

WHAT IS CLAIMED IS:

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

a protective tape attaching step of attaching a protective tape to the front side of said wafer;

a holding step of holding said protective tape attached to the front side of said wafer on a holding surface of a first chuck table under suction;

a grinding step of grinding a back side of said wafer held on said first chuck table under suction, thereby thinning said wafer;

an unloading step of holding the back side of said wafer held on said first chuck table by using a suction pad of transfer means after performing said grinding step, and next moving said suction pad to thereby unload said wafer from said first chuck table;

a transfer step of transferring said wafer to a holding surface of a second chuck table by operating said transfer means after performing said unloading step, next holding said protective tape attached to the front side of said wafer on the holding surface of said second chuck table under suction, and next removing said suction pad from the back side of said wafer; and

a modified layer forming step of applying a laser beam having a transmission wavelength to said wafer to the back side of said wafer along each crossing division line of the

plurality of crossing division lines in a condition where a focal point of said laser beam is set inside said wafer after performing said transfer step, thereby forming a modified layer inside said wafer along each crossing division line of the plurality of crossing division lines;

said transfer step including

a mounting step of mounting said wafer held by said suction pad to the holding surface of said second chuck table,

a sandwiching step of removing a suction force applied to said suction pad after performing said mounting step, and then sandwiching said wafer between said suction pad and the holding surface of said second chuck table, and

a suction holding step of applying a suction force to the holding surface of said second chuck table after performing said sandwiching step to thereby hold said protective tape attached to the front side of said wafer on the holding surface of said second chuck table under suction, and next removing said suction pad from the back side of said wafer.