CLAIMS

[Claim 1]

A method of manufacturing a Fabry-Perot interference filter comprising:

a forming step of forming a first mirror layer having a plurality of first mirror portions each of which is expected to function as a fixed mirror, a sacrificial layer having a plurality of portions expected to be removed, and a second mirror layer having a plurality of second mirror portions each of which is expected to function as a movable mirror, on a first main surface of a wafer which includes parts corresponding to a plurality of two-dimensionally arranged substrates and is expected to be cut into the plurality of substrates along each of a plurality of lines, such that one first mirror portion, one portion expected to be removed, and one second mirror portion are disposed in this order from one substrate side;

a removing step of simultaneously removing the plurality of two-dimensionally arranged portions expected to be removed from the sacrificial layer through etching after the forming step; and

a cutting step of cutting the wafer into the plurality of substrates along each of the plurality of lines after the removing step

wherein in the forming step, a first thinned region, in which at least one of the first mirror layer, the sacrificial layer, and the second mirror layer is partially thinned along each of the plurality of lines, is formed, and

wherein in the forming step, a stress adjustment layer is formed on a second main surface of the wafer, and a second thinned region in

which the stress adjustment layer is partially thinned along each of the plurality of lines, is formed.

[Claim 2]

The method of manufacturing a Fabry-Perot interference filter according to claim 1,

wherein in the forming step, the first thinned region is formed by thinning a part along each of the plurality of lines in at least the sacrificial layer and the second mirror layer.

[Claim 3]

A method of manufacturing a Fabry-Perot interference filter comprising:

a forming step of forming a first mirror layer having a plurality of first mirror portions each of which is expected to function as a fixed mirror, a sacrificial layer having a plurality of portions expected to be removed, and a second mirror layer having a plurality of second mirror portions each of which is expected to function as a movable mirror, on a first main surface of a wafer which includes parts corresponding to a plurality of two-dimensionally arranged substrates and is expected to be cut into the plurality of substrates along each of a plurality of lines, such that one first mirror portion, one portion expected to be removed, and one second mirror portion are disposed in this order from one substrate side;

a removing step of simultaneously removing the plurality of two-dimensionally arranged portions expected to be removed from the sacrificial layer through etching after the forming step; and

a cutting step of cutting the wafer into the plurality of substrates

along each of the plurality of lines after the removing step,

wherein in the forming step, a first thinned region, in which at least one of the first mirror layer, the sacrificial layer, and the second mirror layer is partially thinned along each of the plurality of lines, is formed, and

wherein in the forming step, after a part along each of the plurality of lines in the sacrificial layer formed on the first mirror layer is thinned, side surfaces of the sacrificial layer facing each other along each of the plurality of lines are covered with the second mirror layer by forming the second mirror layer on the sacrificial layer.

[Claim 4]

The method of manufacturing a Fabry-Perot interference filter according to claim 1,

wherein in the cutting step, the wafer is cut into the plurality of substrates along each of the plurality of lines by forming a modified region within the wafer along each of the plurality of lines through irradiation of laser light and extending a crack in a thickness direction of the wafer from the modified region.

[Claim 5]

The method of manufacturing a Fabry-Perot interference filter according to claim 4,

wherein in the cutting step, the crack is extended in the thickness direction of the wafer from the modified region by expanding an expanding tape attached to the second main surface side of the wafer.

[Claim 6]

The method of manufacturing a Fabry-Perot interference filter

according to claim 5,

wherein in the cutting step, in a state in which the expanding tape is attached to the second main surface side, the laser light is incident on the wafer from a side opposite to the expanding tape.

[Claim 7]

The method of manufacturing a Fabry-Perot interference filter according to claim 5,

wherein in the cutting step, in a state in which the expanding tape is attached to the second main surface side, the laser light is incident on the wafer through the expanding tape from the expanding tape side.

[Claim 8]

The method of manufacturing a Fabry-Perot interference filter according to claim 3,

wherein in the forming step, the first thinned region is formed by thinning a part along each of the plurality of lines in at least the sacrificial layer and the second mirror layer.

[Claim 9]

The method of manufacturing a Fabry-Perot interference filter according to claim 3,

wherein in the cutting step, the wafer is cut into the plurality of substrates along each of the plurality of lines by forming a modified region within the wafer along each of the plurality of lines through irradiation of laser light and extending a crack in a thickness direction of the wafer from the modified region.

[Claim 10]

The method of manufacturing a Fabry-Perot interference filter

according to claim 9,

wherein in the cutting step, the crack is extended in the thickness direction of the wafer from the modified region by expanding an expanding tape attached to the second main surface side of the wafer.

[Claim 11]

The method of manufacturing a Fabry-Perot interference filter according to claim 10,

wherein in the cutting step, in a state in which the expanding tape is attached to the second main surface side, the laser light is incident on the wafer from a side opposite to the expanding tape.

[Claim 12]

The method of manufacturing a Fabry-Perot interference filter according to claim 10,

wherein in the cutting step, in a state in which the expanding tape is attached to the second main surface side, the laser light is incident on the wafer through the expanding tape from the expanding tape side.