Abstracts

Overlapping, multiple CPW stub structures for high density MMICs

K. Hettak, C.J. Verver and M.G. Stubbs. "Overlapping, multiple CPW stub structures for high density MMICs." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 311-314 vol.1.

This paper proposes a robust option for developing a new class of very compact matching stub configurations. It demonstrates that an overlapping technique, involving different MMIC CPW stubs built into a single line section, can provide size and cost reductions up to 60%, while also providing performance enhancements. The high flexibility of uniplanar technology allows the development of possible transmission line shapes and removes a number of limitations inherent in conventional design approaches, thus providing varying degrees of miniaturization. The experimental prototypes presented in this paper demonstrate the efficiency of the design method and the feasibility of creating multistub configurations in a single line section to get ultra compact structures. The principle of achieving such high-quality circuits is detailed and is also confirmed by experimental and theoretical results which are in good agreement up to at least 40 GHz. This good agreement validates the design procedure and shows that complex circuit functions can be implemented by means of relatively inexpensive compact structures. This study was completed by producing a very compact 90/spl deg/ CPW branchline coupler for Ka/K-band, advanced SATCOM terminal systems operating in the 20/44 GHz frequency bands, which demonstrated that the concept can be easily used.

❑ Return to main document.