-Dimensional Electromagnetic Parametric Modeling and Implementation of Miniaturized Lumped-Element PD Based on Symmetrical Configuration

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Abstract

Three-dimensional (3D) electromagnetic (EM) parametric modeling and implementation of miniaturized lumped-element power divider (PD) based on symmetrical configuration is investigated. The system design and schematic diagrams of PDs are firstly demonstrated, subsequently, the 3D EM field and field-circuit co-simulation models of PD utilizing computer simulation technology (CST) and advanced design system (ADS) tools are detailedly presented. Finally, one prototype is fabricated and measured. Simultaneously, the gain of the PD is -3.96 dB @ 100 MHz and the experimental curve is in excellent agreement with the simulation. As a conclusion, the novel design methodology applied in PD has important practical engineering value, which can be also applied in millimeter-wave (mmW) circuit.

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