Abstracts

Dynamic Properties of Optical-Microwave Mixing Processes Utilizing FET Devices

T. Berceli. "Dynamic Properties of Optical-Microwave Mixing Processes Utilizing FET Devices." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part II [T-MTT] (Special Issue on Microwave and Millimeter Wave Photonics)): 2330-2333.

The dynamic behavior of the optical-microwave mixing process is investigated in detail. First, the dynamic properties of mixing and detection are compared. With increasing optical modulation frequency a more remarkable decay is obtained in the mixing product than in the detected signal. Based on the investigations there is a further reason for the decay in the mixing product beside the time constant exhibited by the barrier depletion region: the optically induced substrate current which doesn't contribute to the mixing effect. To describe the operation of combined optical-microwave mixing effects a new approach, the parametric method is introduced which provides a better description for these processes.

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