

TRAVELING WAVE ELECTRODE MODULATOR AND PHOTONIC
INTEGRATED CHIP

ABSTRACT

Disclosed are a traveling wave electrode modulator and a photonic integrated chip. The traveling wave electrode modulator comprises a silicon substrate, an optical waveguide and a doped transitional area provided within the silicon substrate, and a traveling wave electrode structure electrically connected to the transitional area. The traveling wave electrode structure comprises at least one layer of continuous electrode continuously extended in the direction of extension of the optical waveguide, a periodic electrode periodically alternating in the direction of extension of the optical waveguide, and an electrically- conductive structure. The continuous electrode is electrically connected to the periodic electrode via the electrically-conductive structure, and, the traveling wave electrode structure is electrically connected to the transitional area via same. With the addition of the periodically designed electrode on the traveling wave electrode structure, a greater number of designable parameters are provided, the flexibility in the design of the traveling wave electrode structure is increased, and an increased degree of match is provided between the propagation speed of magnetic waves and the propagation speed of light waves, thus effectively increasing the electro-optical modulation bandwidth of the modulator.

Figure 4 accompanies.