

[Drawings]

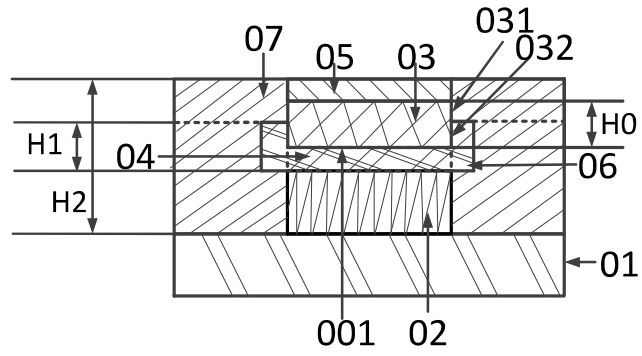


Fig.1a

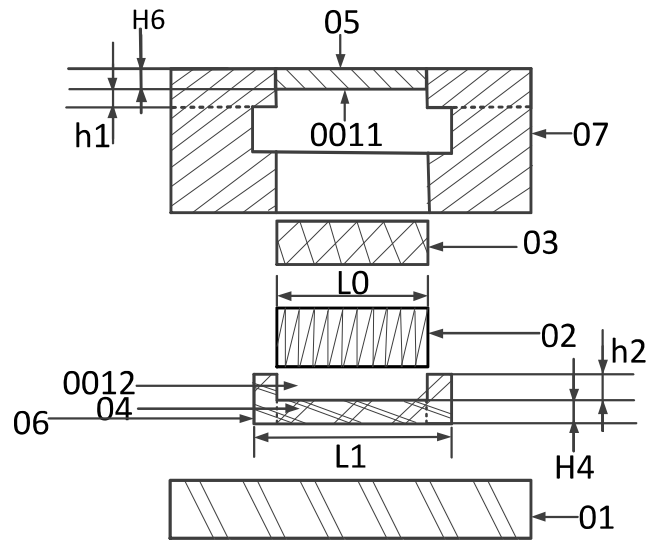


Fig.1b

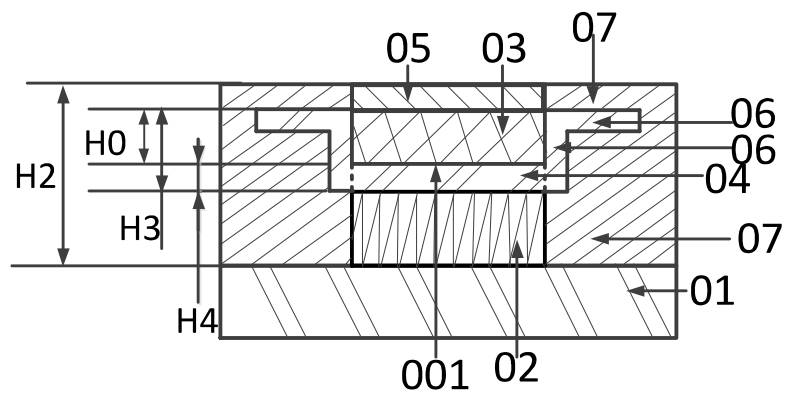


Fig.1c

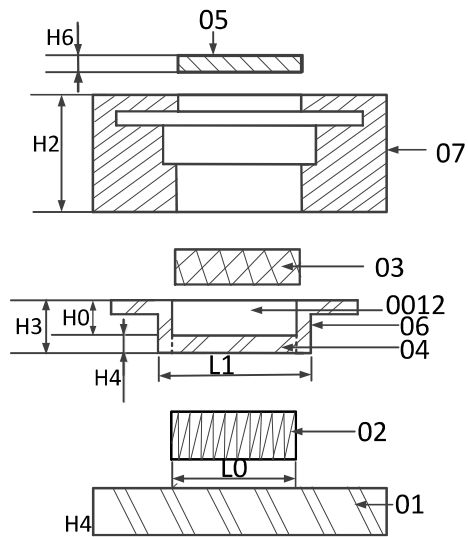


Fig.1d

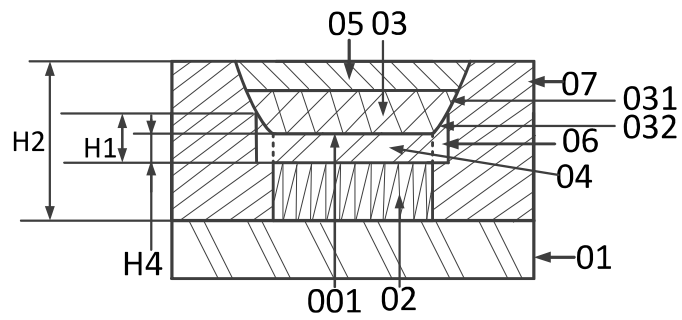


Fig.1e

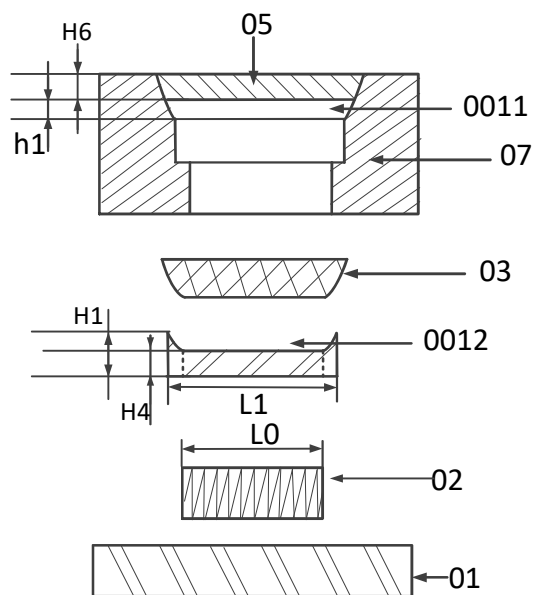


Fig.1f

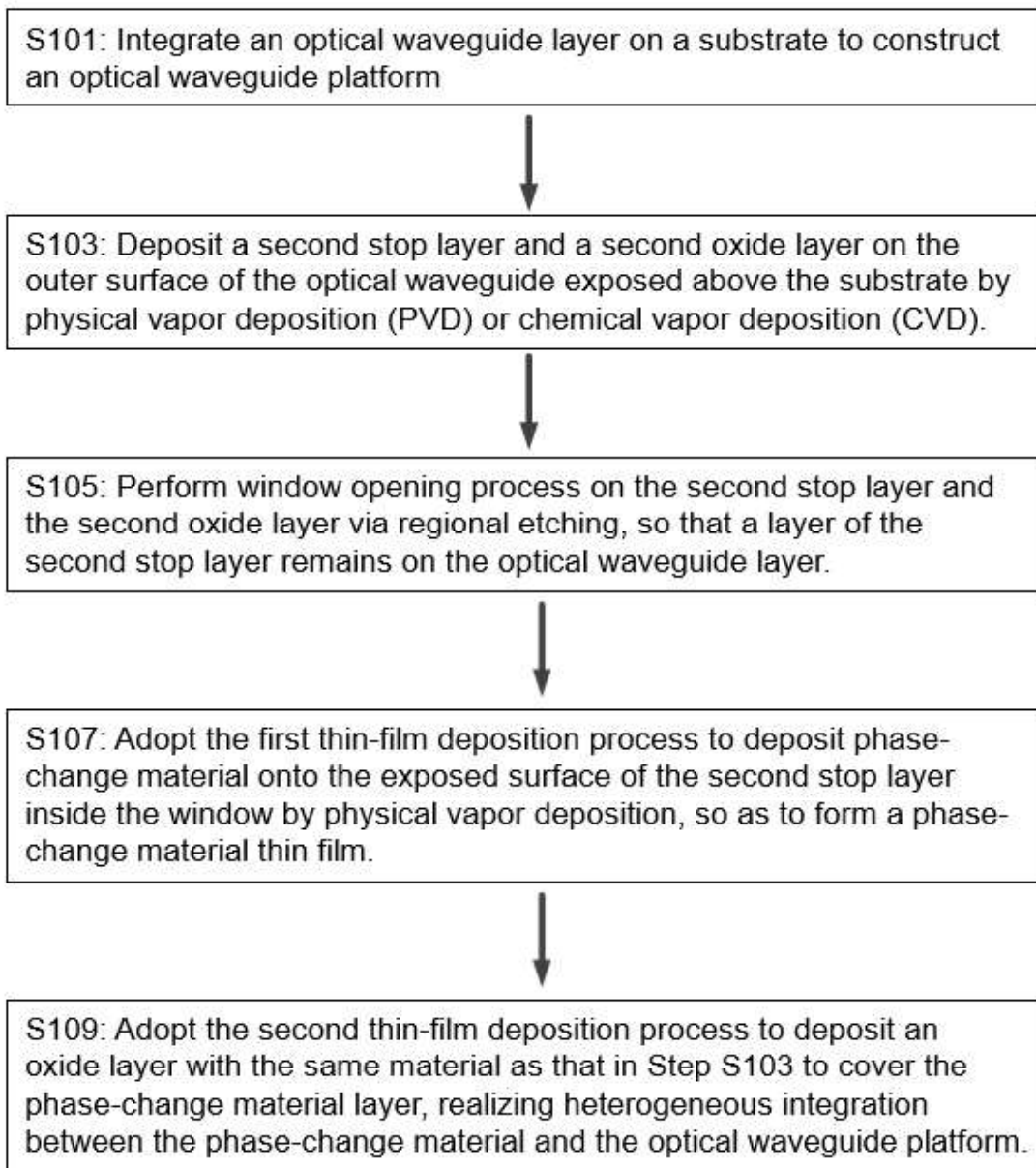


Fig.2a

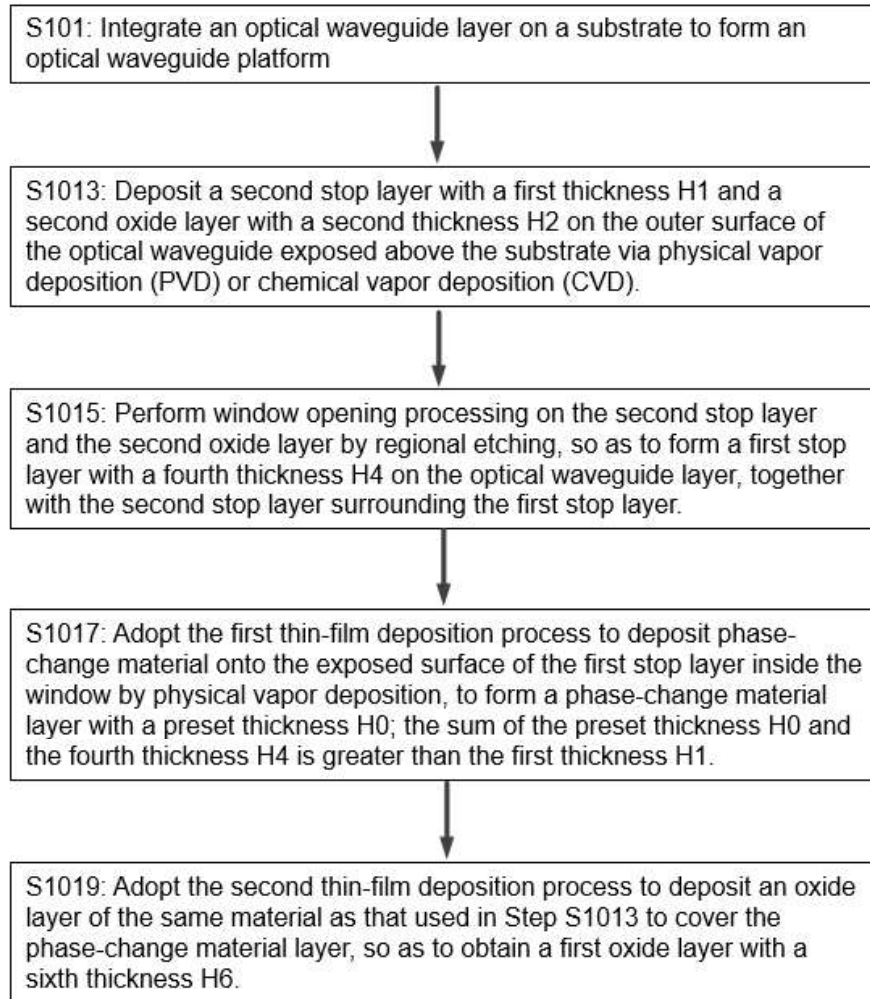


Fig.2b

S101: Integrate an optical waveguide layer on a substrate to form an optical waveguide platform



S1023: Deposit a second stop layer with a third thickness $H3$ and a T-shaped cross section, as well as a second oxide layer with a second thickness $H2$, on the outer surface of the optical waveguide exposed above the substrate via physical vapor deposition (PVD) or chemical vapor deposition (CVD).



S1025: Perform window opening process on the second stop layer and the second oxide layer by regional etching, so as to form a first stop layer with a fourth thickness $H4$ on the optical waveguide layer, and the second stop layer surrounding the first stop layer with an inverted L-shaped cross section.



S1027: Adopt the first thin-film deposition process to deposit phase-change material onto the exposed surface of the first stop layer by physical vapor deposition, so as to form a phase-change material layer with a preset thickness $H0$ inside the window enclosed by the first stop layer and the surrounding second stop layer; where $H0 \leq (H3-H4)$.



S1029: Adopt the second thin-film deposition process to deposit an oxide layer of the same material as that adopted in Step S1023 to cover the phase-change material layer, so as to obtain a first oxide layer with a sixth thickness $H6$.

2c

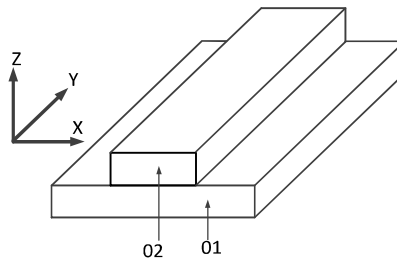


Fig.3a

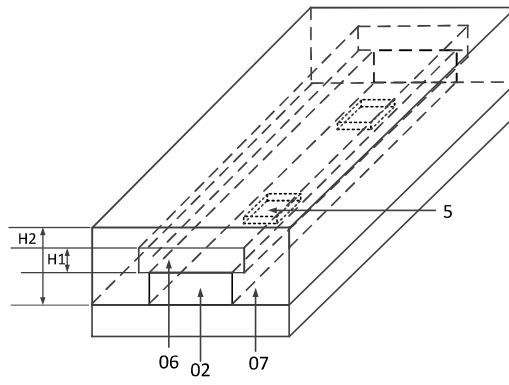


Fig.3b

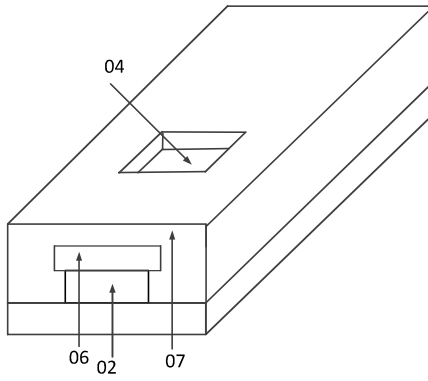


Fig.3c

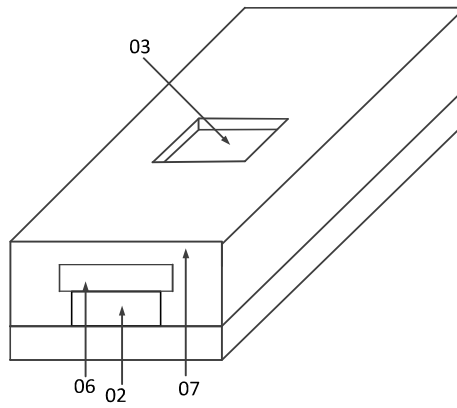


Fig.3d

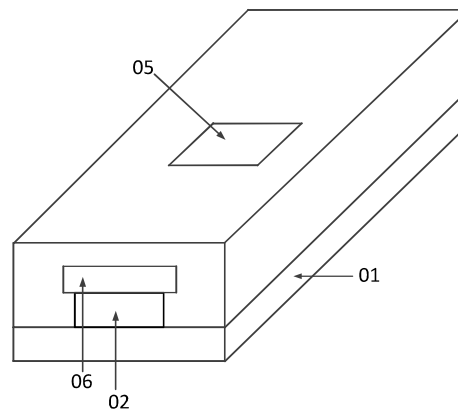


Fig.3e

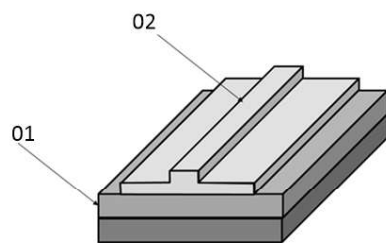


Fig.3f

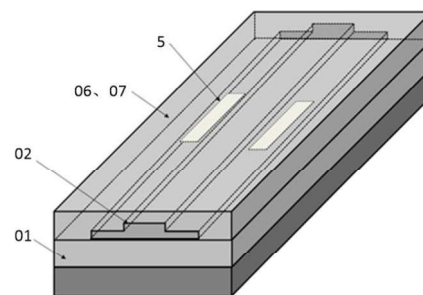


Fig.3g

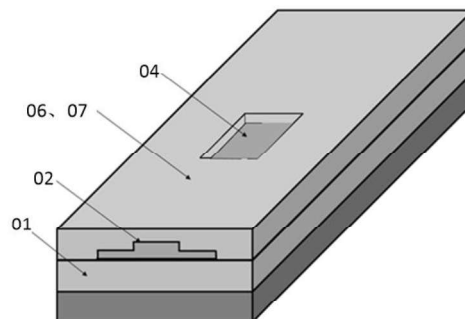


Fig.3h

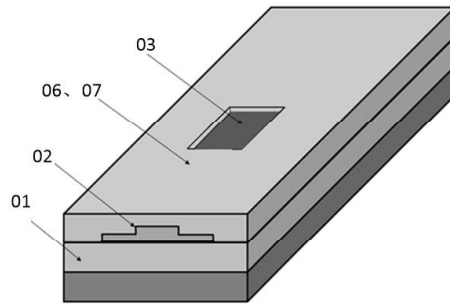


Fig.3i

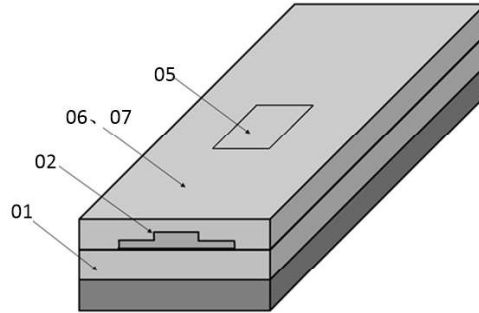


Fig.3j

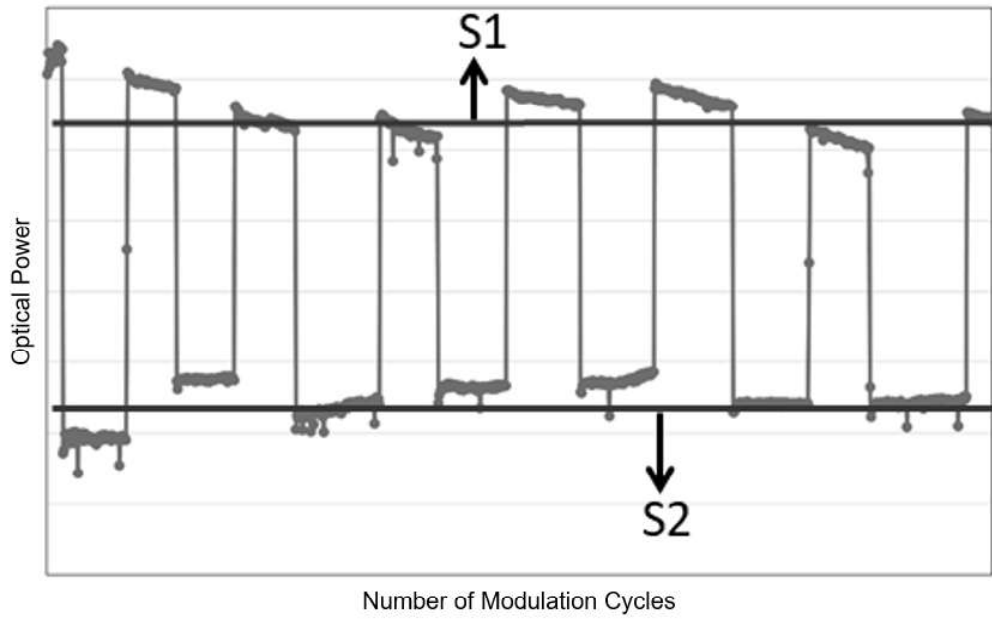


Fig.4

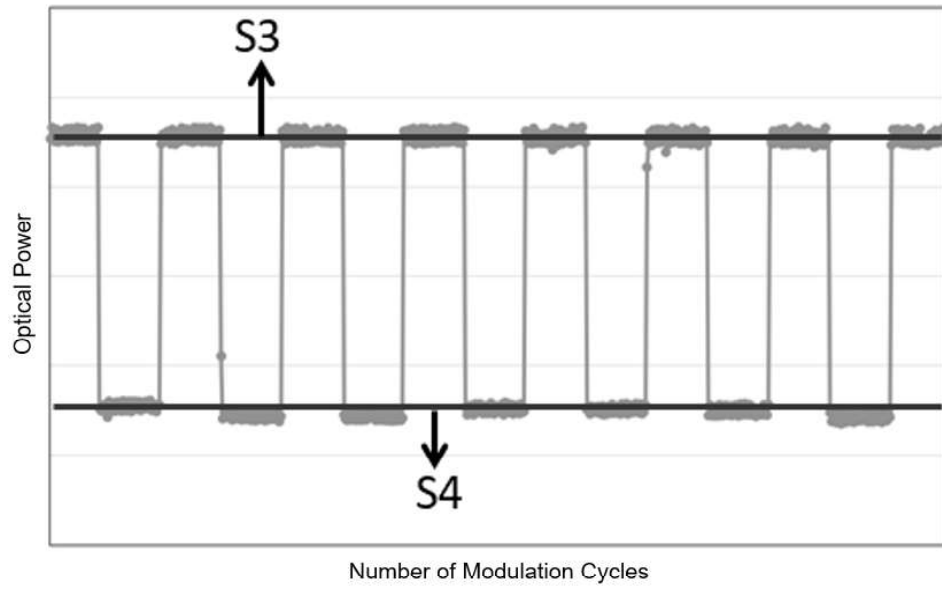


Fig.5