# Abstracts

## 3-D Green's functions of microstrip separated into simpler terms-behavior, mutual interaction and formulas of the terms

*Y.L. Chow and W.C. Tang. "3-D Green's functions of microstrip separated into simpler terms-behavior, mutual interaction and formulas of the terms." 2001 Transactions on Microwave Theory and Techniques 49.8 (Aug. 2001 [T-MTT] (Mini-Special Issue on the 2000 IEEE Radio and Wireless Conference (RAWCON))): 1483-1491.*

Green's functions of microstrip substrate are important for microwave integrated circuit (MIC) analyses. Much work has been done by many researchers with successes over the years in gaining greater insight and simplifications into this complicated problem. This paper continues this trend with further simplification by arriving at formulas with insight for the Green's functions, both scalar and vector. Each Green's function is separated into three terms, namely: the quasi-dynamic, leaky wave, and surface wave. Practical MIC circuits require low surface-wave loss. This means that the formulas are constructed for frequencies low enough that with only the fundamental TM/sub 0/ surface-wave mode propagating. Formulas of dominant terms are emphasized. The formulas are accurate, with estimated errors from 1% to 2%. An important behavior observed is that the surface wave rises rapidly with frequency, at the four power even at low frequencies.

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