Abstracts

Picosecond time-domain characterization of CPW bends using a photoconductive near-field mapping probe

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Propagation and reflection characteristics of right-angle coplanar waveguide (CPW) bends were measured using a novel photoconductive near-field probe with picosecond temporal resolution and pin spatial resolution. The probe can measure the transverse electric-field components existing over devices under test. Time-varying transverse electric field maps for different CPW bending structures were acquired by varying the probe position. The CSL mode generation and a difference in flight time of propagating pulses on two slots of the CPW bends were observed. Further, it was found that there exists a considerable unexpected pulse caused by the bent line structure, which has opposite polarity to the input pulse and exists only at the inner ground plane. The undesirable phenomena originated from the bend discontinuity were adequately reduced by bend smoothing techniques.

❑ Return to main document.