Abstracts

Wave effects in Si-micromachined multilayer guiding structures operating at W-band

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High-density ICs must contend with the issue of circuit isolation while maintaining performance integrity. With multilayer configurations, appropriate packaging is necessary to avoid unwanted parasitic modes from nearby circuit lines. To this end, two coplanar waveguide (CPW) architectures are examined with regard to propagating wave effects due to the surrounding multilayer environment. By introducing Si micromachined cavities, which create an air-dielectric interface between metal layers as well as providing packaging for the circuits, parasitic coupling is eliminated. This paper presents theoretical and experimental results which confirm the utilization of Si micromachining for optimal performance three-dimensional circuit integration.

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