Abstracts

Diode SPDT Switching at High Power with Octave Microwave Bandwidth

J.F. White and K.E. Mortenson. "Diode SPDT Switching at High Power with Octave Microwave Bandwidth." 1968 Transactions on Microwave Theory and Techniques 16.1 (Jan. 1968 [T-MTT]): 30-36.

A SPDT diode switch was designed for use at 1-2 GHz, having 1.3 dB maximum insertion loss and 43 dB minimum isolation. It was tested to a burnout peak power of 6 kW at 1 μs pulse length and 0.001 duty cycle. The switch configuration uses a transmission-line tee with diodes mounted in shunt with the line for convenient mechanical access and efficient heat removal. This configuration is examined to optimize both the transmission and isolation properties over an octave bandwidth. Special attention is given to the procedures for resonantly tuning the diode capacity and inductance parameters. A design criterion for a circuit that minimizes ohmic losses contributed by the diodes is also presented.

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