

SILICON OPTICAL MODULATOR

ABSTRACT

The present invention discloses a silicon optical modulator. The silicon optical modulator comprises a substrate, a first insulating layer, a doped layer and a second insulating layer which are stacked from bottom to top. The doped layer comprises a first flat region, a projecting strip region and a second flat region which are sequentially arranged in a left-right direction. The first flat region has a first side portion and a second side portion, wherein the first side portion is connected to the first flat region to form a first conductive region of the doped layer, the second side portion is connected to the first flat region to form a second conductive region of the doped layer, and the first side portion and the second side portion are connected to form a junction capacitor of the doped layer. The silicon optical modulator further comprises a covering strip which is located above the projecting strip region and covers the connecting face between the first side portion and the second side portion. The refractive index of the covering strip is larger than the refractive index of the second insulating layer and the refractive index of the first insulating layer. In this way, the covering strip is arranged to significantly reduce the optical loss of a waveguide without compromising the modulation efficiency, so as to increase the electro-optic bandwidth as much as possible.

FIG. 1