

Abstracts

High linearity low-k BCB-bridged AlGaAs/InGaAs power HFETs (2002 [RFIC])

Hsien-Chin Chiu, Ming-Jyh Hwu, Shih-Cheng Yang and Yi-Jen Chan. "High linearity low-k BCB-bridged AlGaAs/InGaAs power HFETs (2002 [RFIC])." 2002 Radio Frequency Integrated Circuits (RFIC) Symposium 02. (2002 [RFIC]): 411-414.

A novel low-k BCB (benzocyclobutene) bridged and passivated process for AlGaAs/InGaAs doped-channel power FETs with high reliability and linearity was characterized and developed. In this study, we applied the low-k BCB-bridged interlayer to replace the conventional air-bridged process and the SiN/sub x/ passivation technology of the 1 mm wide power device fabrication. This novel process technique demonstrates a lower power gain degradation under a high input power swing, and exhibits an improved adjacent channel power ratio (ACPR) than the air-bridged ones due to its lower gate leakage current. The power gain degradation ratio of BCB-bridged devices under a high input power operation ($P_{\text{sub in}} = 5 \text{ dBm}$) is 0.51 dB/dBm, and this value is 0.65 dB/dBm of conventional air-bridged devices.

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