Abstracts

Miniature electric near-field probes for measuring 3-D fields in planar microwave circuits

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Three-dimensional (3-D) electric near-field probes applicable to the 0.05-20-GHz band have been developed, which can measure both the magnitude and the phase of the microwave field inside radio-frequency (RF) and microwave circuits. The field probes have very small dimensions and do not need to be connected to the operating device-under-test (DUT), therefore, the circuit properties are nearly not disturbed by the probe, Investigations on different circuits (e.g., antenna, meander lines, filters, and power amplifiers) show that such near-field probes can be applied not only to simple passive circuits, but also to measure the fields inside complex active circuits. These simple, stable, and cheap field probes are very useful for assisting the design of microwave circuits, antenna diagnostics, and testing products in industry.

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