Abstracts

Direct Measurement of the Optimum Source Impedance for Minimum Noise Figure

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A new measurement system and method measuring the optimum source impedance for the minimum noise figure of the transistor on the wafer has been developed by using the microwave wafer prober system. The new measurement system is constructed from four blocks: 1) network analyzer 2) noise meter 3) microwave wafer probers 4) coaxial switches that connect the 1) - 3) blocks. After tuning to the minimum noise point by connecting the noise meter and microwave probers, these probers are turned to the network analyzer by coaxial switches, and then source (or load) impedance is measured continuously. The optimum source impedance is measured by two different methods: ("REAL-TIME method" and "50-SHORT-OPEN method"). Two measurement methods showed a little phase difference. Using this system and methods, we have designed the low noise MMIC amplifier operating at 12GHz and evaluated. It showed the the minimum noise figure without another tuning.

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