

the heater 14.

[0022] The holding block 16 for holding the heater 14 is further provided on the upper surface of the heater 14. The holding block 16 is a block-shaped member interposed between the main body 18 of the mounting head 10 and the heater 14. The holding block 16 is made of a heat insulating material such as ceramics, and also functions as a heat insulating layer that inhibits heat transfer from the heater 14 to the main body 18.

[0023] The mounting head 10 is further provided with a cooling mechanism 35 for cooling the heater 14. The cooling mechanism 35 can cool a plurality of cooling areas E1 and E2 set in the heater 14 independently of one another. That is, in this example, the heater 14 is divided into two cooling areas, that is, a first cooling area E1 and a second cooling area E2, with the center line in the X direction as a boundary, and the two cooling areas E1 and E2 are cooled independently of each other. In the following, when the first cooling area E1 and the second cooling area E2 are not distinguished from each other, they are simply referred to as “cooling area E” with the suffixes 1 and 2 omitted. The same applies to other members.

[0024] In order to enable such cooling, the cooling mechanism 35 has two cooling channels 28a and 28b. The two cooling channels 28a and 28b are independent of each other, and the two cooling channels 28a and 28b do not communicate with each other. Each cooling channel 28 includes the holding block 16 and one or more cooling holes 29 formed in the main body 18. In this example, as shown in FIG. 2, FIG. 3A, and FIG. 3B, four cooling holes 29a to 29d are provided in one holding block 16. The four cooling holes 29a to 29d are arranged in two rows and two columns, two in the X direction and two in the Y direction. The two cooling holes 29a and 29b provided at positions facing the first cooling area E1 merge outside the holding block 16 and communicate with one electric regulator 38a. Both of the two cooling holes 29a and 29b function as the first cooling channel 28a for guiding a refrigerant to the first cooling area E1 of

distribution of the heater 14, the driving conditions of the heater 14, and the flow rates F_a and F_b of the refrigerant flowing through the two cooling channels 28a and 28b, prior to the bonding process. FIG. 5 is an image diagram of the condition data 46. At the time of the bonding process, the controller 20 determines the applied current I and the flow rates F_a and F_b when the
5 chip is heated based on the condition data 46.

[0043] The condition data 46 is acquired by an experiment. In the experiment, first, the current I is applied to the heater 14 until the temperature of each of the cooling areas E1 and E2 becomes equal to or higher than a target temperature. The temperatures of the respective cooling areas E1 and E2 at this time are acquired by a temperature sensor 40 (the sensor in FIG.

10 1). The form of the temperature sensor 40 is not limited as long as the temperature sensor 40 can acquire the temperatures of a plurality of measurement points on the surface of the heater 14. Therefore, the temperature sensor 40 may be a radiation thermometer that measures the temperatures in a non-contact manner using infrared rays. In this case, the temperatures of the plurality of measurement points are acquired by scanning infrared rays. Further, the
15 temperature sensor 40 may be a contact-type temperature sensor such as a thermistor that contacts the surface of the heater 14 to measure the temperature. In this case, a plurality of temperature sensors 40 may be disposed on the surface of the heater 14. Furthermore, if there is one or more measurement points for measuring the temperatures for each of the cooling areas E1 and E2, the number and position thereof are not limited.

20 **[0044]** The controller 20 compares the obtained temperatures of the plurality of measurement points with the target temperature at that measurement point. Then, when the temperature of the measurement point is higher than the target temperature, the flow rate F of the refrigerant in the cooling channel 28 for cooling the cooling area to which the measurement point belongs is gradually increased. Finally, the refrigerant flow rate F when the temperature of the