Abstracts

An Enhanced Active Load-Pull System for Highly Mismatched Power Transistor Measurements

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The experimental characterization of highly mismatched power transistors has always been a very difficult task to achieve. Practically, it is not within the capabilities of mechanical tuning systems because of the inherent losses of these devices. Active load-pull systems allow to simulate highly reflective load impedances close to the edge of the Smith chart by driving the output of the device with a large available power source. However, in such conditions, experience shows that the transistor under test may be quickly damaged if the phase adjustment of the output injected power wave is not carefully and properly monitored. That means that classical active load-pull systems "suffer from" poor reliability for the measurement of highly mismatched power components. We propose in this paper a novel load-pull technique providing an attractive solution to these problems. It consists in performing fine an accurate electronic load perturbations around initial mismatches. The associated measurement set-up is described. Measurement results of silicon bipolar power transistors are given.

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