Abstracts

Coupled TEM Microstrip Impedance Transformer for S-Band TRAPATT Amplifiers

S.K. Sinha and K.P. Weller. "Coupled TEM Microstrip Impedance Transformer for S-Band TRAPATT Amplifiers." 1980 Transactions on Microwave Theory and Techniques 28.2 (Feb. 1980 [T-MTT]): 119-125.

A coupled TEM microstrip line circuit suitable for use in S-band TRAPATT amplifiers has been investigated. An analytical model of the coupled-line structure has been developed which properly accounts for diode positioning on the line. This model has been used to calculate the fundamental and harmonic impedances at the device terminals for various stub terminations and device locations. Measurements made with a Hewlett-Packard network analyzer are in good agreement with the calculated results. The use of this circuit for the development of a fixed-tuned MIC circuit for the TRAPATT amplifier on Duroid Substrate is discussed. The complete circuit incorporates a bias line filter with this coupled microstrip line and appropiate harmonic tuning stubs at two of its ports. It is capable of providing at least 6-percent 1-dB bandwith with high efficiency and high peak power output over pulsewidths up to 50 µs and up to 1-percent duty cycle.

❑ Return to main document.