Abstracts

High Power, Octave Bandwidth, SPDT Microwave Switches

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Previously, broadband SPDT switches used, principally, diodes in series with the transmission line -- sacrificing high power performance because of the difficulty with removal of the diodes' heat and compromising switching performance due to the inconvenience in tuning to maximize the isolatian. Means for broadbanding the "on" state have been suggested, but hitherto undemonstrated is the effectiveness of the approach as well as the availability of a counterpart solution to the problem of broadbanding the "off", or isolation behaviour of a practical switch in which some parasitic series inductance is found. This paper presents: 1) data for a 1-2 Ghz, SPDT, 1.2 db max. loss and 40 db min. isolation, switch tested to 6 kw pk power at 1 µsec. pulse length and 0.001 duty cycle 2) a design method to permit use of large diode capacity 3) a method for evaluating the effect of parasitic inductance on the "on" state 4) a criterion for minimizing diode ohmic losses 5) tuning requirements to achieve high isolation over broad bandwidths.

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