

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, said division lines being formed on a front side of said wafer to thereby define a plurality of separate regions where a plurality of devices are individually formed, said device chips individually corresponding to said devices, said wafer processing method comprising:

a modified layer forming step of applying a laser beam having a transmission wavelength to said wafer along each division line so as to focus said laser beam inside said wafer, thereby forming a modified layer inside said wafer along each division line;

a wafer supporting step of attaching an expandable dicing tape to a back side of said wafer and mounting a peripheral portion of said dicing tape to an annular frame before or after performing said modified layer forming step;

a tape expanding step of expanding said dicing tape attached to the back side of said wafer; and

an air blowing step of blowing air against said wafer along each division line to apply a downward force to each division line in the condition where said dicing tape is expanded, thereby dividing said wafer into said individual device chips along each division line where said modified layer is formed and also increasing spacing between any adjacent ones of said device chips.

2. The wafer processing method according to claim 1, wherein said air blowing step is performed by using an air knife for blowing said air.

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

a back grinding step of grinding the back side of said wafer in the condition where a protective member is attached to the front side of said wafer, before performing said modified layer forming step, thereby reducing a thickness of said wafer to a predetermined thickness.

4. The wafer processing method according to claim 1, wherein said air blowing step is started simultaneously with said tape expanding step.