

PHOTOMASK BLANK, METHOD FOR PRODUCING PHOTOMASK,
AND PHOTOMASK

ABSTRACT

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The present invention provides a photomask blank which exhibits high adhesion of a resist film to a film containing chromium, and which is capable of achieving good resolution limit and good CD linearity during the formation of an assist pattern of a line pattern, said assist pattern supplementing the resolution of the main pattern of a photomask.

10 A photomask blank (511) according to the present invention is provided, on a substrate, with: a film (21) to be processed; and, sequentially from the far side from the substrate, a first layer (311) which contains oxygen and nitrogen, while having a chromium content of 40% by atom or less, an oxygen content of 50% by atom or more, a nitrogen content of 10% by atom or less and a thickness of 6 nm or less, a second layer (312) which contains
15 oxygen, nitrogen and carbon, while having a chromium content of 40% by atom or less, an oxygen content of 30% by atom or more, a nitrogen content of 17% by atom or more, a carbon content of 13% by atom or less and a thickness of 46 nm or more, and a third layer (313) which contains oxygen and nitrogen, while having a chromium content of 50% by atom or more, an oxygen content of 20% by atom or less and a nitrogen content of
20 30% by atom or more.

Figure 1