Abstracts

Monolithic 23.5 to 94 GHz Frequency Quadruple Using 0.1 µm Pseudomorphic AlGaAs/InGaAs/GaAs HEMT Technology

H. Wang, K.W. Chang, D.C.W. Lo, K.L. Tan, D. Streit, G.S. Dow and B.R. Allen. "Monolithic 23.5 to 94 GHz Frequency Quadruple Using 0.1 µm Pseudomorphic AlGaAs/InGaAs/GaAs HEMT Technology." 1994 Microwave and Guided Wave Letters 4.3 (Mar. 1994 [MGWL]): 77-79.

A monolithic 23.5 to 94 GHz frequency quadruple based on 0.1 µm pseudomorphic AlGaAs/InGaAs/GaAs high electron mobility transistor (HEMT) technology has been developed. This frequency quadruple consists of a 23.5 to 47 GHz doubler, a 47 to 94 GHz doubler, and a 47 GHz buffer amplifier between the two doublers. It exhibits a measured conversion loss of 5-7 dB at output frequency from 94 to 98 GHz. To our knowledge, this is the first reported W-band (75-110 GHz) monolithic frequency quadruple using HEMT technology. It can be integrated with 23.5 GHz VCOs to construct low phase noise and stable frequency sources around 94 GHz.

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