

Claims

1. A method of processing a substrate (W), having on one side (2) a device area (6) with a plurality of devices (8), wherein the method comprises:

providing a first protective film (22);

providing a second protective film (14);

attaching the first protective film (22) to the one side (2) of the substrate (W), so that at least a central area of a front surface (24) of the first protective film (22) is in direct contact with the one side (2) of the substrate (W);

after attaching the first protective film (22) to the one side (2) of the substrate (W), the substrate (W), having the first protective film (22) attached thereto, is placed on a support;

attaching the second protective film (14) to a side (4) of the substrate (W) being opposite to the one side (2); and

after attaching the second protective film (14) to the side (4) of the substrate (W) being opposite to the one side (2), applying a laser beam (LB) to the substrate (W) from the side (4) of the substrate (W) being opposite to the one side (2), wherein

the substrate (W) is made of a material which is transparent to the laser beam (LB),

the second protective film (14) is made of a material which is transparent to the laser beam (LB), and

the laser beam (LB) is applied to the substrate (W) in a plurality of positions so as to form a plurality of modified regions in the substrate (W).

2. The method according to claim 1, wherein attaching the first protective film (22) to the one side (2) of the substrate (W) comprises:

applying the first protective film (22) to the one side (2) of the substrate (W), so that at least the central area of the front surface (24) of the first protective film (22) is in direct contact with the one side (2) of the substrate (W); and

applying an external stimulus to the first protective film (22) during and/or after applying the first protective film (22) to the one side (2) of the substrate (W), so that the first protective film (22) is attached to the one side (2) of the substrate (W).

3. The method according to claim 2, wherein applying the external stimulus to the first protective film (22) comprises applying pressure to the first protective film (22) and/or heating the first protective film (22) and/or cooling the first protective film (22) and/or applying a vacuum to the first protective film (22) and/or irradiating the first protective film (22) with light.

4. The method according to any one of the preceding claims, wherein

at least one division line (12) is formed on the one side (2) of the substrate (W), and

the laser beam (LB) is applied to the substrate (W) in a plurality of positions along the at least one division line

(12) so as to form a plurality of modified regions in the substrate (W) along the at least one division line (12).

5. The method according to any one of the preceding claims, further comprising:

attaching the first protective film (22) to the second protective film (14) so as to enclose the substrate (W) between the first protective film (22) and the second protective film (14).

6. The method according to any one of the preceding claims, wherein the second protective film (14) is attached to the side (4) of the substrate (W) being opposite to the one side (2) so that at least a central area of a front surface (20) of the second protective film (14) is in direct contact with the side (4) of the substrate (W) being opposite to the one side (2).

7. The method according to any one of the preceding claims, wherein

the first protective film (22) is provided with an adhesive layer (26),

the adhesive layer (26) is provided only in a peripheral area of the front surface (24) of the first protective film (22), the peripheral area surrounding the central area of the front surface (24) of the first protective film (22), and

the first protective film (22) is attached to the one side (2) of the substrate (W) so that the adhesive layer (26) comes into contact only with a peripheral portion of the one side (2) of the substrate (W).

8. The method according to any one of the preceding claims, wherein a cushioning layer is attached to a back surface (28)

of the first protective film (22) opposite to the front surface (24) thereof.

9. The method according to claim 8, wherein a base sheet is attached to a back surface of the cushioning layer.

10. The method according to any one of the preceding claims, wherein

the second protective film (14) is expandable, and

the method further comprises, after applying the laser beam (LB) to the substrate (W) from the side (4) of the substrate (W) being opposite to the one side (2), radially expanding the second protective film (14) so as to separate the devices (8) from each other.

11. The method according to any one of claims 1 to 9, wherein

the first protective film (22) is expandable, and

the method further comprises, after applying the laser beam (LB) to the substrate (W) from the side (4) of the substrate (W) being opposite to the one side (2), radially expanding the first protective film (22) so as to separate the devices (8) from each other.

12. The method according to any one of the preceding claims, further comprising:

attaching the first protective film (22) and/or the second protective film (14) to an annular frame (18).

13. The method according to any one of the preceding claims, further comprising:

removing the first protective film (22) from the one side (2) of the substrate (W).