Abstracts

A Novel Technique for Measuring Small Signal S-Parameters of an RF/Microwave, Transistor, Power Amplifying Stage for Use in Power Amplifier Stability Analysis

G. Collinson and M. Jones. "A Novel Technique for Measuring Small Signal S-Parameters of an RF/Microwave, Transistor, Power Amplifying Stage for Use in Power Amplifier Stability Analysis." 1993 MTT-S International Microwave Symposium Digest 93.3 (1993 Vol. III [MWSYM]): 1255-1258.

A novel measurement method is described which enables the full small-signal s-parameters of an RF/Microwave transistor to be measured whilst it is simultaneously driven and optimally tuned at a higher frequency as an efficient, class B or class C power amplifying stage. This capability allows a classic, small signal, stability analysis of power amplifiers to be performed across frequencies below the power amplified carrier where parametrically pumped, subharmonic oscillations are often a problem. Measured s-parameters of a GaAs HBT transistor operating as an efficient, harmonically tuned, class B, PA stage at 870MHz are presented across the frequency range 50-700MHz. Analysis of these results shows the presence of negative resistance in the base and collector that is induced by the carrier.

❑ Return to main document.