

## Closed-Form Formulas for Frequency-Dependent Resistance and Inductance Per Unit Length of Microstrip and Strip Transmission Lines

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*A.R. Djordjevic and T.K. Sarkar. "Closed-Form Formulas for Frequency-Dependent Resistance and Inductance Per Unit Length of Microstrip and Strip Transmission Lines." 1994 Transactions on Microwave Theory and Techniques 42.2 (Feb. 1994 [T-MTT]): 241-248.*

Based on numerical results obtained from solutions to integral equations, other numerical results and theoretical considerations, a set of closed-form formulas is presented for approximate calculation of frequency-dependent resistance and inductance per unit length of microstrip and strip transmission lines. Extensive verifications reveal that the accuracy obtained by these closed-form formulas is better than 10% for a wide range of parameters.

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