Abstracts

Tunable inverted-microstrip phase shifter device using nematic liquid crystals

C. Weil, G. Luessem and R. Jakoby. "Tunable inverted-microstrip phase shifter device using nematic liquid crystals." 2002 MTT-S International Microwave Symposium Digest 02.1 (2002 Vol. I [MWSYM]): 367-371 vol.1.

This paper introduces an alternative low-cost planar integrated, tunable liquid crystal phase shifter device for microwave applications, using the dielectric anisotropy of a nematic liquid crystal in conjunction with inverted-microstrip technology and a DC control voltage. With a standard nematic liquid crystal, a differential phase shift of 53/spl deg/ was achieved at 18 GHz for a physical line length of 49 mm, indicating a figure-of-merit of up to 12/spl deg//dB with a control voltage of only 40 V and a very low power consumption of 0.1 mW. On this basis, the phase shifter performance can be considerably improved by miniaturizing the device and by optimizing liquid crystals in the microwave region.

❑ Return to main document.