Abstracts

A Low Noise Figure 94 Gc Gallium Arsenide Mixer Diode

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Until recently low noise figure mixer diodes for operation above 80 gc were very difficult to achieve and had short life times. This paper describes the procedures and results that evolved from a development program that eliminated these disadvantages. The three major areas to be investigated in developing a low noise figure diode were selection of an intermediate frequency for minimum crystal noise ratio, selection of a semiconductor material that gave low conversion loss, and mounting the diode such that package parasitics have a minimal effect. (The term low noise flgure in this discussion infers crystal noise figure, i.e.. the product of the conversion loss (Lc) and the noise ratio. It is assumed that tie noise figure of the IF amplifier, whether it be transistor, tunnel diode or TWT, will remain relatively constant through the low microwave frequencies.)

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