Abstracts

Coupled-Wave Small-Signal Transient Analysis of GaAs Distributed Amplifier

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A coupled-wave small-signal transient analysis for the GaAs distributed amplifier is presented. The analysis takes into consideration the effect of c/sub dg/ in the active device, leading to a coupled-mode formulation. Dispersions within the transmission lines and the presence of two normal modes make it impractical to obtain broad-band matching. Numerical results for specific terminations and various degrees of passive and active coupling clearly indicate the influence of C/sub dg/ and the necessity for coupled-mode analysis. The presented numerical scheme based on Bromwich integration can be incorporated into CAD routines for time-domain response optimization.

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