Abstracts

Properties of the embedded transmission line (ETL)-an offset stripline with two dielectrics

A. Darwish, A. Ezzeddine, H.C. Huang and M. Mah. "Properties of the embedded transmission line (ETL)-an offset stripline with two dielectrics." 1999 Microwave and Guided Wave Letters 9.6 (Jun. 1999 [MGWL]): 224-226.

In three-dimensional (3-D) circuits that employ multilevel metallization, a frequently encountered transmission line configuration is the embedded transmission line (ETL), which is essentially an offset stripline topology with two dielectrics. There is no closed-form expression available for either the characteristic impedance or effective dielectric constant, since the problem is analytically complex for an exact analysis. This work provides an approximate empirical formula for both the effective dielectric constant and the characteristic impedance, and compares them with full-wave simulations of the structure. A few percent error (typically, less than 3% for Z/sub 0/, and 5% for /spl epsi//sub eff/) is observed over a wide range of transmission line parameters.

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