Abstracts

An Improved PIN Diode Attenuator for High Reliability MIC Applications

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Selection of either absorptive or reflective style PIN diode attenuators is based upon performance requirements such as bandwidth dynamic range, VSWR, switching speed, and reliability. Unfortunately, all of the desirable features cannot be combined into a single design. A new concept in PIN diode attenuators is presented here in which inherent properties of a microstrip transmission line operating in a quasi-TEM mode is incorporated into a distributed-absorptive attenuator circuit. Numerous conflicting requirements are overcome thus providing the designer with new design trade-offs not previously available. Additionally, this new attenuator structure is inherently endowed with soft failure modes, thereby increasing reliability. The structure has been fabricated on hard substrate microstrip and is compatible with super-component fabrication techniques.

❑ Return to main document.