

# Abstracts

## An Analytic Theory for the Evans Circuit for Avalanche Diodes (Correspondence)

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*J.E. Carroll. "An Analytic Theory for the Evans Circuit for Avalanche Diodes (Correspondence)." 1970 Transactions on Microwave Theory and Techniques 18.11 (Nov. 1970 [T-MTT] (Special Issue on Microwave Circuit Aspects of Avalanche-Diode and Transferred Electron Devices)): 977-979.*

An analytic theory is outlined for the operation of avalanche diodes in the circuit first analyzed by Evens. This consists of a low-pass filter situated approximately one-half wavelength from the diode. The magnitude and rate of rise of the voltage for a given charge pulse are estimated, and expressions for the efficiency and diode impedance are developed. It is shown for this model, where the filter acts as a short circuit at all frequencies other than the fundamental, how efficiencies around 30-40 percent can be achieved. The theory is compared with Evans' experimental results and shows fair agreement.

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