Abstracts

Low noise amplifiers in InP technology for pseudo correlating millimeter wave radiometer

P. Kangashlahti, T. Gaier, D. Dawson, J. Tuovinen, T. Karttaavi, M. Lahdes, N.J. Hughes, T.L. Cong, P. Jukkala, P. Sjoman and S. Weinreb. "Low noise amplifiers in InP technology for pseudo correlating millimeter wave radiometer." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 1959-1962 vol.3.

This decade will be very important for cosmology due to several missions to measure the cosmic microwave background radiation. These measurements require highly sensitive radiometers operating over a very wide frequency spectrum. The millimeter wave radiometers are best developed as pseudo correlating radiometers due to the inherent stability and high sensitivity of this instrument, To miniaturize the size and power consumption of these radiometers we have developed the critical low noise amplifier and phase switch MMICs using high-performance InP technologies. The low noise amplifiers achieved record 2.3 dB noise figure over the 60-80 GHz frequency band at room temperature and less than 25 K noise temperature at 20 K ambient temperature. These MMICs form the building blocks for 70 GHz highly sensitive correlating radiometers, that are needed e.g. in the ESA Planck mission.

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