Abstracts

Analytical Model for Optically Generated Currents in GaAs MESFETs

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The MESFET as an optically sensitive microwave element on MMIC's has attracted much attention. The theoretical modelling of the device, however, needs more consideration. This paper proposes an analytical model for the illuminated MESFET, complete in that all major contributions to the optical response are considered. The dependence of the response on bias conditions, the wavelength and intensity of the optical input, and the particulars of device structure, are incorporated in the model. The importance of the internal photovoltaic effect, which has not been properly modelled previously, is emphasized. The novel theoretical model is verified by experimental results.

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