Abstracts

A fully integrated broad-band amplifier MMIC employing a novel chip-size package

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In this work, we used a novel RF chip-size package (CSP) to develop a broad-band amplifier monolithic microwave integrated circuit (MMIC), including all the matching and biasing components, for Ku- and K-band applications. By utilizing an anisotropic conductive film for the RF-CSP, the fabrication process for the packaged amplifier MMIC could be simplified and made cost effective. STO (SrTiO/sub 3/) capacitors were employed to integrate the dc biasing components on the MMIC. A novel pre-matching technique was used for the gate input and drain output of the FETs to achieve a broad-band design for the amplifier MMIC without any loss of gain. To improve the circuit stability of the amplifier MMIC in the out-of-band, a parallel RC circuit was employed at the input of the amplifier MMIC. The packaged amplifier MMIC exhibited good RF performance and stability over a wide frequency range. This work is the first report of a fully integrated CSP amplifier MMIC successfully operating in the Ku-/K-band.

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