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论文

基于等效电路法的高频继电器建模与研究

翟国富，王新宇，楚兵

哈尔滨工业大学军用电器研究所

摘要：

通过经典传输线理论及部分元等效电路(partial element equivalent circuit，PEEC)方法，对高频继电器常闭型信号传输路径的分布电容、电感、电阻等参数进行提取，建立信号传输路径的等效电路模型。对其进行仿真分析得到继电器射频(radio frequency，RF)性能曲线，并讨论了影响继电器插入损耗、电压驻波比及隔离度的主要因素。高频继电器RF性能的实验测试结果与等效电路模型仿真结果符合较好，表明了所建立等效电路模型的正确性。

关键词： 高频继电器 等效电路法 插入损耗 电压驻波比 隔离度

Modeling and Study of High Frequency Relay Based on Equivalent Circuit Method

ZHAI Guo-fu, WANG Xin-yu, CHU Bing

Military Apparatus Research Institute, Harbin Institute of Technology

Abstract:

The equivalent circuit of signal path of high frequency relay was built by extracting the parasitic capacitance, inductance and resistance of signal path, based on the classical transmission line theory and partial element equivalent circuit (PEEC) method. The radio frequency (RF) performance curves of relay were obtained through simulation, and analysis of the equivalent circuit and the main factors which influence the insertion loss, voltage stand wave ratio (VSWR) and isolation of relay were discussed. The simulation results obtained by equivalent circuit method agree well with the experimental results, which show validity of the equivalent circuit model.

Keywords: high frequency relay equivalent circuit method insertion loss voltage stand wave ratio isolation

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作者简介:

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