Abstracts

Optimal shape design of microwave device using FDTD and design sensitivity analysis

Young-Seek Chung, Changyul Cheon, Il-Han Park and Song-Yop Hahn. "Optimal shape design of microwave device using FDTD and design sensitivity analysis." 2000 Transactions on Microwave Theory and Techniques 48.12 (Dec. 2000 [T-MTT] (Special Issue on 2000 International Microwave Symposium)): 2289-2296.

In this paper, a novel optimal shape design method is proposed using the finite-difference time-domain (FDTD) method and the design sensitivity analysis to obtain broad-band characteristics of microwave devices. In shape design problem, the nodes that describe the shape of geometry to be optimized are taken as design variables. The design sensitivity is evaluated using the adjoint variable equation that is obtained from a terminal-value problem. The adjoint equation can be solved by the FDTD technique with the backward time scheme. With this method, a Ka-band unilateral fin line is tested to show validity.

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