CLAIMS

[Claim 1]

A reflective mask blank, comprising in an order of reciting:

a substrate;

a multilayered reflection film configured to reflect EUV rays;

a protection film configured to protect the multilayered reflection film; and

an absorption film configured to absorb the EUV rays,

wherein the protection film contains Rh as a main component,

the multilayered reflection film includes an uppermost layer that is closest to the protection film in the multilayered reflection film and contains Si and N, and

in the uppermost layer, an element ratio (N/Si) of N to Si is greater than 0.00 and less than 1.50, and an element ratio (O/Si) of O to Si is 0.00 or greater and less than 0.44, and

the reflective mask blank comprises a reflectance adjusting film containing Ru as a main component between the multilayered reflection film and the protection film.

[Claim 2]

The reflective mask blank according to claim 1,

wherein in the uppermost layer, the element ratio (N/Si) of N to Si is greater than 0.00 and less than 1.50, and the element ratio (O/Si) of O to Si is 0.00 or greater and less than 0.25.

[Claim 3]

The reflective mask blank according to claim 1 or 2,

wherein the protection film contains Rh, or either or both of Ru and Pd in addition to Rh as a metal element.

[Claim 4]

The reflective mask blank according to claim 1 or 2,

wherein a root mean square roughness Rq of a surface of the protection film is 0.05 nm or greater and 0.20 nm or less.

[Claim 5]

The reflective mask blank according to claim 1 or 2,

wherein a film thickness of the protection film is from 1.0 nm through 4.0 nm.

[Claim 6]

The reflective mask blank according to claim 1,

wherein a film thickness of the reflectance adjusting film is from 0.1 nm through 2.0 nm.

[Claim 7]

A reflective mask, comprising

the reflective mask blank of claim 1 or 2,

wherein the absorption film includes an opening pattern.