Abstracts

A general class of passive macromodels for lossy multiconductor transmission lines

This paper presents a general class of passive macromodeling algorithm for multiport distributed interconnects. A new theorem is described that specifies sufficient conditions for matrix-rational approximation of exponential functions in order to generate a passive macromodel. A proof is given showing that the currently existing passive matrix-rational approximation of exponential functions is a subclass of the generic approach presented in this paper. In addition, a technique to obtain a compact passive macromodel with predetermined coefficients, based on near-optimal approximation, is presented. The proposed model can be easily incorporated with recently developed passive model-reduction techniques.

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