

A 2.3 (GHz) single electron transistor low noise amplifier for microwave applications

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This work presents an endeavor to simulate a cascode Microwave-LNA using Single Electron Transistor (SET), which operates at a frequency of 2.3 (GHz). This LNA is adequate for many miniaturized microwave

applications. However, in order to facilitate the simulation process of this SET-LNA a Verilog Analog and Mixed Signal (Verilog-AMS) SET behavioral model that is based on a modified SPICE model was implemented. This realization has input and output voltage reflection coefficients of -12.628 (dB) and -8.053 (dB) respectively while consuming a power of 0.383 (μ W). It also has low noise figure of 0.278 (dB).

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