

ABSTRACT

5 Provided is a phase shift mask blank including a substrate, and a phase shift film thereon, the phase shift film composed of a material containing silicon and nitrogen and free of a transition metal, exposure light being KrF excimer laser, the phase shift film consisting of a single layer or a plurality of layers, the single layer or each of the plurality of layers having a refractive index n of at least 2.5 and an extinction coefficient k of 0.4 to 1, 10 with respect to the exposure light, and the phase shift film having a phase shift of 170 to 190° and a transmittance of 4 to 8%, with respect to the exposure light, and a thickness of up to 85 nm.

[Fig. 1A]