

MASK BLANK, PHASE SHIFT MASK, AND METHOD OF MANUFACTURING
SEMICONDUCTOR DEVICE

[DOCUMENT] ABSTRACT

[Problem to be Solved by the Invention]

Provided is a mask blank including a phase shift film having a stacked structure of a high nitrided layer with a relatively high nitrogen content and a low nitrided layer with a relatively low nitrogen content, having a good in-plane uniformity of a transmittance and a phase difference, with a film stress within a tolerable range.

[Means for Solving the Problem]

The mask blank includes a phase shift film on a transparent substrate, in which the phase shift film has a high nitrided layer and a low nitrided layer, and the high nitrided layer and the low nitrided layer contain silicon, nitrogen, krypton, and xenon.

[SELECTED DRAWING] FIG. 3