Abstracts

Converting baluns into broad-band impedance-transforming 180/spl deg/ hybrids

Kian Sen Ang and Yoke Choy Leong. "Converting baluns into broad-band impedance-transforming 180/spl deg/ hybrids." 2002 Transactions on Microwave Theory and Techniques 50.8 (Aug. 2002 [T-MTT]): 1990-1995.

A technique for converting baluns into 180/spl deg/ hybrids by adding an in-phase power splitter is presented in this paper. Incorporating the broad-band antiphase and in-phase power splitting characteristics of the balun and power splitter results in a 180/spl deg/ hybrid with broad-band characteristics. This technique also provides a means of achieving perfect matching and output isolation for three-port lossless baluns. Applying this technique to a Marchand balun will result in a broad-band impedance-transforming 180/spl deg/ hybrid. Simple design equations based on the scattering matrix are presented. These theoretical results are validated by an experimental 180/spl deg/ hybrid using a coupled line Marchand balun. It achieves amplitude balance of 0.5 dB and phase balance of less than 5/spl deg/ from 1.2 to 3.2 GHz.

❑ Return to main document.