

WHAT IS CLAIMED IS:

1. A device chip package manufacturing method comprising:

a cutting step of forming cut grooves having a depth reaching a finished thickness of device chips by cutting a device wafer from a top surface of the device wafer along a plurality of intersecting streets formed on the top surface by a cutting blade, the device wafer having devices formed in respective regions demarcated by the streets;

a cut groove inclination state detecting step of detecting an inclination state of the cut grooves that is performed after the cutting step is performed;

a sealing resin layer forming step of forming a sealing resin layer coating the top surface and the cut grooves of the device wafer by supplying a sealing resin to the top surface of the device wafer after the cutting step and the cut groove inclination state detecting step are performed;

a grinding step of thinning the device wafer to the finished thickness of the device chips by grinding an undersurface of the device wafer after the sealing resin layer forming step is performed; and

a laser processing step of dividing the device wafer into individual chips and forming device chip packages by holding the device wafer by a holding surface of a chuck table and applying a laser beam having a wavelength absorbable by the sealing resin layer along the cut grooves of the device wafer held by the chuck table after the grinding step is performed;

the laser processing step applying the laser beam in parallel with the cut grooves while the holding surface of the chuck table and the laser beam are inclined relative to each other on the basis of the inclination state of the cut grooves, the inclination state being detected in the cut groove inclination state detecting step.

2. The device chip package manufacturing method according to claim 1, wherein:

the laser processing step applies the laser beam in parallel with the cut grooves by inclining the chuck table.

3. The device chip package manufacturing method according to claim 2, wherein the cut groove inclination state detecting step is performed by irradiating a laser beam from a laser displacement gage upon the device wafer.

4. The device chip package manufacturing method according to claim 2, wherein the cut groove inclination state detecting step is performed by using a depth of focus of an imaging unit including a microscope and an imaging element.

5. The device chip package manufacturing method according to claim 2, wherein the inclination state detected in the cut groove inclination state detecting step is stored in a non-transitory memory of a laser displacement gage.

6. The device chip package manufacturing method according to claim 1, wherein the cut groove inclination state detecting step is performed by irradiating a laser beam from a laser displacement gage upon the device wafer.

7. The device chip package manufacturing method according to claim 1, wherein the cut groove inclination state detecting step is performed by using a depth of focus of an imaging unit including a microscope and an imaging element.

8. The device chip package manufacturing method according to claim 1, wherein the inclination state detected in the cut groove inclination state detecting step is stored in a non-transitory memory of a laser displacement gage.

9. The device chip package manufacturing method according to claim 1, wherein the inclination state of the cut groove is due to the cutting blade being used during the cutting step being bent.

10. A device chip package manufacturing method comprising:

a cutting step of forming cut grooves having a depth reaching a finished thickness of device chips by cutting a device wafer from a top surface of the device wafer along a plurality of intersecting streets formed on the top surface by a cutting blade, the device wafer having devices formed in respective regions demarcated by the streets;

a cut groove inclination state detecting step of detecting an inclination state of the cut grooves while the cutting step is performed;

a sealing resin layer forming step of forming a sealing resin layer coating the top surface and the cut grooves of the device wafer by supplying a sealing resin to the top surface of the device wafer after the cutting step and the cut groove inclination state detecting step are performed;

a grinding step of thinning the device wafer to the finished thickness of the device chips by grinding an undersurface of the device wafer after the sealing resin layer forming step is performed; and

a laser processing step of dividing the device wafer into individual chips and forming device chip packages by holding the device wafer by a holding surface of a chuck table and applying a laser beam having a wavelength absorbable by the sealing resin layer along the cut grooves of the device wafer held by the chuck table after the grinding step is performed;

the laser processing step applying the laser beam in parallel with the cut grooves while the holding surface of the chuck table and the laser beam are inclined relative to each other on the basis of the inclination state of the cut grooves, the inclination state being detected in the cut groove inclination state detecting step.

11. The device chip package manufacturing method according to claim 10, wherein:

the laser processing step applies the laser beam in parallel with the cut grooves by inclining the chuck table.

12. The device chip package manufacturing method according to claim 10, wherein the inclination state of the cut groove is due to the cutting blade being used during the cutting step being bent.