Abstracts

A New Millimeter Mixer Using Bulk Semiconductor (and its Radio Frequency Bolometric Prototype)

F. Arams, E. Sard, C. Allen and B. Peyton. "A New Millimeter Mixer Using Bulk Semiconductor (and its Radio Frequency Bolometric Prototype)." 1965 G-MTT Symposium Program and Digest 65.1 (1965 [MWSYM]): 93-94.

We have carried out an analysls and demonstrated experimentally mixing in the 8-millimeter region using non-linear effects in a bulk semiconductor. In a manner analogous to optical heterodyne mixers, it is not required that the element have instantaneous response to the individual RF cycle, but merely that the time constant be sufficiently short for the intermediate frequency output. The barrier capacitance, and small size inherent to point-contact and similar diodes is eliminated, so that this type of mixer will inherently operate at frequencies well into the submillimeter region. Furthermore, It can be easily matched over broad bandwidths.

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