Abstracts

A High-Power Millimeter-Wave Frequency Doubler Using a Planar Diode Array

B.J. Rizzi, T.W. Crowe and N.R. Erickson. "A High-Power Millimeter-Wave Frequency Doubler Using a Planar Diode Array." 1993 Microwave and Guided Wave Letters 3.6 (Jun. 1993 [MGWL]): 188-190.

A balanced frequency doubler has been built using an integrated planar array of four varactor diodes. The maximum output power of 55 mW at 174 GHz is twice the power available from the previous best multiplier at a nearby frequency and was limited by the available pump source. The peak efficiency is 25 % at 150 mW input. Circuit parasitic and device heating do not appear to be significant at the present power levels and carrier velocity saturation effects appear to be reduced due to the series array configuration.

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