Abstracts

Microwave propagation in p-i-n transmission lines

Z. Zhu and A.V. Vorst. "Microwave propagation in p-i-n transmission lines." 1997 Microwave and Guided Wave Letters 7.6 (Jun. 1997 [MGWL]): 159-161.

In this paper the layered structure of p-i-n photodetectors is modeled for the first time as a transmission line. The method of lines, as a two-dimensional (2-D) full-wave approach, is used to calculate the propagation constant. The numerical results agree well with measurements made on experimental devices over a frequency range of 1-30 GHz. An important new result is that the analysis of the current distribution in the bottom shielding layer shows that the finite conductivity of the high-doped semiconductor material in the layer results in a significant edge effect. This effect is properly taken into account in our 2-D model.

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