Abstracts

A substrate-dependent CAD model for ceramic multilayer capacitors

B. Lakshminarayanan, H.C. Gordon and T.M. Weller. "A substrate-dependent CAD model for ceramic multilayer capacitors." 2000 Transactions on Microwave Theory and Techniques 48.10 (Oct. 2000 [T-MTT]): 1687-1693.

In this paper, a substrate-dependent lumped-element model for ceramic multilayer capacitors is presented. The height and dielectric constant of a substrate have a significant impact on the frequency response of a chip capacitor, and these effects cannot be treated independently from the capacitor model. Rather, the equivalent-circuit parameters in the model must be made to vary in accordance with changes in the substrate. The model presented in this paper is suitable for microstrip-mounted components, and has been applied up to 10 GHz for values from 0.5 pF to 0.47 /spl mu/F, and for FR-4 substrates ranging in height from 5 to 62 mil. The modeling and extraction procedure is demonstrated for 0805- and 1206-style capacitors.

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