Abstracts

Wide-band balanced active HEMT mixer

A.S. Yanev, B.N. Todorov and V.Z. Ranev. "Wide-band balanced active HEMT mixer." 2001 Transactions on Microwave Theory and Techniques 49.7 (Jul. 2001 [T-MTT]): 1359-1361.

The design and characteristics of a balanced active high electron-mobility transistor (HEMT) mixer operating in the 4.5-10-GHz frequency band are described in this paper. It consists of two parts implemented as independent hybrid circuits, namely, an microwave part fabricated by using a uniplanar technology and comprising a 180/spl deg/ hybrid ring coupler, HEMTs, and input-output matching circuits, and a low-frequency part consisting of an L-C balun and a low-pass filter built of discrete elements. The design of the microwave part of the mixer ensures a high degree of isolation between the signal and local-oscillator (LO) inputs within a wide frequency band at low IF. The measurements show a conversion gain of 5-7 dB, noise figure of 5-7.5 dB, and isolation between the signal and LO ports greater than 20 dB within the 4.5-10-GHz range.

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