Abstracts

Novel Monolithic Multifunctional Balanced Switching Low-Noise Amplifiers

D.C.W. Lo, H. Wang, B.R. Allen, G.S. Dow, K.W. Chang, M. Biedenbender, R. Lai, S. Chen and D. Yang. "Novel Monolithic Multifunctional Balanced Switching Low-Noise Amplifiers." 1994 Transactions on Microwave Theory and Techniques 42.12 (Dec. 1994, Part II [T-MTT] (1994 Symposium Issue)): 2629-2634.

A novel multifunctional balanced switching low-noise amplifier (BSLNA) which can be used as a low-noise amplifier, a low-noise switch, or a broad-band 180° phase shifter is proposed. Two monolithic BSLNA's at Ka- and W-band frequencies are demonstrated using the 0.1 µm pseudomorphic (PM) InP- and GaAs-based HEMT technologies, respectively. Potential applications of the novel BSLNA are in on-off keying (OFK) or binary phase-shift keying (BPSK) in communication systems and input switch for Dicke-switched radiometer systems. The extensions of this BSLNA structure to be a single-pole double-throw switch and a crossbar switch to interchange two signal paths are also addressed.

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