

研究简报

T型微带线间串扰问题的FDTD分析与抑制

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摘要

T型微带线的串扰是高速电路信号完整性问题中的重要组成部分。采用PML(Perfectly Matched Layer)-FDTD方法首次对T型微带线间的串扰问题进行全波分析, 并给出抑制串扰的具体措施。PML-FDTD仿真结果表明, 不同的改进结构参数对串扰的影响不同: (1) 开口距离 S 越大线间串扰越小, 最多减小10dB; (2) 开口角度 α 越小线间串扰越小, 减小幅度最多达14dB。由此得出, 在T型微带线上开三角形口, 通过改变开口距离 S 和开口角度 α 可实现对邻近微带线串扰的有效抑制。

关键词 [时域有限差分法](#) [微带线](#) [串扰](#) [完全匹配层](#)

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Analysis and Suppression of Crosstalk for T-shaped Microstrip by Using FDTD

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Abstract

The crosstalk of T-shaped microstrip is the important component in signal integrity of a high-speed circuit. In this paper, the fullwave analysis of the crosstalk is carried out by adopting the Perfectly Matched Layer Finite-Difference Time-Domain (PML-FDTD) method, and then the measures of reducing crosstalk are proposed in detail. The different structure parameters of improved T-shaped microstrip have different influence on the crosstalk. That is, (1) the crosstalk between microstrips is smaller as the orifice distance S is becoming bigger, and the amplitude of crosstalk is reduced to 10dB; (2) The value of α is smaller as the crosstalk between microstrip is becoming smaller correspondingly, and the amplitude of crosstalk is reduced to 14dB. Thus opening an orifice on the T-shaped microstrip can reduce the crosstalk between one T-shaped microstrip and another adjacent one remarkably by changing orifice distance S and angle α .

Key words [Finite-Difference Time-Domain\(FDTD\) method](#) [Microstrip](#) [Crosstalk](#) [Perfectly Matched Layer\(PML\)](#)

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