# Abstracts

## A Method for Broad-Band Matching of Microstrip Differential Phase Shifters

*B. Schiek and J. Kohler. "A Method for Broad-Band Matching of Microstrip Differential Phase Shifters." 1977 Transactions on Microwave Theory and Techniques 25.8 (Aug. 1977 [T-MTT]): 666-671.*

Meander-line phase shifters in microstrip are not well matched, because of the phase-velocity difference between the odd and the even mode in the coupled-line region. A stepped impedance design is introduced which allows one to realize, for example, a quarter-wavelength 90/spl deg/ Schiffman phase shifter with three sections, having, theoretically, a return loss better than 30 dB over a 1:5 bandwidth. Design equations are given and are confirmed by measurements on microwave integrated circuits in the frequency range 2-10 GHz.

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