Abstracts

An analytical small-signal bias-dependent nonuniform model for p-i-n traveling-wave photodetectors

G. Torrese, I. Huynen, M. Serres, D. Gallagher, M. Banham and A.V. Vorst. "An analytical small-signal bias-dependent nonuniform model for p-i-n traveling-wave photodetectors." 2002 Transactions on Microwave Theory and Techniques 50.11 (Nov. 2002 [T-MTT] (Mini-Special Issue on the 2002 IEEE Radio Frequency Integrated Circuit (RFIC) Symposium)): 2553-2557.

A fully analytical small-signal model is developed for the frequency response of traveling-wave photodetectors. It takes into account the dependence of the equivalent transmission-line admittance on the position, induced by the nonuniform distribution of the optical beam along the traveling direction. Moreover, the influence of the bias voltage on the transit time has been accurately investigated. The model is applied to the design of an InAlAs-InGaAs p-i-n photodetector. Its performances are investigated in term of electrical bandwidth.

❑ Return to main document.