106. Title: A Micromachined Terahertz Waveguide 90 degrees Twist

Author: Chen, LH; Arsenovic, A Stanec, JR; Reck, TJ; Lichtenberger, AW; Weikle, RM; Barker, NS

Source: IEEE MICROWAVE AND WIRELESS COMPONENTS LETTERS
Volume:21
Issue:5
Pages: 234-236
Publication year: 2011
Document type:Journal article (JA)

Abstract: Waveguide twists are often necessary to provide polarization rotation between waveguide-based components. At terahertz frequencies, it is desirable to use a twist design that is compact in order to reduce loss; however, these designs are difficult if not impossible to realize using standard machining. This paper presents a micromachined compact waveguide twist for terahertz frequencies. The Rud-Kirilenko twist geometry is ideally suited to the micromachining processes developed at the University of Virginia. Measurements of a WR-1.5 micromachined twist exhibit a return loss near 20 dB and a median insertion loss of 0.5 dB from 600 to 750 GHz.