

A 1.4dB Insertion-Loss, 5GHz Transmit/Receive Switch Utilizing Novel Depletion-Layer-Extended Transistors (DETs) in 0.18 μ m CMOS Process

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A novel Depletion-layer-Extended Transistor(DET) for the RF switch circuit is proposed in a CMOS process, which significantly reduces junction capacitance and increases *GND-path* resistance in the Si-substrate, with a new impurity profiling. This transistor can be simultaneously formed with the conventional transistor with only the addition of one mask-step. By utilizing the DETs, a low 1.4dB of insertion-loss, 5GHz transmit/receive switch in a 0.18 μ m CMOS process is realized.