Abstracts

Traveling-Wave Photodetectors for High-Power, Large-Bandwidth Applications

V.M. Hietala, G.A. Vawter, T.M. Brennan and B.E. Hammons. "Traveling-Wave Photodetectors for High-Power, Large-Bandwidth Applications." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part II [T-MTT] (Special Issue on Microwave and Millimeter Wave Photonics)): 2291-2298.

The traveling-wave photodetectors (TWPD) discussed here offer theoretical quantum efficiencies approaching 100% while maintaining a very large electrical bandwidth. Additionally, they are capable of dissipating the high-power levels required for large dynamic range applications. In this paper, the power dissipation limit of the TWPD is explored. A small-signal steady-state model is developed that includes the effects of electrical propagation losses along the detector. Fabrication details are presented and experimental data shows a 3 x 1250 μm^2 detector with a 4.8-GHz bandwidth.

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