

ABSTRACT

REFLECTIVE MASK BLANK, METHOD FOR MANUFACTURING REFLECTIVE
MASK BLANK, REFLECTIVE MASK, AND METHOD FOR MANUFACTURING
REFLECTIVE MASK

5

The present invention relates to a reflection-type mask blank comprising a substrate, a multilayer reflection film that reflects EUV light, a protection film, and a phase shift membrane that shifts the phase of the EUV light in this order, in which the phase shift membrane has a first layer containing a first element selected from the group consisting of ruthenium, rhenium, iridium, silver, osmium, gold, palladium and platinum and a second layer containing a second element selected from the group consisting of tantalum and chromium, the first layer has a region A1 in which the content of an element having a largest content among the first element(s) increases in the thickness direction that runs toward the second layer side from the side opposite to the second layer side, and the region A1 is present adjacent to the second layer.

15

Figure 1