Abstracts

New design method of uniform and nonuniform distributed power amplifiers

C. Duperrier, M. Campovecchio, L. Roussel, M. Lajugie and R. Quere. "New design method of uniform and nonuniform distributed power amplifiers." 2001 Transactions on Microwave Theory and Techniques 49.12 (Dec. 2001 [T-MTT] (Special Issue on 2001 International Microwave Symposium)): 2494-2500.

A new design methodology of uniform and nonuniform distributed power amplifiers is reported in this paper. This method is based on analytical expressions of the optimum input and output artificial lines making up the uniform and nonuniform distributed architectures. These relationships are derived from the load-line requirement of each transistor size for optimum power operation. Furthermore, specific design criteria are presented to enable an efficient choice between uniform and nonuniform distributed architectures. To validate this new design methodology, a nonuniform distributed power amplifier has been manufactured at the TriQuint Semiconductor Foundry, Richardson, TX, using a 0.25-/spl mu/m power pseudomorphic high electron-mobility process. This single-stage monolithic-microwave integrated-circuit amplifier is made of six nonuniform cells and demonstrates 1-W output power with 7-dB associated gain and 20% power-added efficiency over a multioctave bandwidth.

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