Abstracts

Formulation of Mode Coupling Equations at Step Discontinuity Based on the Planar Circuit Theory

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Surface-wave planar circuits are frequently used at microwave, millimetric and optical waves. In order to construct a practical surface-wave planar circuit as shown in Fig.1, side-wall is needed to reflect or confine the surface-wave laterally. Usually two kinds of side-wall, i.e. metal wall or total power reflection wall above the critical angle (effected by step discontinuity as shown in Fig. 2) are utilized. The former is free from mode conversion, and conveniently used at microwaves, but not so at optical and millimetric waves because of the Ohmic loss. On the other hand the latter is useful at optical and millimetric waves because it is free from the Ohmic loss.

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