WHAT IS CLAIMED IS:

1. A chip manufacturing method for manufacturing chips by dividing a wafer including a device formed in each region demarcated by a plurality of intersecting planned dividing lines set on a front surface side of a substrate and a laminate formed at least on the plurality of planned dividing lines, the chip manufacturing method comprising:

a modified layer forming step of forming a modified layer along the planned dividing lines and forming a crack extending from the modified layer to the front surface side of the substrate by applying, along the planned dividing lines, a first laser beam having a wavelength transmitted through the substrate, in a state in which a back surface side of the substrate is exposed and a condensing point of the first laser beam is positioned within the substrate from the back surface side of the substrate;

a grinding step of thinning the wafer to a predetermined finished thickness by grinding the back surface side of the substrate exposed in the modified layer forming step, after the modified layer forming step; and

a laser-processed groove forming step of forming a

laser-processed groove in which the laminate is completely severed and formed in such a manner as to cover the crack extending from the modified layer to the front surface side of the wafer by applying, along the planned dividing lines, a second laser beam and a third laser beam having a wavelength absorbed by the substrate and the laminate, from a front surface side of the wafer, after the grinding step,

wherein, in the laser-processed groove forming step,

the second laser beam is branched into two, and two condensing points are applied along each of the planned dividing line, forming two laser-processed grooves not covering the crack extending from the modified layer to the front surface side of the wafer, with the laminate remaining between the two laser-processed grooves, and

the laminate remaining between the two laser-processed grooves are irradiated with the third laser beam, thus forming the laser-processed groove in which the laminate is completely severed and covers the crack extending from the modified layer to the front surface side of the wafer.

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

in the laser-processed groove forming step, the two laser-processed grooves are formed in such a manner as to completely sever the laminate along the planned dividing line.

3. The chip manufacturing method according to claim 1, wherein,

in the laser-processed groove forming step, the two laser-processed grooves are formed in such a manner as to not completely sever the laminate along the planned dividing line.

4. The chip manufacturing method according to claim 1, wherein,

in the modified layer forming step, the crack extending to the front surface side of the wafer is formed in such a manner as not to sever the laminate.

5. The chip manufacturing method according to claim 4, wherein,

in the modified layer forming step, the crack extending to the front surface side of the wafer is formed in such a manner as to also form in the laminate.

6. The chip manufacturing method according to claim 1, further comprising:

a tape affixing step of affixing a tape having elasticity to the back surface side of the substrate,

after the grinding step but before the laser-processed groove forming step; and

an expanding step of expanding the tape affixed to the back surface side of the substrate, after the laser-processed groove forming step.

7. The chip manufacturing method according to claim 1, wherein,

in the modified layer forming step, a condensing point of the first laser beam is positioned at a predetermined depth within the substrate from the back surface side of the substrate, said predetermined depth at a position closer to the front surface side of the substrate than the back surface side of the substrate.

8. The chip manufacturing method according to claim 1, wherein,

in the modified layer forming step, a distance from the condensing point to the front surface of the substrate, also being a distance from the modified layer to the front surface, is adjusted as appropriate in such a manner as to be larger than the predetermined finished thickness of the substrate.

9. The chip manufacturing method according to any one of claim 2 or claim 3, wherein,

in the laser-processed groove forming step, the

laminate remaining between the two laser-processed grooves is irradiated with a top-hat beam.