Abstracts

Ka/Q-band doubly balanced MMIC mixers with low LO power

M. Yu, R.H. Walden, A.E. Schmitz and M. Lui. "Ka/Q-band doubly balanced MMIC mixers with low LO power." 2000 Microwave and Guided Wave Letters 10.10 (Oct. 2000 [MGWL]): 424-426.

An InP-based broadband double-balanced mixer was developed having interchangeable RF/LO-ports and covering frequencies from 30 to 45 GHz, with a conversion loss of 12/spl plusmn/2 dB at the low LO power of 4 dBm. This broadband characteristic was achieved through the use of side-coupled baluns for both the RF and LO ports. The ring quad-diodes used state-of-the-art superlattice layers, which provided good control of turn-on voltage and were monolithically integrable with in-house HEMT's and HBT's. The diodes exhibited a very low turn-on voltage of 0.15 V at 1 mA, low series resistance, and high cutoff frequencies.

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