Abstracts

An Investigation of the Properties of Germanium Mixer Crystals at Low Temperatures

L.K. Anderson and A. Hendry. "An Investigation of the Properties of Germanium Mixer Crystals at Low Temperatures." 1958 Transactions on Microwave Theory and Techniques 6.4 (Oct. 1958 [T-MTT]): 393-398.

Experimental determinations of the noise temperature ratio, IF resistance, and conversion loss of 1N263 germanium mixer diodes operated in an X-band receiver are presented as a function of mixer temperature for the range -196°C to 27°C. No improvement in receiver noise factor was obtained by cooling the mixer to -196°C; however an improvement of 0.3 to 0.6 db was observed by cooling to a temperature in the region -100°C to -50°C. The exact value of the improvement and the optimum temperature depends on the individual crystal, as well as on dc bias and local oscillator drive.

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