Abstracts

A Millimeter Wave Passive FET Mixer with Low 1/F Noise

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A unique millimeter wave resistive FET mixer design provides down conversion to low IF frequencies with low l/f noise. The single FET unbalanced mixer has a double sideband noise figure of 7.5 dB with a conversion loss of 9dB at an LO drive level of 9dBm. An RF to LO isolation of 15 dB is achieved through use of a resonant loop from drain to gate. The design allows downconconversion to low IF frequencies using a FET compatible process with a small chip size. A comparison of MESFET snf HEMT versions of the mixer shows that the l/f noise level is higher in the HEMT mixer.

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