Chapter 12

General Conclusion

Blaise Ravelo

Analytical methodologies of fast modeling of PCB interconnect are introduced in this book. The interconnect model is built with the TL elements which can behave as lumped or distributed circuits. By combining the circuit, microwave and signal theories, fascinating ways to establish the interconnect parameters as Z and Y and T and S -matrices are developed. Then, the spontaneous steps leading to the determination of the signal integrity parameters are introduced. The proposed methods can be applied to both frequency domain and time domain analyses.

The book offers also fantastic methods to analyze and model particularly complex electrical PCB interconnects behaving as SIMO or tree networks. First, a fast way named as SIMO to SISO transform enabling to determine the topological diagram equivalent to the electrical paths between the different nodes is proposed. Then, the parameters of the SISO circuit as the analytical current or voltage transfer function are elaborated. Moreover, deep challenging analyses of the interconnect tree with interbranch coupling are also developed. Finally, wink on the temperature effect onto the interconnect behavior is also addressed.

The concrete approach of the proposed analysis and modeling methodology is verified with classical microstrip structures.

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