

Effects of Metal Thickness and Finite Substrate Width on Leaky Waves in Coupled Microstrip Lines

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The propagation characteristics of leaky waves in thick coupled microstrip lines integrated on substrate with infinite and finite widths are presented. The field-theoretic results, based on the full-wave mode-matching method incorporating the metal modes, show that the thickness of metal strips can convert a non-leaky bounded mode into a leaky wave. On the other hand, when the infinite substrate width is reduced to a finite value, a leaky wave may become a bounded propagation mode and additional leaky waves are found. The effects of metal thickness and finite substrate width on leaky waves are discussed.

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