Abstracts

Design methodology of microstrip lines using dimensional analysis

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Dimensional analysis has been used to develop a new methodology in microwave integrated circuit design using microstrip lines. The analysis reveals a complete set of dimensionless products for the microstrip line. The dependencies between these products are established using the Pi theorem. Using commercial simulation tools and numerical fitting techniques, design formulas can be established. These design formulas calculate the desired microwave parameters, such as characteristic impedance, effective dielectric constants, and their frequency dependencies.

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