WHAT IS CLAIMED IS:

1. A wafer processing method for dividing a wafer formed on a front surface thereof with a plurality of devices in a state of being partitioned by a plurality of intersecting streets into individual device chips, the wafer processing method comprising:

a protective tape disposing step of disposing a protective tape on the front surface of the wafer;

a wafer holding step of holding the wafer on a chuck table for holding and heating the wafer, with the protective tape side facing the chuck table and with a back surface of the wafer exposed;

a division start point forming step of heating the chuck table to a predetermined temperature and applying a laser beam of such a wavelength as to be transmitted through the wafer to the wafer from the back surface of the wafer, with a focal point of the laser beam positioned at a predetermined point inside the wafer, to form division start points along the streets, the division start point including a modified layer and a crack extending from the modified layer to the front surface of the wafer, after the wafer holding step is performed; and

a dividing step of grinding the back surface of the

wafer by a grinding wheel having a plurality of grindstones in an annular pattern to thin the wafer and divide the wafer into the individual device chips, after the division start point forming step,

wherein in the division start point forming step, the chuck table is heated to the predetermined temperature prior to applying the laser beam to the wafer, whereby the cracks formed inside the wafer to extend from the modified layers to the front surface are grown, and

wherein in the division start point forming step, the predetermined temperature is 40°C. to 80°C.

2. The wafer processing method according to claim 1, wherein the modified layers formed during the division start point forming step do not extend to reach the front surface of the wafer.

3. A wafer processing method for dividing a wafer formed on a front surface thereof with a plurality of devices in a state of being partitioned by a plurality of intersecting streets into individual device chips, the wafer processing method comprising:

a protective sheet disposing step of disposing a protective sheet on the front surface of the wafer, wherein the protective sheet comprises a polyolefin or polyester

material;

a wafer holding step of holding the wafer on a chuck table for holding and heating the wafer, with the protective sheet side facing the chuck table and with a back surface of the wafer exposed;

a division start point forming step of heating the chuck table to a predetermined temperature and applying a laser beam of such a wavelength as to be transmitted through the wafer to the wafer from the back surface of the wafer, with a focal point of the laser beam positioned at a predetermined point inside the wafer, to form division start points along the streets, the division start point including a modified layer and a crack extending from the modified layer to the front surface of the wafer, after the wafer holding step is performed; and

a dividing step of grinding the back surface of the wafer by a grinding wheel having a plurality of grindstones in an annular pattern to thin the wafer and divide the wafer into the individual device chips, after the division start point forming step,

wherein in the division start point forming step, the chuck table is heated to the predetermined temperature prior to applying the laser beam to the wafer, whereby the cracks formed inside the wafer to extend from the modified

layers to the front surface are grown, and

wherein in the division start point forming step, the predetermined temperature is 40˚C. to 80˚ C.

4. The wafer processing method according to claim 3, wherein the modified layers formed during the division start point forming step do not extend to reach the front surface of the wafer.