Abstracts

A 100-kW Solid-State Coaxial Limiter for L-Band

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This paper concerns the development of a 100-kW peak power, self-biased, pulsed limiter covering the 1250 to 1350 MHz band. The limiter requires no external power sources and uses four 70 µm PIN diodes as the active elements in a power-sharing, axially symmetric, shunt-loaded arrangement in a 50-ohm, 7/8-inch OD, coaxial transmission line. Two shorting stubs used for zero-bias tuning and dc returns are in the same electrical plane as the PIN diodes. Four symmetric Schottky-barrier, high-voltage detector diodes decoupled from the main transmission line provide fast leading edge, high-amplitude current biasing pulses to each PIN diode. The one-stage limiter demonstrated a spike leakage of 2.8 kW/65 ns, a flat leakage of 32 watts peak, and a 1-dB recovery period of 17 µs for an incident power level of 100 kW/2.8 µs. Passive zero-bias loss was under 0.5 dB.

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