Abstracts

An Avalanching Optoelectronic Microwave Switch

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A new optoelectronic microwave switching device is described. The device is composed of a Semiconductor junction diode that is incorporated into a transmission line and illuminated with optical pulses from a semiconductor laser. Switching of microwave signals is achieved by changes in the RF impedance of the diode's high-field region resulting from an optically induced switching between low and high-level avalanche states. Experimental results demonstrating the switching characteristics and speed of this device are presented along with a basic theory of operation. The ultimate capabilities of this device and its advantages over conventional p-i-n diode switches and other optoelectronic switching devices are also discussed.

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