Abstracts

A Planar Quasi-Optical SIS Receiver Suitable for Array Applications

P.A. Stimson, R.J. Dengler, P.H. Siegel and H.G. LeDuc. "A Planar Quasi-Optical SIS Receiver Suitable for Array Applications." 1992 MTT-S International Microwave Symposium Digest 92.3 (1992 Vol. III [MWSYM]): 1421-1424.

A novel planar, quasi-optical SIS receiver operating at 230 GHz is described. The receiver consists of a 2x5 array of half wave dipole antennas with ten niobium-aluminum oxide-niobium SIS junctions on a quartz dielectric-filled parabola. The 1.2 GHz intermediate frequency is coupled from the mixer via coplanar strip transmission lines and 4:1 balun transformers. The receiver is operated at 4.2 K in a liquid helium immersion cryostat. We report here accurate measurements of the performance of single receiver elements. A mixer noise temperature of 148 K DSB, receiver noise temperature of 259 K DSB and conversion loss of 10 dB into a matched load have been obtained.

❑ Return to main document.