

Abstracts

The Packaged and Mounted Diode as a Microwave Circuit

W.J. Getsinger. "The Packaged and Mounted Diode as a Microwave Circuit." 1966 Transactions on Microwave Theory and Techniques 14.2 (Feb. 1966 [T-MTT]): 58-69.

Suitable definitions of the elements in the equivalent circuit of a packaged diode yield a lumped-element circuit with an impedance at its terminals which is the same as the total radial-line impedance of the packaged diode with the outer surface of the diode taken as the terminal surface. Consideration of the packaged diode as a radial-line structure permits an analytical justification for the incorporation of the diode circuit with the circuits of waveguide, coaxial-line, and strip-line diode mounts. As a result, the lumped-element equivalent circuit of a packaged diode can be directly related to the microwave equivalent circuit of the diode and the mount together. Diode element values, which were obtained from low-frequency measurements, have been used in conjunction with the theoretically determined circuits of mounted diodes to predict resonant frequencies at X-band of waveguide, coaxial-line, and stripline mounts holding packaged diodes. Similarly, antiresonant frequencies of greater than 20 Gc/s have been predicted for diodes in a radial cavity. The validity of all these predictions has been verified by measurement.

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