Abstracts

Modeling of Nonlinear Dispersive Active Elements in TLM

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The transmission line matrix (TLM) method is used for modeling of distributed active nonlinear domains embedded in planar microwave circuits. In this approach the nonlinearities are described by lumped elements connected to the nodes of a resistive TLM-network. With this approach the transient as well as the steady-state behaviour of nonlinear distributed active elements can be evaluated. In the paper we discuss the model of a distributed semiconductor diode. The distributed barrier is modelled by a resistive region. The physical cut-off characteristics of the semiconducting region is considered by lumped capacitors incIuded into the TLM network. For an oscillator with a distributed diode the time history and the field contribution at different instants of time are given.

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