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标题: Band-Pass Non-TEM Mode Traveling-Wave Electro-Optical Polymer Modulator for Millimeter-Wave and Terahertz Application
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摘要: High-frequency electro-optical modulator is critical for enabling signal processing and distribution in the next generation cloud-computing, tele-medicine, and telecommunications. In this paper, substrate integrated waveguide (SIW) is exploited as an alternative fundamental transmission line structure in support of electrical signal for the design and development of millimeter-wave and terahertz (THz) traveling-wave polymeric electro-optic (EO) modulator. Optical and full-wave electromagnetic analyses are carried out and structure optimization is made on the basis of such analyses in order to obtain millimeter-wave transmission characteristics and optical response. Compared to its conventional TEM-mode transmission lines, this bandpass non-TEM mode SIW-based EO modulator presents numerous advantages, namely compact structure, low transmission loss, low driving power, simple packaging and flat optical response over a wide frequency range.
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