Abstracts

Determination and Reduction of the Capacitance Associated with the Bonding Pads of Planar Millimeter-Wave Mixer Diodes

J.A. Wells and N.J. Cronin. "Determination and Reduction of the Capacitance Associated with the Bonding Pads of Planar Millimeter-Wave Mixer Diodes." 1992 Microwave and Guided Wave Letters 2.7 (Jul. 1992 [MGWL]): 297-299.

A calculation of the capacitance associated with the metal bonding pads of a planar millimeter-wavelength mixer diode is presented. This capacitance is the largest component associated with such a device, contributing a calculated 22 fF toward a total diode capacitance of 30 fF. A demonstration of how the pad capacitance can be almost halved by incorporating an air bridge into the diode structure is included. Computer simulations show that this additional processing step can cause a 1.2-dB drop in mixer conversion loss at 94 GHz.

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