Abstracts

GaAs versus quartz FGC lines for MMIC applications

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The performance of finite-ground coplanar (FGC) lines on GaAs and quartz for high-frequency monolithic-microwave integrated-circuit (MMIC) applications is experimentally investigated in this paper. The FGC lines on GaAs are covered with a thin layer of polyimide for passivation purposes. Permittivity and attenuation characteristics for these lines up to 118 GHz are presented and compared with the corresponding characteristics of FGC lines on a quartz substrate, which are commonly used for millimeter-wave applications. The impact of different characteristic impedance values in attenuation properties for both GaAs and quartz is also addressed. Results indicate that the loss on the lines does not depend on the substrate material, but rather on line geometry. All the lines tested show low-loss and low-dispersion characteristics.

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