Abstracts

On the Solution of a Microstripline with Two Dielectrics

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We present the calculation for, the capacitance and the effective dielectric constant for a microstripline with two different dielectrics. The solution is based on the exact transformation law provided by two successive Schwarz-Christoffel transformations, which is given in terms of the Jacobi Z/sub n/ function. This function can be easily separated into its real and imaginary parts, allowing the exact determination of the curve which separates the two dielectrics in the transformed plane. Once the curve is obtained, the capacitance of the system is calculated numerically by a finite-difference method. We compare our results with data obtained from Wheeler's approximate ellipse solution, as well as with other analytical solutions. We assume an infinitely wide ground plane and TEM-mode propagation.

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