What is claimed is:

1. A wafer processing method for dividing a wafer into individual device chips along a plurality of crossing division lines, a front side of said wafer being partitioned by said division lines to define a plurality of separate regions where a plurality of devices corresponding to said device chips are formed, said wafer processing method comprising:

a frame supporting step of attaching a back side of said wafer to an adhesive tape supported at its peripheral portion to an annular frame having an inside opening in such a manner that said wafer is set in said inside opening closed by said adhesive tape, thereby supporting said wafer through said adhesive tape to said annular frame; and

a shield tunnel forming step of holding said wafer on a chuck table in a condition where the front side of said wafer faces an upper surface of said chuck table after performing said frame supporting step, and next applying a laser beam through said adhesive tape to the back side of said wafer in an area corresponding to each division line, said laser beam having a transmission wavelength to said wafer and said adhesive tape, thereby forming a plurality of shield tunnels arranged along each division line, each shield tunnel extending from the front side of said wafer to the back side thereof, each shield tunnel being composed of a fine hole and an amorphous region formed around said fine hole for shielding said fine hole, where each fine hold extends from the front side of said wafer to the back side thereof.

2. The wafer processing method according to claim 1, further comprising:

a dividing step of expanding said adhesive tape after performing said shield tunnel forming step, thereby dividing said wafer into said individual device chips.

3. The wafer processing method according to claim 2, further comprising:

a protective member providing step of providing a protective member on the front side of said wafer before performing said frame supporting step;

said protective member being peeled from the front side of said wafer before expanding said adhesive tape in said dividing step.

4. A wafer processing method for dividing a wafer into individual device chips along a plurality of crossing division lines, a front side of said wafer being partitioned by said division lines to define a plurality of separate regions where a plurality of devices corresponding to said device chips are formed, said wafer processing method comprising:

a frame supporting step of attaching a back side of said wafer to an adhesive tape supported at its peripheral portion to an annular frame having an inside opening in such a manner that said wafer is set in said inside opening closed by said adhesive tape, thereby supporting said wafer through said adhesive tape to said annular frame; and

a shield tunnel forming step of holding said wafer on a chuck table in a condition where the front side of said wafer faces an upper surface of said chuck table after performing said frame supporting step, and next applying a laser beam through said adhesive tape to the back side of said wafer in an area corresponding to each division line, said laser beam

having a transmission wavelength to said wafer and said adhesive tape, thereby forming a plurality of shield tunnels arranged at predetermined intervals along each division line, each shield tunnel extending in a direction between the front side of said wafer and the back side thereof, each shield tunnel being composed of a fine hole and an amorphous region formed around said fine hole for shielding said fine hole, wherein each fine hole extends in the direction between the front side of said wafer and the back side thereof.

5. The wafer processing method according to claim 4, wherein the predetermined intervals are each 10 μm.

6. The wafer processing method according to claim 4, wherein each shield tunnel extends from the front side of said wafer to the back side thereof.

7. The wafer processing method according to claim 4, further comprising:

a dividing step of expanding said adhesive tape after performing said shield tunnel forming step, thereby dividing said wafer into said individual device chips.

8. The wafer processing method according to claim 7, further comprising:

a protective member providing step of providing a protective member on the front side of said wafer before performing said frame supporting step;

said protective member being peeled from the front side of said wafer before expanding said adhesive tape in said dividing step.