Abstracts

The Declining Drain Line Lengths Circuit--A Computer Derived Design Concept Applied to a 2-26.5-GHz Distributed Amplifier

K.B. Niclas, R.D. Remba, R.R. Pereira and B.D. Cantos. "The Declining Drain Line Lengths Circuit--A Computer Derived Design Concept Applied to a 2-26.5-GHz Distributed Amplifier." 1986 Transactions on Microwave Theory and Techniques 34.4 (Apr. 1986 [T-MTT]): 427-435.

The principle of the "declining drain line lengths" has emerged as a successful concept in the pursuit of improved gain flatness and bandwidth. The optimized performance parameters of an "identical links" gain module are compared to those of a "declining drain line lengths" gain module, and the advantages of one design principle over the other are discussed. In addition, the paper studies the RF voltages and currents of the circuits' GaAs MESFETs and draws some qualitative conclusions as to the causes of gain limiting when approaching nonlinear operation. Finally, experimental results of a power module based on the "declining drain line lengths" principle are reported. The hybrid amplifier which incorporates five active devices with 0.25-µm gates achieves a small signal gain of G = 6.1±0.6 dB from 2-27 GHz. Measurements of its output power, reflection coefficients and noise figure are afso discussed.

❑ Return to main document.