Abstracts

Capacitance Computations in a Multilayered Dielectric Medium Using Closed-Form Spatial Green's Functions (1993 Vol. I [MWSYM])

K.S. Oh and J.E. Schutt-Aine. "Capacitance Computations in a Multilayered Dielectric Medium Using Closed-Form Spatial Green's Functions (1993 Vol. I [MWSYM])." 1993 MTT-S International Microwave Symposium Digest 93.1 (1993 Vol. I [MWSYM]): 429-432.

An efficient method to compute the 2-D and 3-D capacitance matrix of multiconductor interconnects in a multilayered dielectric medium is presented. The method is applicable to conductors of arbitrary polygon shape embedded in a multilayered dielectric medium with possible ground planes on the top or bottom of the dielectric layers. The computation time required to evaluate the space-domain Green's function for the multilayered medium, which involves an infinite summation, has been greatly reduced by obtaining a closed form, which is derived by approximating the Green's function using a ferrite number of images in the spectral domain. The corresponding space-domain Green's functions are then obtained using the proper closed-form integrations. The elements of the moment matrix are computed using the closed-form formulation, avoiding any numerical integration. The presented method showed good agreement when compared with other published results.

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