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Title

THz modulator based on the Drude model

Source

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Abstract

An amplitude modulator for the terahertz (THz) range is designed. The Drude model is adopted, in which the collision damping is independent of the carrier energy. The Si block with 808 nm laser is illustrated, and it will generate the photocarriers. The injected photo-carriers will change the conductivity and dielectric of the sample, which have direct relationship with the absorption coefficient of the THz wave, hence to control the characteristics of the THz wave in the sample. By changing the light intensity, due to the different photon-generated carrier concentrations, the single transmission of the THz wave in the silicon substrate is changed remarkably. (12 References).