Abstracts

A waveguide-to-microstrip transition with a DC-IF return path and an offset probe

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This paper describes a type of waveguide-to-microstrip transition incorporated with a "built-in" DC/IF return and an offset probe which is proposed for the applications of submillimeter-wave superconductor-insulator-superconductor (SIS) mixers. The effects of the DC/IF return and the probe location and orientation are understood by simulating a 100-GHz transition using the finite element method (FEM). The simulation results are compared to the experimental results of a Ka-band scale model for the simulated transition. The performance of a 100-GHz SIS mixer employing such a transition is finally presented.

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