Abstracts

Gallium-Arsenide Point-Contact Diodes

W.M. Sharpless. "Gallium-Arsenide Point-Contact Diodes." 1961 Transactions on Microwave Theory and Techniques 9.1 (Jan. 1961 [T-MTT]): 6-10.

This paper describes some of the work on gallium-arsenide point-contact diodes which is currently in progress at the Bell Telephone Laboratories, Holmdel, N. J. Gallium arsenide, one of the Group III-V intermetallic compounds, possesses properties which tend to make it superior to either silicon or germanium for many high-frequency diode applications. By controlling the resistivity of the gallium arsenide and the point-contact processing techniques, diodes have been fabricated specifically for use as millimeter wave first detectors, high-speed switches, and reactive elements for microwave parametric oscillators and amplifiers. The operating characteristics of several different types of gallium-arsenide reactive diodes are discussed and mention is made of simple design formulas which may be used to tentatively evaluate the performance to be expected from such diodes. Noise figure measurements are included in a resume covering some of the experimental results that have been obtained using gallium-arsenide point-contact diodes as variable reactance elements in microwave parametric amplifiers.

❑ Return to main document.