ABSTRACT

A mask blank has a phase shift film of a structure in which a lower layer, an intermediate layer, and an upper layer are layered in this order. The lower layer is formed of a silicon-nitride-based material, the intermediate layer is formed of a silicon-oxynitride-based material, and the upper layer is formed of a silicon-oxide-based material. The nitrogen content of the lower layer is greater than those of the intermediate layer and the upper layer, and the oxygen content of the upper layer is greater than those of the intermediate layer and the lower layer. The ratio of the film thickness of the intermediate layer with respect to the overall film thickness of the phase shift film is 0.15 or more, and the ratio of the film thickness of the upper layer with respect to the overall film thickness of the phase shift film is 0.10 or more.