Abstracts

Design of narrow-band photoreceivers by means of the photodiode intrinsic conductance

A. Leven, V. Hurm, R. Reuter and J. Rosenzweig. "Design of narrow-band photoreceivers by means of the photodiode intrinsic conductance." 2001 Transactions on Microwave Theory and Techniques 49.10 (Oct. 2001, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 1908-1913.

The photodiode intrinsic conductance is a versatile parameter for designing photoreceivers used in lightwave-microwave systems. A short review is given on how the transimpedance and equivalent input noise current of an optical receiver can be calculated. The design of monolithically integrated narrow-band photoreceivers for microwave-via-fiber applications at 10 GHz is demonstrated. The photoreceivers were fabricated using GaAs-based pseudomorphic high electron-mobility transistor monolithically integrated with metamorphic InGaAs photodiodes. For such a photoreceiver, a very low equivalent input noise current of 5.7 pA per square-root hertz and a high optoelectronic conversion gain of 64.1 dBV/W were measured in good agreement with simulations.

❑ Return to main document.