Abstracts

600 GHz Planar-Schottky-Diode Subharmonic Waveguide Mixers

I. Mehdi, T.H. Lee, D.A. Humphrey, S.C. Martin, R.J. Dengler, J.E. Oswald, A. Pease, R.P. Smith and P.H. Siegel. "600 GHz Planar-Schottky-Diode Subharmonic Waveguide Mixers." 1996 MTT-S International Microwave Symposium Digest 96.1 (1996 Vol. I [MWSYM]): 377-380.

We report on the first planar two-diode subharmonic mixer operating at 600 GHz. The measured mixer noise temperature of 4200 K DSB is only a factor of 2 worse than the best single diode (whisker-contacted or planar) fundamental mixers and a factor 1.5 worse than the best ever single diode (whisker-contacted) harmonic mixer at similar frequencies. The measured conversion loss is /spl ap/12 dB and a noise temperature between 4200-5300 K can be maintained with a fix tuned circuit over a 1-18 GHz IF bandwidth. The anodes are made via a trilayer direct e-beam write process that results in extremely low parasitic devices with high cutoff frequencies. The mixers are being developed for NASA's Mission to Planet Earth.

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