

(19)
(12)

(KR)
(B1)

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H01L 21/60

(45)
(11)
(24)

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10 - 0379608
2003 03 27

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(22) 2000 02 14

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(43) 2000 09 25

(30)	11 - 38909	1999 02 17	(JP)
	2000 - 4034	2000 01 12	(JP)

(73) 가 가

가 22 22

(72)	632 - 0004	2613 - 1 - 410
	639 - 1124	50 - 21

(74)

•

•

(54)

(reverse)

(first)

(second)

1	1	.
2	1	.
3	2	.
4(a)	1	.
4(b)	1	.
5(a)	1	.
5(b)	1	.
5(c)	1	.
6	4(a),4(b)	5(a),5(b),5(c) .
7(a)	4(a)	.
7(b)	4(b)	.
8	1	.
9(a)		.
9(b)		.
10(a)		, (capillary)
10(b)		,

가 . , , , , (gold wire)
(ball bonding) (; nail - head bonding) (wedge)

가 . , , 가 . , ,
 가 . (second bonding) (forward) (first bonding) ,
 , (reverse) (10 - 116849 (: 1998 5 6).
 , " (shoulder)" , ,
 가 . , .

가 , , 가 , , 가 , ,
 가 , , 가 , , 가 , ,
 가 , , 가 , .

가 , , 가 , , 가 , ,
 , , 가 , .

9(a) , ,
 가 , .

9(a) , , (flat lenth) La Lb
 . (1) (2,3) (4)
 , (1) (4) Lc가 가 , 가 .

9(b) , (2,3) (1) 가 ,
 La가 , Lb , Lc ,
 . (4) 가 , Lc가 .
 , Lc , (2,3) , ,
 .

가 , (10(a)
 (10(b)) , , 가 .

가 .

(first bonding)

(second bonding)

가

가

()

가

()

가

가

(1), 2 (2) 3

(3) 3 (4) 가 (6)

(1,2,3) (4) 가

1 , (1,2,3) (4)

(5')

(1)

(5)

(4)

(5')

(1)

(4)

(6)

(1)

(4)

(6)

(3)

(4)

(2)

(4)

(6)

, (6) , (5') 가 , 1
 (6) (5') .
 , 1 (1) (7) , 2 (2,3)
 (6) , 1 (7) 2 (6)
 , 1 ()
 .
 , 3 (4) (1) , (7)
 (6)가 (4) , (4) (2)
 (4) (1) , (4) (6)
 7) , 가 (4) (1) (7)()
 , (4) (2) Tf (4) (2)
 . , (4) (1) (6)()
 Tr ()
 , () , ()
 (1,2) , (4) D
 .
 , (6) (1) , 1 (7) (4)
 가 , ,
 .
 , 1 (1) 2 (2)
 가 , 1 (1) (7) , 2
 (2,3) (6) .
 , , ,
 , , .
 , 6 , 1 2 (1,2) (4)
 (1) (1) () (8) , (1,2)
 (1) (4) .
 , 4(a) , (4) (1) , (1)
 (2) , 3 (3) (4) .
 , , 1 (1) (5') , (4)
 (5) , (1) (5') , (5')
 , (4) (1) (6') , 2 (2)
 (5) , (1) (5') ,
 (5') (3) (5') (2) (7') ,
 3 , (3) (5') , (4) (5) (3) (4)
 , (3) (5') , (6') (7') .

, (1,2) (4) (1)
 , (4) 3 2 ,
 (1,2) (7') (2) (4)
 , ,
)

, 4(b) , 2 3 (2,3) (1)
 (4) , (2) (4) , (3)
 (2)

, , 1 (1) (5) , (4)
 , (1) (4) (7)
 2 (2) (5') , (4) (5)
 , (2) (5')
 , (4) (2) (6') , 3 (3)
 (5) , (2) (2) (5') (5')
 , (2) (3) (7') (6') (7')

, (2,3) (4) (2)
 , (4) 3 2 ,
 (2,3) (7')가 (3) (4)
 , ,
)

, (1) (4) , (4(a))
 , (1) (4) Lc2가 Lc1 ,
 .

5(a) 5(c) , (1,2,3) SRAM(static random access memory) (2)
 (1) , (1) (3) (2) 가 .
 (1) (4)

5(a) , , (2) (5') , (3) (5)
 , (2) (5') , (5')
 , (3) (2) (7') , (1)
 (5') , (2) (5') (5)
 (1) (5') , (2)
 (1) (7') , (1) (5') (1)
 5) , (4) , (1) (1)
 4) (7)

, (1,2) , (4) 가 1 , ,
 (4) (3) (4) (1,2) (2,3) (7,7') , (2)
 , , () ,
 , 가 , 가 .

, (2) (1) (7') , (1) 가
 가 . (3) (2) (7')
 , (1) (4) (7')
 (1) (3) (2) , (2)
 , (2) (1) (7')

5(b) , , (2) (5') . , (3) (5)
 , (2) (5') , (5')
 , (3) (2) (7') , (1)
 (5') (4) (5) , (1)
 (5') , (4) (1)
 (6) , (2) (5') (5)
 , (1) (5') , (5')
 (2) (1) (7') , (2) (1) (7') ,
 (1) (4) (6)

, (1,2) , (4) 가 1
 (3) (4) (1,2) (2,3) (7') , (2) (4)
 , , () ,
 , 가 , 가 .

, (2) (1) (7') , (1) 가
 가 . (3) (2) (7')
 , (2) (3) (2) 가 ,
 , (7')

5(c) , , (2) (5') (5') , (3) (5) (5')

(5') (3) (2) (7') (1)
 (5') (4) (5) (1) (1)
 (5') (5') (1) (4)
 (6) (1) (5') (5)
 (2) (5')
 2) (1) (6') (5')

(1,2) (4) 가 1
 (1,2) (2,3) (6',7') (2) (4)
 (3) (4)
 (가)
 가 가

(2) (1) (6') (2)
 (4) (6) (1) (6) (1)
 가 가 5(a),(b)

(3) SRAM 가 (((1,2) 6
)) 1 2

7(a) 7(b) (1, 2, 4(a),(b), 5(a),
 (b),(c)) (4) (9) (10)
 7(a) 7(b) 4(a) 4(b)

, CSP(chip size package)

가 가
 (2') 1 (1) (8) 2

가 ,

가 가 ,

[illegible]

2

가

() , ()
() ,
(3 D).

가

가

()

가

가 (3 D).

1.

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 2 , 2
 , 2
 2 , 2
 , 2
 , 2
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2.

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 3 2 , 2
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3.

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4.

1 2 ,

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5.

2 , 3 ,

3
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3

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6.

5

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7.

2

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3

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3

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3

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3

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3

2

2

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8.

7

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9.

2

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3

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3

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3

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3

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10.

9 ,

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11.

1 2 , .

12.

1 2 , 2 .

13.

1 2 , 3 .

14.

1 2 , , .

15.

14 , .

16.

,

2 , 2 ;
2 , 2

2 , 2 , 2
2 ,

1 2 가 .

17.

,

가 2 3 , 2 ,
2 ,

2 가 .

18.

17 , 가 ,
가 ,
가 .

19.

16 17 , 가 , 가
가 .

20.

17 , 3
3 ,
3 ,
3 , .

21.

20 , , 가 .

22.

17 , 3
3 ,
3 ,
3 ,
3 2 17 .

23.

22 , , 가 .

24.

17 , 3

3

3

25.

24 , 가

26.

16 17 ,

27.

16 17 , 2

28.

16 17 , 3

29.

16 17 , 가

30.

29 ,

31.

16 17 , , 가

32.

16 17 ,

33.

16 17 ,

34.

,
2
2

35.

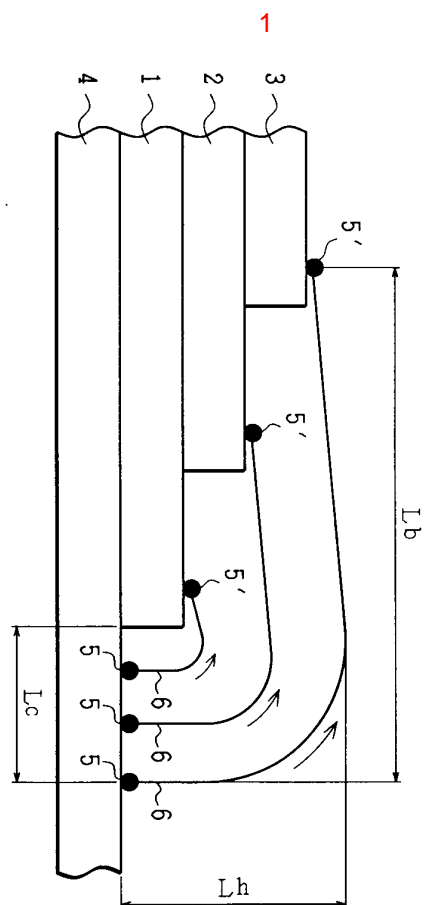
2
가, 2
2

36.

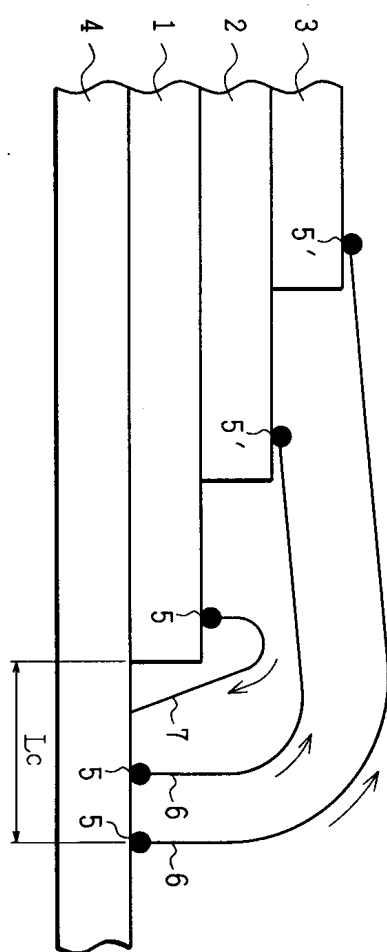
34 ,

37.

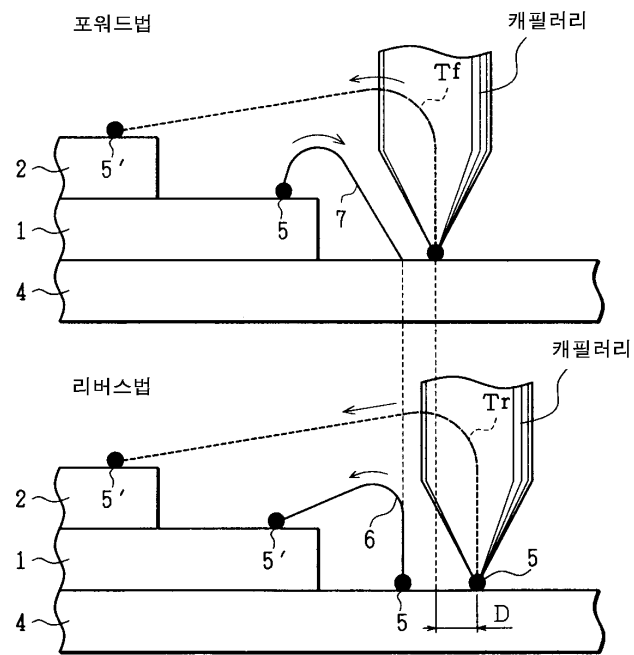
35 ,



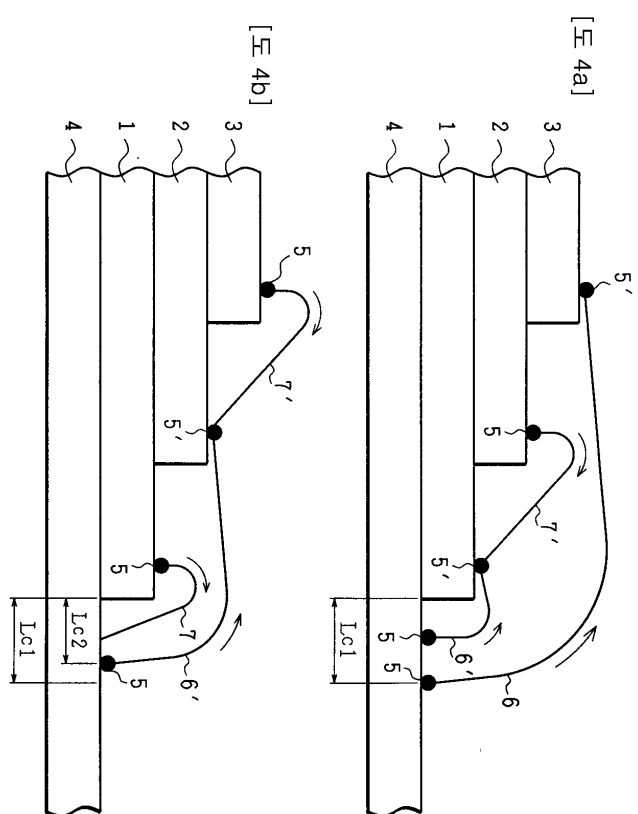
2



3

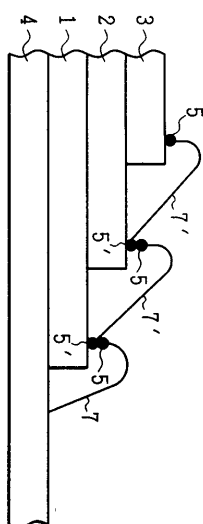


4

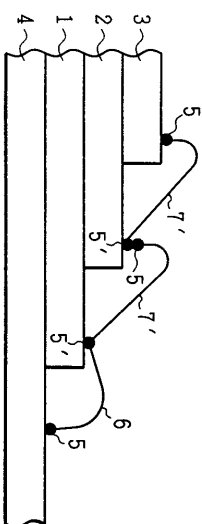


5

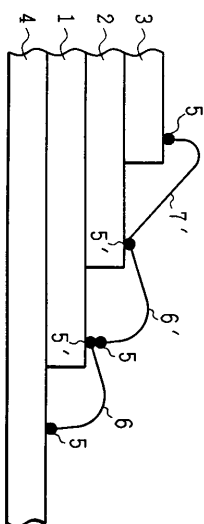
[Ξ 5 a]



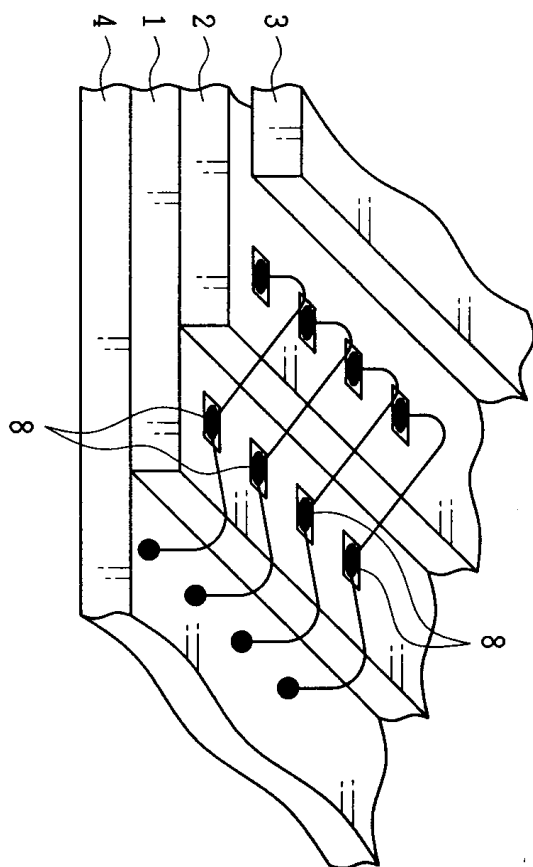
[Ξ 5 b]



[Ξ 5 c]

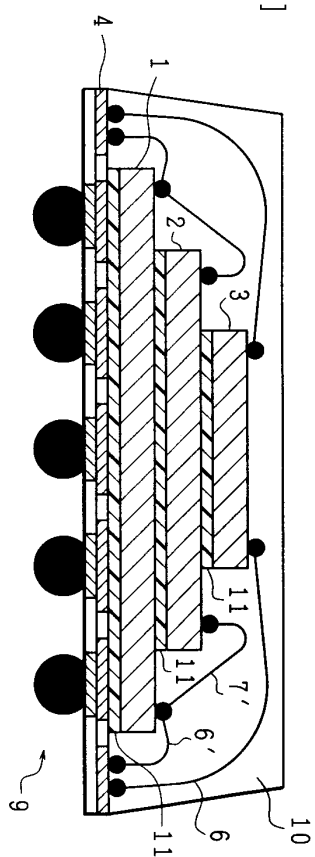


6

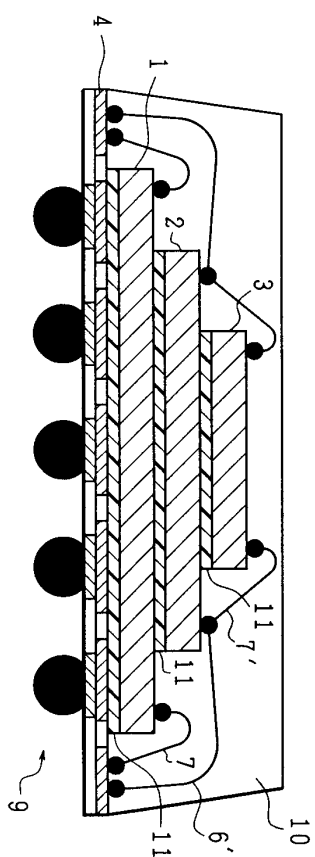


7

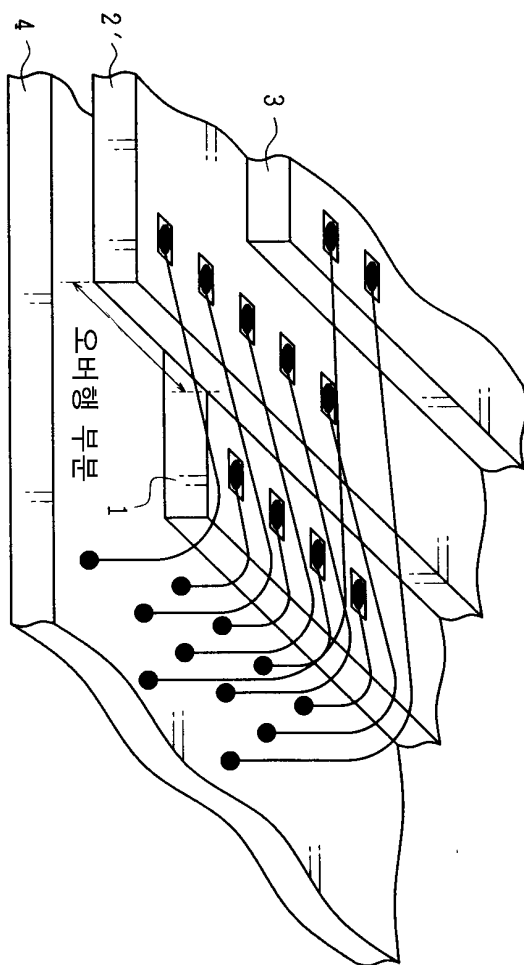
[도 7a]



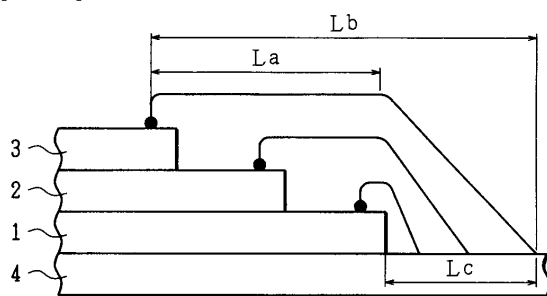
[도 7b]



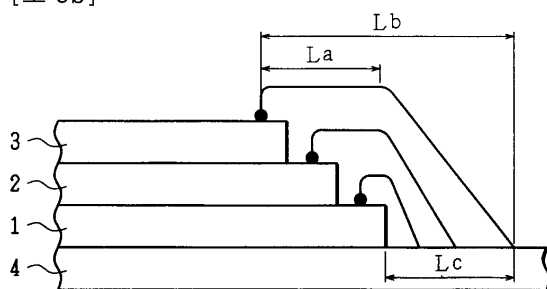
8



[도 9a]



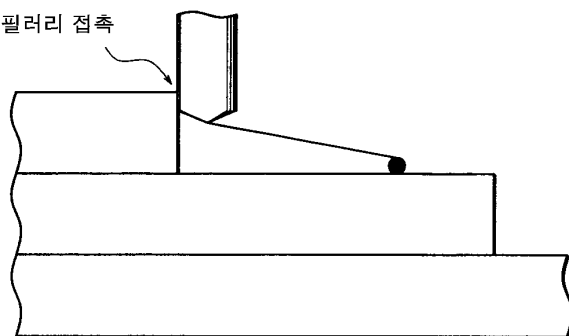
[도 9b]



10

[도 10a]

캐필러리 접촉



[도 10b]

와이어 접촉

