# Abstracts

## Reduced intermodulation distortion of AlGaAs/InGaAs doped-channel FETs by air-bridge gate process

*Hsien-Chin Chiu, Feng-Tso Chien, Shih-Cheng Yang and Yi-Jen Chan. "Reduced intermodulation distortion of AlGaAs/InGaAs doped-channel FETs by air-bridge gate process." 2001 Radio Frequency Integrated Circuits (RFIC) Symposium 01. (2001 [RFIC]): 143-146.*

The conventional mesa isolation process in AlGaAs/InGaAs doped-channel FETs (DCFETs) results in the gate contacting the exposed highly n-type doped channel at the mesa sidewall, forming a parasitic gate leakage path. In this work, we suppress the gate leakage from the mesa-sidewall to increase the gate-to-drain breakdown voltage (BV/sub gd/) and the microwave power performance by using the air-bridge gate structure. The device gate leakage characteristics under high input power swing are particularly investigated in terms of the 3rd-order intermodulation distortion, which are sensitive to the sidewall gate leakage. The air-bridge gate DCFETs provide not only a lower power gain at higher input powers but also a lower IM3 power than those characteristics in conventional DCFETs.

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