平行耦合濾波器之設計與研究

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摘 要

本篇論文主要探討微帶線帶通濾波器(microstrip Bandpass Filter)之改善，特別針對於抑制傳統濾波器所存在的2倍波長諧波訊號。在平行耦合線上應用週期性的細微蝕刻結構來改進通帶(passband)的性能並抑制諧波訊號。首先，使用平行耦合線帶通濾波器常見的設計方法設計濾波器，然後插入週期性的蝕刻結構於耦合線中，就得到一個新的濾波器。為了驗證此設計方法的正確性，本論文設計了一個3階的柴比雪夫帶通濾波器，其中心頻率在2.5 GHz 並有 20% 之頻寬 (Fractiona1 Bandwidth)。實驗與模擬皆證實了本論文所提出之架構；使用3個三角形溝槽時可以降低在2倍波長諧波達到30dB。

關鍵詞 : 三角形 ; 濾波器 ; 正確性 ; 微帶線 ; 耦合線

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