Abstracts

A Monolithic W-Band Preamplifier Diode Detector (1993 [MCS])

H. Wang, W. Lam, T.N. Ton, D.C.W. Lo, K.L. Tan, G.S. Dow, B. Allen and J. Berenz. "A Monolithic W-Band Preamplifier Diode Detector (1993 [MCS])." 1993 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 93.1 (1993 [MCS]): 167-170.

A monolithic W-band preamplifier diode detector was developed based on 0.1 µm pseudomorphic AIGaAs/InGaAs/GaAs HEMT technology. This chip consisted of a Schottky diode detector with a two-stage W-band low noise amplifier has a measured detector responsivity of 300 V/mW at 94 GHz and a tangential sensitivity of -62 dBm. This is the first reported monolithic preamplifier diode detector at this frequency. A higher sensitivity preamplifier detector which was built by cascade of two monolithic three-stage W-band LNA with the preamplifier detector chip also shows a tangential sensitivity of -85 dBm. This monolithic chip is ideal for insertion into the W-band radiometer and passive imaging array systems.

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