Abstracts

Lumped Elements in Microwave Integrated Circuits (1967 [MWSYM])

D.A. Daly, S.P. Knight, M. Caulton and R. Ekholdt. "Lumped Elements in Microwave Integrated Circuits (1967 [MWSYM])." 1967 G-MTT International Microwave Symposium Program and Digest 67.1 (1967 [MWSYM]): 139-141.

The cost of manufacturing an integrated circuit is inversely related to the number of circuits processed simultaneously on a single starting wafer. Most of the work on microwave integrated circuits reported to date has concentrated on applications using microstrip lines deposited on high-resistivity semiconducting and ceramic substrates. At X-band frequencies and above the overall size of the distributed microstrip circuits is relatively small, but at Iower frequencies (L- and S-band) the circuits tend to became large enough so that it is difficult to process many on a single substrate. At L- and S-band, however, lumped elements may be used with a considerable size reduction. Circuits can be fabricated by low-frequency integrated circuit and device technology that are sufficiently small compared to a wavelength so that they behave as true lumped elements up to reasonably high frequencies. There are many applications in which the reduction in circuit Q for lumped elements due to the low volume for energy storage is out-weighed by the advantages of size reduction.

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