Abstracts

A 200-300 GHz SIS mixer-preamplifier with 8 GHz IF bandwidth

E.F. Lauria, A.R. Kerr, M.W. Pospieszalski, S.-K. Pan, J.E. Effland and A.W. Lichtenberger. "A 200-300 GHz SIS mixer-preamplifier with 8 GHz IF bandwidth." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 1645-1648 vol.3.

A 200-300 GHz SIS mixer-preamplifier with an IF bandwidth of 8 GHz Is described. The mixer uses Nb/Al-oxide/Nb tunnel junctions in a circuit with low IF capacitance and inductance. The mixer block is designed to mount directly on the body of the 4-12 GHz InP HFET preamplifier and mixer bias is provided through the input circuit of the preamplifier. At a LO frequency of 230 GHz, the mixer-preamp gain is 30-35 dB, and the DSB receiver noise temperature is 45-57 K across the whole IF band. This is the largest instantaneous bandwidth reported to date for an SIS receiver.

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