CLAIMS

1. A substrate with a multilayer reflective film comprising a substrate and a multilayer reflective film that reflects EUV light formed on the substrate; wherein,

reference marks formed to a concave shape are provided on the surface of the substrate with the multilayer reflective film,

the reference marks have protrusions roughly in the center, and

the shape of the protrusions when viewed from overhead is similar or roughly similar to the shape of the reference marks.

2. The substrate with the multilayer reflective film according to claim 1, wherein the height of the protrusions is not less than 15 nm.

~~3. A substrate with a multilayer reflective film comprising a substrate and a multilayer reflective film that reflects EUV light formed on the substrate; wherein,~~

~~reference marks formed to a concave shape are provided on the surface of the substrate with the multilayer reflective film,~~

~~the depth of the reference marks is not more than 50 nm,~~

~~the reference marks have grooves roughly in the center,~~

~~the shape of the grooves when viewed from overhead is similar or roughly similar to the shape of the reference marks, and~~

~~the depth of the grooves is not less than 20 nm.~~

~~4~~3. The substrate with the multilayer reflective film ~~according to any of claims 1 to 3~~ claim 1 or 2, wherein a bottom of the reference marks has a shrink region where at least a portion of the plurality of films contained in the multilayer reflective film are shrunk, and a mixing region where at least a portion of a plurality of the films contained in the multilayer reflective film are mutually integrated, and

the ~~grooves or~~ protrusions include a relatively large amount of the mixing region in comparison with the bottom of the reference marks excluding the ~~grooves or~~ protrusions.

~~5~~4. The substrate with the multilayer reflective film according to any of claims 1 to ~~4~~3, wherein the width of the ~~grooves or the~~ protrusions is 200 nm to 10 μm.

~~6~~5. The substrate with the multilayer reflective film according to any of claims 1 to ~~5~~4, wherein the depth of the reference marks is 30 nm to 50 nm.

~~7~~6. The substrate with the multilayer reflective film according to any of claims 1 to ~~6~~5, further comprising a protective film formed on the multilayer reflective film; wherein,

the reference marks are formed on the surface of the protective film.

~~8~~7. The substrate with the multilayer reflective film according to any of claims 1 to ~~7~~6, wherein the surface layer of the multilayer reflective film on the opposite side from the substrate is a layer that contains Si.

~~9~~8. A reflective mask blank having the substrate with the multilayer reflective film according to any of claims 1 to ~~8~~ 7 and an absorber film that absorbs EUV light formed on the substrate with the multilayer reflective film.

~~10~~9. A reflective mask blank having the substrate with the multilayer reflective film according to any of claims 1 to ~~8~~ 7 and an absorber film that absorbs EUV light formed on the substrate with the multilayer reflective film; wherein,

the shape of the reference marks is transferred to the absorber film.

~~11~~10. A reflective mask having the substrate with the multilayer reflective film according to any of claims 1 to ~~8~~ 7 and an absorber film pattern that absorbs EUV light formed on the substrate with the multilayer reflective film.

~~12~~11. A reflective mask having the substrate with the multilayer reflective film according to any of claims 1 to ~~8~~ 7 and an absorber film pattern that absorbs EUV light formed on the substrate with the multilayer reflective film; wherein,

the shape of the reference marks is transferred to the absorber film pattern.

~~13~~12. A method of manufacturing a semiconductor device having a step for forming a transfer pattern on a semiconductor substrate using the reflective mask according to claim ~~11~~ 10 or ~~12~~11.