Abstracts

Novel Single Device Balanced Resistive HEMT Mixers

K. Yhland, N. Rorsman and H.H.G. Zirath. "Novel Single Device Balanced Resistive HEMT Mixers." 1995 Transactions on Microwave Theory and Techniques 43.12 (Dec. 1995, Part II [T-MTT] (1995 Symposium Issue)): 2862-2866.

A family of novel single device balanced resistive HEMT mixers has been designed and characterized. The RF is fed through a 180° balun. The IF is extracted either by a 180° balun or single ended. The main advantages of this type of mixer are that no device pairing is necessary, since only one HEMT is used and that no RF and LO grounding is necessary. These advantages make the described topology particularly suitable for microstrip MIC's, MMIC's, crossbar, fin-line and quasi optical mixers. The mixers are designed for RF 17.5-20 GHz, the LO is wideband and the IF is 1-2 GHz. Measurements show a conversion loss of 6 to 8 dB and an LO to RF isolation of up to 37 dB (typically 20 dB).

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