Abstracts

High-Q millimeter-wave MEMS varactors: extended tuning range and discrete-position designs

L. Dussopt and G.M. Rebeiz. "High-Q millimeter-wave MEMS varactors: extended tuning range and discrete-position designs." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 1205-1208 vol.2.

This paper presents the design, fabrication and measurement of two high-Q micro-electro-mechanical (MEMS) varactors suitable for 20-60 GHz applications. The varactors are composed of a movable bridge placed in a shunt configuration on a coplanar waveguide line. The first design is an extended tuning range varactor showing a capacitance ratio of 1.46. The second design demonstrates a discrete-position varactor with a capacitance ratio of 1.90. Both designs result in a tuning voltage of 18-25 V and an excellent quality factor of 95-100 at 34 GHz (C=80 fF). The very high resonant frequency of the varactors makes them suitable for applications at microwave and millimeter-wave frequencies.

❑ Return to main document.