Abstracts

Millimeter Wave Tripler Evaluation of a Metal/2-DEG Schottky Diode Varactor

P.J. Koh, W.C.B. Peatman and T.W. Crowe. "Millimeter Wave Tripler Evaluation of a Metal/2-DEG Schottky Diode Varactor." 1995 Microwave and Guided Wave Letters 5.3 (Mar. 1995 [MGWL]): 73-75.

A new Schottky diode, based on a contact at the edge of a 2-dimensional electron gas (2-DEG) is investigated for use as a multiplier element in the millimeter and submillimeter wavelength regions. As a negative voltage is applied to the Schottky contact, the depletion layer between the Schottky contact and the 2-DEG expands and the junction capacitance decreases, resulting in a non-linear reactance. Device results are presented which demonstrate low series resistance, large capacitance modulation, and significantly higher tripler efficiency (75-225 GHz) than previously reported multiplier results of this type of structure.

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