

Highly responsive planar millimeter wave zero-bias Schottky detector with impedance matched folded dipole antenna

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Abstract

A compact highly responsive planar zero-bias Schottky detector is proposed for uni-planar and low-cost fabrication. Various zero-bias Schottky diodes are investigated, in particular the optimization of impedance matching by the antenna design itself. The realized folded dipole based detector demonstrates an outstanding system voltage responsivity of 7,079 mV/mW at 86 GHz without lenses or pre-amplification.