

WHAT IS CLAIMED IS:

1. A mounting device for mounting a semiconductor chip on an object to be mounted via an adhesive material, the mounting device comprising:

a mounting head to which a thermocompression tool and a tool heating/cooling mechanism are attached, wherein the thermocompression tool holds the semiconductor chip and moves the semiconductor chip in a direction to contact or be separated from the object to be mounted to press the semiconductor chip to the object to be mounted, and the tool heating/cooling mechanism heats and cools the thermocompression tool;

a film arrangement mechanism which moves a cover film to arrange the cover film between the semiconductor chip pressed to the object to be mounted and the thermocompression tool; and

a controller which controls movement of the mounting head and the film arrangement mechanism and controls a temperature of the thermocompression tool by the tool heating/cooling mechanism,

wherein the controller is configured to perform:

a mounting step of pressing the semiconductor chip to the object to be mounted in a state where the cover film is interposed between the semiconductor chip and the thermocompression tool, and heating and then cooling the thermocompression tool to mount the semiconductor chip on the object to be mounted; and

a separation step of heating the thermocompression tool and then raising the mounting head to separate the mounting head from the cover film after mounting the semiconductor chip.

2. The mounting device according to claim 1, wherein the separation step further comprises heating the thermocompression tool to a predetermined temperature by the tool heating/cooling mechanism in a state of slightly raising the mounting head after the semiconductor chip is mounted on the object to be mounted, and then raising the mounting head.

3. The mounting device according to claim 1 or 2, wherein the thermocompression tool sucks and holds the semiconductor chip,

wherein the mounting step further comprises lowering the mounting head to temporarily
5 pressure-bond the semiconductor chip onto the object to be mounted via the adhesive material,
and

interposing the cover film between the semiconductor chip and the thermocompression tool,
and pressing the temporarily pressure-bonded semiconductor chip to mount the semiconductor
chip on the object to be mounted.

10

4. A mounting method for mounting a semiconductor chip on an object to be mounted via
an adhesive material, the mounting method comprising:

a preparation step of preparing a mounting device comprising: a mounting head which has a
tip attached with a thermocompression tool that holds the semiconductor chip and moves the
15 semiconductor chip in a direction to contact or be separated from the object to be mounted to
press the semiconductor chip to the object to be mounted, a tool heating/cooling mechanism
which is attached to the mounting head to heat and cool the thermocompression tool, and a film
arrangement mechanism which arranges a cover film between the semiconductor chip and the
thermocompression tool;

20 a film arrangement step of interposing the cover film between the semiconductor chip and
the thermocompression tool by the film arrangement mechanism when the semiconductor chip is
mounted on the object to be mounted;

a mounting step of pressing the semiconductor chip to the object to be mounted in a state
where the cover film is interposed between the semiconductor chip and the thermocompression
25 tool, and heating and then cooling the thermocompression tool to mount the semiconductor chip

on the object to be mounted; and

a separation step of heating the thermocompression tool and then raising the mounting head to separate the mounting head from the cover film after the mounting step.