

Phase Shift Mask Blank, Phase Shift Mask, and
Blank Preparing Method

ABSTRACT

In a phase shift mask blank comprising a transparent substrate and a phase shift film deposited thereon and having a phase shift of 150-200° with respect to sub-200 nm light, the phase shift film is composed of a silicon base material consisting of silicon, nitrogen and optionally oxygen, has a thickness of up to 70 nm, and provides a warpage change of up to 0.2 μm in a central region of a surface of the substrate before and after the deposition of the phase shift film on the substrate.

Figure 1A