Abstracts

A 2-bit RF MEMS phase shifter in a thick-film BGA ceramic package

K. Varian and D. Walton. "A 2-bit RF MEMS phase shifter in a thick-film BGA ceramic package." 2002 Microwave and Wireless Components Letters 12.9 (Sep. 2002 [MWCL]): 321-323.

The development of a thick-film hermetic BGA package for a radio-frequency (RF) microelectromechanical systems (MEMS) 2-bit phase shifter is presented. The measured packaged MEMS phase shifter average in-band insertion loss was 1.14 dB with an average return loss of 15.9 dB. The package transition insertion loss was less than 0.1 dB per transition with excellent agreement between simulated and measured results. It was also demonstrated that the RF MEMS phase shift performance could be improved to obtain a phase error of less than 3.3 degrees. The first reported measurements of the average rise and fall times associated with a MEMS circuit (in this case a 2-bit phase shifter) were 26 and 70 /spl mu/s, respectively. The advent of packaged RF MEMS phase shifters will reduce the cost (both design and building) of future phase arrays.

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