

CLAIMS

1. A method for evaluating a dicing/die-bonding integrated film, the method comprising:

(A) preparing a dicing/die-bonding integrated film serving as an evaluation target, the dicing/die-bonding integrated film including a base layer, an adhesive layer having a first surface facing the base layer and a second surface opposite to the first surface, and a bonding adhesive layer provided to cover a center portion of the second surface of the adhesive layer;

(B) pasting a silicon wafer having a thickness of 50 μm to the bonding adhesive layer and pasting a dicing ring to the second surface of the adhesive layer;

(C) singulating the silicon wafer and the bonding adhesive layer into a plurality of bonding adhesive piece-attached chips to obtain the bonding adhesive piece-attached chips that have a square shape having a side length of 2 mm; and

(D) pushing a center portion of the bonding adhesive piece-attached chip from a side of the base layer at a temperature of 23°C at a rate of 60 mm/min and then measuring an edge peeling strength when an edge of the bonding adhesive piece-attached chip is peeled off from the adhesive layer, wherein

when the edge peeling strength is 1.2 N or less, it is determined that the dicing/die-bonding integrated film has favorable pickup property.

2. A method for evaluating pickup property, the method comprising:

(i) preparing a laminate including a base layer, an adhesive layer, a bonding adhesive layer and a wafer having a thickness of 50 μm in order;

(ii) singulating the wafer and the bonding adhesive layer into a plurality of bonding adhesive piece-attached chips to obtain the bonding adhesive piece-attached chips that have a square shape having a side length of 2 mm; and

(iii) pushing a center portion of the bonding adhesive piece-attached chip from a side of the base layer at a temperature of 23°C at a rate of 60 mm/min and then measuring an edge peeling strength when an edge of the bonding adhesive piece-attached chip is peeled off from the adhesive layer, wherein

when the edge peeling strength is 1.2 N or less, it is determined that a pickup property of the bonding adhesive piece-attached chip from the adhesive layer is favorable.

3. A dicing/die-bonding integrated film comprising:

a base layer;

an adhesive layer having a first surface facing the base layer and a second surface opposite to the first surface; and

a bonding adhesive layer provided to cover a center portion of the second surface of the adhesive layer, wherein

an edge peeling strength as measured through the following processes is 1.2 N or less:

<Measurement of edge peeling strength>

pasting a silicon wafer having a thickness of 50 μm to the bonding adhesive layer and pasting a dicing ring to the second surface

of the adhesive layer;

singulating the silicon wafer and the bonding adhesive layer into a plurality of bonding adhesive piece-attached chips to obtain the bonding adhesive piece-attached chips that have a square shape having a side length of 2 mm; and

pushing a center portion of the bonding adhesive piece-attached chip from a side of the base layer at a temperature of 23°C at a rate of 60 mm/min and then measuring an edge peeling strength when an edge of the bonding adhesive piece-attached chip is peeled off from the adhesive layer.

4. The dicing/die-bonding integrated film according to claim 3, wherein the dicing/die-bonding integrated film is applied to a semiconductor device manufacturing process including a process of singulating a wafer and a bonding adhesive layer into a plurality of bonding adhesive piece-attached chips having an area of 9 mm² or less.

5. The dicing/die-bonding integrated film according to claim 4, wherein in the singulating process, the plurality of bonding adhesive piece-attached chips are obtained by blade dicing.

6. A method for manufacturing a semiconductor device, the method comprising:

preparing the dicing/die-bonding integrated film according to any one of claims 3 to 5;

pasting a wafer to the bonding adhesive layer of the dicing/die-bonding integrated film and pasting a dicing ring to the second surface of the adhesive layer;

singulating the wafer and the bonding adhesive layer into a

plurality of bonding adhesive piece-attached chips having an area of 9 mm² or less;

picking up the bonding adhesive piece-attached chip from the adhesive layer; and

5 mounting the bonding adhesive piece-attached chip on a substrate or another chip.

7. A method for sorting a dicing/die-bonding integrated film, the method comprising:

10 preparing two or more kinds of dicing/die-bonding integrated films, each of the dicing/die-bonding integrated film comprising a base layer, an adhesive layer having a first surface facing the base layer and a second surface opposite to the first surface, and a bonding adhesive layer provided to cover a center portion of the second surface of the adhesive layer;

15 measuring edge peeling strength of the dicing/die-bonding integrated films; and

sorting the dicing/die-bonding integrated film whose edge peeling strength is 1.2 N or less,

20 wherein the edge peeling strength is measured through the following processes:

pasting a silicon wafer having a thickness of 50 μm to the bonding adhesive layer and pasting a dicing ring to the second surface of the adhesive layer;

25 singulating the silicon wafer and the bonding adhesive layer into a plurality of bonding adhesive piece-attached chips to obtain the bonding adhesive piece-attached chips that have a square shape having a

side length of 2 mm; and

pushing a center portion of the bonding adhesive piece-attached chip from a side of the base layer at a temperature of 23°C at a rate of 60 mm/min and then measuring an edge peeling strength when an edge of the bonding adhesive piece-attached chip is peeled off from the adhesive layer.