Abstracts

Characterization of high-density micromachined interconnects

J.L. Haley and R.F. Drayton. "Characterization of high-density micromachined interconnects." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 1911-1914 vol.3.

Silicon micromachining is used to locally reduce the substrate height of large diameter wafers in order to maintain single-mode microstrip propagation. Effective dielectric constant and attenuation are shown up to 45 GHz for a 50-ohm microstrip line that is printed across a thick (400 /spl mu/m) and thin (100 /spl mu/m) silicon area. Discontinuity effects for the dielectric and conductor show lower reflection (-10 dB above 15 GHz) and smoother transmission characteristics for the abrupt conductor transition compared to the tapered one. Loss performance of the reduced height interconnects are comparable to full height constant thickness designs and interconnect densities as high a factor of 4 can be achieved.

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