

D1.

[0048] In addition, the controller 50 may adjust the relative position of the mounting head 44 with respect to the die head 27 after the die head 27 and the mounting head 44 are moved to the overlapping region D1 respectively.

5 **[0049]** As shown in (b) of FIG. 3, the controller 50 outputs a control signal to the bonding head mechanism 42. As a result, the bonding head mechanism 42 receives the semiconductor die 201. The bonding head mechanism 42 that has received the control signal moves the mounting nozzle 45 downward (in the negative Z-axis direction) by driving the mounting motor 46. The bonding head mechanism 42 brings the mounting nozzle 45 close to the
10 semiconductor die 201 to a distance where the semiconductor die 201 can be sucked. Then, the bonding head mechanism 42 starts the suction operation of the mounting nozzle 45.

[0050] The controller 50 outputs a control signal to the die transfer mechanism 25. As a result, the suction operation of the die nozzle 28 is stopped. When the suction operation of the mounting nozzle 45 is started and the suction operation of the die nozzle 28 is stopped, the
15 semiconductor die 201 is delivered from the die transfer mechanism 25 to the bonding head mechanism 42.

[0051] As shown in (a) of FIG. 4, the controller 50 outputs a control signal to the bonding head mechanism 42. As a result, the bonding head mechanism 42 bonds the semiconductor die 201 to the circuit board 101. The bonding head mechanism 42 that has received the control signal
20 first drives the mounting motor 46 to move the mounting nozzle 45 that has sucked the semiconductor die 201 upward (in the positive Z-axis direction). Next, the bonding head mechanism 42 drives the component transfer guide 43 to move the mounting head 44 in the positive X-axis direction. The bonding head mechanism 42 stops moving when the position of the mounting head 44 reaches a predetermined position. The predetermined position may be
25 directly above the position where the semiconductor die 201 is to be bonded.

[0052] As shown in (b) of FIG. 4, the bonding head mechanism 42 moves the mounting nozzle

45 downward (in the negative Z-axis direction) to a position where the suction of the semiconductor die 201 can be released by driving the mounting motor 46. Then, the bonding head mechanism 42 stops the suction operation of the mounting nozzle 45. Further, the bonding head mechanism 42 may perform an operation of curing the adhesive arranged between the semiconductor die 201 and the circuit board 101 via the semiconductor die 201, if necessary. For example, the bonding head mechanism 42 may drive a heater to apply heat and/or pressure to the adhesive via the semiconductor die 201.

[0053] In addition, if necessary, the controller 50 may output a control signal to the die transfer mechanism 25 to return the die head 27 to the initial position. Further, the controller 50 may output a control signal to the die transfer mechanism 25 to perform an operation of picking up the next semiconductor die 201.

[0054] The semiconductor die 201 is mounted on the circuit board 101 by the above series of operations.

[0055] Next, the operation of mounting the electronic component 301 will be described. As shown in (a) of FIG. 5, the controller 50 outputs a control signal to the chip transfer mechanism 15. As a result, the chip transfer mechanism 15 picks up the electronic component 301. The chip transfer mechanism 15 that has received the control signal moves the chip head 17 to a predetermined position by driving the chip transfer guide 16. This predetermined position may be directly above the reel 12 in which the electronic component 301 to be picked up is packed. Next, the chip transfer mechanism 15 moves the chip head 17 downward (in the negative Z-axis direction) by driving the chip motor 19. This movement continues until the chip head 17 moves to a position where the electronic component 301 can be sucked. Next, the chip transfer mechanism 15 starts the suction operation of the chip nozzle 18.

[0056] Next, as shown in (b) of FIG. 5, the controller 50 outputs a control signal to the chip transfer mechanism 15. As a result, the chip transfer mechanism 15 moves the chip head 17 to a position where the electronic component 301 can be delivered. The position capable of

module (die supply module); 21: Die pickup mechanism (pickup part); 22: Wafer holder; 22a: Dicing sheet; 23: Wafer position adjustment part; 24: Push-up pin; 25: Die transfer mechanism (second transfer part); 26: Die transfer guide; 27: Die head; 28: Die nozzle; 29: Flip mechanism; 40: Bonding module; 41: Substrate transfer mechanism; 42: Bonding head mechanism
5 (arrangement part); 43: Component transfer guide; 44: Mounting head; 45: Mounting nozzle; 46: Mounting motor; 50: Controller; 100: Intermediate product; 101: Circuit board; 200: Semiconductor wafer; 201: Semiconductor die; 301: Electronic component; D1, D2: Overlapping region.