Abstracts

High-speed monolithic millimeter-wave switch array

F. Jiang, W. Berk, Z.-T. Chen, S. Duncan, X.-H. Qin, D.W. Tu, W.-M. Zhang, C.W. Domier and N.C. Luhmann, Jr.. "High-speed monolithic millimeter-wave switch array." 1998 Microwave and Guided Wave Letters 8.3 (Mar. 1998 [MGWL]): 112-114.

A quasi-optical planar grid switch array comprised of hundreds of Schottky varactor diodes embedded within an overmoded waveguide is capable of generating switching times of 100-500 ps in the millimeter-wave region with Watt-level power-handling capabilities. A proof-of-principle high-speed V band switch array has been constructed with excellent agreement between theory and experiment. Less than 1.6-dB insertion loss and >16-dB on/off contrast ratio are measured at 61.5 GHz. The switch rise/fall time is <127 ps. An instantaneous bandwidth >7 GHz (contrast ratio >15 dB) has also been measured.

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