Abstracts

Accurate transmission line characterization on high and low-resistivity substrates

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Differences in probe-tip-to-line geometry and substrate permittivity between measurement and calibration wafer deteriorate measurement accuracy. This is especially the case when measurements are performed on lossy Silicon substrates. Two novel general techniques are presented which characterise the discontinuities near the probe-tip based on the measurement of two lines with different length. The equivalent elements representing the discontinuity are extracted at each frequency point together with the propagation constant and the characteristic impedance of the line. The obtained results are superior to previous methods with a reduced number of measurements. The validity of the method is demonstrated with measurements of CPW-lines on low and high resistivity Silicon and GaAs.

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