Abstracts

A W-Band Monolithic, Singly Balanced Resistive Mixer with Low Conversion Loss

K.W. Chang, E.W. Lin, H. Wang, K.L. Tan and W.H. Ku. "A W-Band Monolithic, Singly Balanced Resistive Mixer with Low Conversion Loss." 1994 Microwave and Guided Wave Letters 4.9 (Sep. 1994 [MGWL]): 301-302.

We report the design, measured and simulated performance of a novel W-band monolithic, singly balanced resistive FET mixer utilizing 0.1-µm pseudomorphic AIGaAs/InGaAs on GaAs HEMT technology. At an LO drive of +8 dBm, this mixer has exhibited a minimum measured conversion loss of 12.8 dB, nearly a 10 dB improvement over previously reported data in this frequency range. Furthermore, the mixer figure of merit, defined as P/sub 1-dB, /sub in// -P/sub LO/, is at least +2 dBm, which is nominally 6 dBm better than that of comparable diode mixers at W-band. These results indicate the excellent potential of this mixer for integration with other circuit components in fully monolithic subsystems.

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