Abstracts

A new structure for a six-port reflectometer using a silicon MOSFET for power measurement

M. Ratni, B. Huyart, E. Bergeault and L. Jallet. "A new structure for a six-port reflectometer using a silicon MOSFET for power measurement." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1647-1650 vol.4.

This paper presents a new structure for silicon MMIC sixport reflectometer. Its originality lies in the use of a newly developed power detector using a silicon MOSFET transistor as an alternative to the commonly used biased Schottky diode detector. The power detector using a nonbiased MOSFET transistor has demonstrated a better sensitivity than the Schottky diode detector counterpart. The six-port reflectometer calibration uses minimum of five loads with an unknown but constant absolute value of the reflection coefficient and unknown but well-distributed phases. The circuit has been fabricated in silicon MMIC technology working between 0.9-3.0 GHz. A thorough comparison of the measured data with a commercial network analyzer is presented.

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