

ABSTRACT

An optical modulator, comprising: a first dielectric layer (10); a second dielectric layer (20), which is located on the first dielectric layer (10), wherein a waveguide structure (210) and a first metal layer (220) are provided in the second dielectric layer (20), and the waveguide structure (210) is electrically connected to the first metal layer (220); an insulating layer (30), which is located on the second dielectric layer (20); a third dielectric layer (40), which is located on the insulating layer (30), wherein a second metal layer (410) is provided in the third dielectric layer (40), and the second metal layer (410) is electrically connected to the first metal layer (220) by means of a via hole (50); and a metal gate layer (60), which comprises a plurality of metal gate structures (610) that are arranged spaced apart, wherein the metal gate structures (610) are periodically arranged in a signal transmission direction of the waveguide structure (210), and the metal gate layer (60) is configured to be respectively insulated from the first metal layer (220) and the second metal layer (410). The waveguide structure (210), the first metal layer (220) and the second metal layer (410) form a new “sandwich” modulator structure, removing a substrate from the original structure; and the metal gate layer (60) can reduce the transmission speed of an electrical signal, thereby solving the electro-optical mismatch problem, and increasing the electro-optical bandwidth of the optical modulator.

FIG. 1