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(71) 가 가  
가 4 6  
가 가 . . . 5 22 1

(72) 5 22 1 가 가 . . .

1 5 1 가 가

(74)  
:

(54)

(多) .

,

,

가 ,

1

가 1 , 1  
1

2 2 , 가 2

,

1 2 .

， ， ， ，

1 1 ( ) ，  
2 1 ( ) ( ) ，  
3 1 ( ) ，  
4 3 ，  
5 1 ((a) 3 A-A ， (b)  
3 B-B ) ，  
6 5(a) ，  
7 1 ，  
8 7 ，  
9 1 ((a) 1  
(b) 2 ) ，  
10 1 ((a) ， (b)  
) ，  
11 1 ， 1 ，  
12 11 ，  
13 1 ， 2 ，  
14 13 ，  
15 2 ((a) 1 ， (b) 2  
) ，  
16 2 ， 1 ，  
17 2 ， 2 ，  
18 3 ((a) 1 ， (b) 2  
) ，  
19 4 ((a), (b), (c)) ，  
20 4 ((a), (b), (c)) ，  
21 5 ((a), (b)) ，

22	5		((a), (b)),	
23	5		((a), (b)),	
24	6		((a), (b)),	
25	6		((a), (b), (c)),	
26	6		,	
27	7		,	
28	8		,	
29	9		,	
30	10		,	
31	11		,	
32	12		,	
33	12	,	1	,
34	12	,	2	,
35	12	,	2	.

( )

1a, 1b, 1c, 1d, 1f, 1g, 1h, 1j, 1k, 1m, 1n

2

2x ( )

2y

3 ( )

4

4a 1

4b 2

5 ( )

5a 1

5b 2

6

7

8



QFN , ( ) , , (cavity)( ) , , (上型) (下型) , 가 . , 가 , 가 , 가 (薄膜狀) (resin burr) . , QFN , 가 ( , ) , 가 11-27419 5 .

QFN LSI 가(多 ) ) , 가 . 가 , , 가 , (zigzag) , 가 , 가 .

(1) , , 가 , 1 1 2 2 가 2 1 , ,

1 2 , .

(2)

, .

1 1 2 , 1 1 2 , 가 2 ,  
1 1 (mating surface) 1 1 2 가 1  
(型) ,

1 2 1 2 가 (成形型) , 2 가  
2 (型) 가 (成形型) ,  
1 2 ,

1 2 ,

1 2 1 2 1 2  
, 1 2 2 , 1 2 1 2  
.

( )

, 가 , .

( 1)

1 , SON(Small Out-line Non-Leaded Package)  
.

1 1 ( ) ,

2 1 ( ) ( ),

3 1 ( ) ,

4 3 ,

5 1 ((a) 3 A-A , (b) 3 B  
-B ),

6 5(a) .

1 5 , (1a) 1 (2) , (4)  
(2), 1 2 , (7) , (8) 가 (8) .  
(4) (7) (8)

(2) 3 5 , (2) , , ,

(Cu) , ( ) 가 (Al)  
.

(2) ( ) (2x) (2y) 가 , (2) (2x) DRAM(Dynamic Random Access Memory) 가 .

(2) (2x) (2a) (2) (2a) (2) (2x) 2 (2a) (2) (2) , (2) (2a) (2a) .

(8) 1, 2 5 , (8) (8x) ( ) (8y) 가 , (8) (2) .

(8) (8) , 가 (8) .

(8) , 가 .

1 (4) 3 5 (2) 2 (2) (2) (8) (4) (2) (8a, 8b) (8b) (2) , (2) (8) (8a) .

1 (4) (2) (2x) (8a) 2 (4) (2) (2x) (8b) , 1 2 (3) (8) (8a, 8b) (2) (2x) , 1 2 (4) (8) ( ) ( ) ( ) .

(2) (2a) 1 2 (4) (7) (7) (2) (2a) (4) (7) (4) (7) (7) , (Au) (nail head) ( ) .

1 2 (4) 1 (4a) 2 (4b) (5) (5a) (4b) (8y) (4) (5b) 가 (2) , 1 (5a) (4b) (8) (5a) 가 1 (4a) ) 2 (5b) 가 2 (4b) .

(8) (8y) 2 (5) (8) 1 (8a) 1 2 (8) (8b) (8) (8a, 8b) 1 (5a) , 1 2 (5a) (8) (5a, 5b) (8) (5a) 2 (5b) , 1 2 (zigzag) .

1 (4)(4a, 4b) 6 (2) (2x) 1 (4m1) , (8) (8y) 2 (4m2) , 2 (4m2) (8) 3 (4m3) 가 .

1 2 (5a, 5b) 3 5 , (2) , 1 2  
(4a, 4b) 3 (4m3) .

5 6 , (5a, 5b)(5) (4a, 4b) (5)  
(4) 3 (4m3) , (5) (4) , (5)  
125 $\mu$ m ~ 150 $\mu$ m ,  
65 $\mu$ m ~ 75 $\mu$ m .

(5) , (8) (8y) , (1a)  
(5) ( (foot) , , ) (9) .

4 , (5a, 5b)(5) (5W) (4a, 4b)(4) 3 (4m3) (4W)  
(5a) 2 (5b) (5S) 1 (4a) 3 ( (4m3) 2 (4b) 3 (4m3) (4S) , (8) (8a, 8b)  
(L2) (8) (8a, 8b) 1 (5a) 200  
(L1) , (5W) 300 $\mu$ m , (4W) 200  
 $\mu$ m 0.8mm , (5S) 100 $\mu$ m , (4S) 300 $\mu$ m (L2)  
(L1) 0.1mm .

(1a) (8) (8y) (5) (8)  
(5) (4) ,  
(1a) , 7 9 .

7 ,

8 7 ,

9 ((a) 1 , (b) 2 )  
.

7 , (LF1) (10) (11) ( (LF1) , 1 2 (4a, 4b) (4) 1 2 8 9  
(11) (短邊) , (11) (離間) . 1 2 (4) (4)  
(11) (長邊) . 1 2 , (6)  
(12) (4) (3)가 ,  
(4) (11) (10) .  
(LF1) , 가 125 $\mu$ m ~ 150 $\mu$ m Cu, Cu Fe-Ni  
(4) (片面) . ,  
(5) , (65 $\mu$ m ~ 75 $\mu$ m) ( (65 $\mu$ m ~ 75 $\mu$ m) (4)가 , (125 $\mu$ m)  
~ 150 $\mu$ m) 가 (5)가 (4) 가 , 7 9 (4)  
(LF1) .  
(1a) 11 14 .  
11 (1a) , 1 ,



12 11 ,

13 (1a) , 2 ,

14 13 .

11 14 (20) (21) (22)  
 ) 가 , (pot), (cull) , (runner), (cavity)(23), (air vent)  
 가 (21) 1 1 (21a) , 1 (21a)  
 (23) , (23)  
 , (23) 가 , (22) , 1  
 2 1 1 2 (22a) 가  
 (23) (21) 1 (21a) (21) 2 . (2  
 3) ,

( ) (24)가 , (20) (21) (22) (LF1)  
 , , (23) 가 (LF1)  
 가 (24)  
 (stand-off) . (20)  
 ( ) (4) (5) (24) 가 (20)  
 ) 가 (가 (可撓性) )(24) .

10 14 .

10 (1a) ((a) , (b)  
 ) .

1) , 7 9 (LF1) , 10(a) , (LF  
 (2) (2x) (4) (LF1) (2) , (3)  
 (2) (4m1)) .

10(b) , (2) (2x) (2a) (4)  
 (7) . (7) (2) (2a)  
 (4) (6) .

11 14 (20) , , (20)  
 (21) (22) (LF1) .

(LF1) (LF1) (22) (24)가  
 .

1) (LF1) (23) , (2), (7)  
 .

1) (LF1) (4a, 4b)(4) (21) 1 (21a) (22) 2  
 (22a) (24) (5a, 5b)(5) , (4a, 4b)(4) (22) 2  
 .

1) (LF1) , (20)  
 (23) 가 (8)  
 (2), (4), (7) (8)  
 , (8) (8y) (5)가 (8) (8y)  
 (5)가 가 .

1) (LF1) (24) (20) (LF1) , ,  
 (8) (cure) (12) , (10)

(4) (1a)가 .

(24) (21) (21a) (22) (24) (LF1) (20) (22)

(4) (4) (22a) (4) (5) (22)

(4) (4) (5)가 (20)(21) (21) (22)) (押) (

24) (8) (20) (20) (LF1) (23) (24)

(5) 가 (8) (8y) .

(20) (LF1) (LF1)

(4) (先) . (5)(5a)가 (4)(4a)

(5) (5a) (4) 가 (5)(5b)가 (4)(4b)

(5)가 (24) 가 . (4b) (5b) (4a)

(5a) (24) (24) (20) (5b)가 (5a)

(5b) (24) . (5b)가

(4) (2) (2x)

(4) (20) (24) (5b) (24) (5b) (LF1)

(5b)가 (20) (5b) (24) (1a)

( 2)

15 2 ((a) 1 , (b) 2 ),

16 2 , 1 ,

17 2 , 2 .

15 , 2 (1b) 1

, 1 (1a) (2) (2y) (8) (8) (8x)

, 2 (1b) (2) (2y) (8) (2y) (8)

(2) (2y) (8)

16 17 , (2) (2y) (2y)

(23)

, 가 .

(4) (2) (2x) , (2) (2y) (20)

(23) (LF1) (4) ,

(5b)가 .

( 3)

18 3 ((a) 1 , (b) 2 )

18 , 3 (1c) 1  
 , ,  
 , 1 (1a) (2) (2x) (8) (8y)  
 , (2) (2y) (8) (8y)  
 , 3 (1b) (2) (2y) (8) (8y)  
 , (2) (2y) (8) (8y)  
 . (1c) , 1 .  
 ( 4)  
 4 2 1 .  
 19 20 ((a), (b), (c)) .  
 (1d) 20(d) , 2 (2) 가  
 , 2 (2) 가 , 2 .  
 (2) (1d) 가 2 가 .  
 (2)( , ) 2  
 (4)가 , (4)가 .  
 (4) (3) (2) (4)가  
 , (8) (8a) (2) , (8) (8b)  
 (3) .  
 (2)( , ) 2  
 (4)가 , (4)가 .  
 (4) (3) (2) (4)가  
 , (8) (8a) (2) , (8) (8b)  
 (3) .  
 (8) (5)가 . 1 가 (8)  
 (5)가 (5) (8) 1 가 .  
 , 2 (1d) (1d) .  
 (4) 1 (4) 1 (4) 2  
 가 , (4) 4 1 가 (8)  
 , ( ) (2) 2 , 1 (8)  
 3 , 3 (2) 4 , 4 (8)  
 5 가 . (5) 1 가 , 3  
 .  
 (4) 5 , (4) 5 .  
 , (1d) , 19 20 .  
 , 가 2 , (2)  
 . (2) (4) 19(a) , (3)  
 , 19(b) , (2) (4)  
 (7) (4) (2) (7) 가

, 19(c) 20(a) (2)  
 (2)  
 (4) 5 (4) 5  
 (4)  
 7) , 20(b) , 2 (2), (8) 1 (4) (8)  
 (8)  
 (5)가 가  
 , (8) (5) (9) , 20(c) (8) (4)  
 , 2 (1d)가  
 , (1d) 1 (8) 2 (2)  
 , 가  
 , (1d) (8) (8) (5)가  
 , 2 (1d) , 가  
 ( 5)  
 5 2 (through molding)  
 21 23 5 ((a), (b))  
 , 가 2 , , 4 (2)  
 , 21(a)  
 (2)  
 2 , 21(b) , 2 (30) (31) ,  
 (30) (31) (32) (24) 2 , 2  
 (33) (30)  
 (34)가 (34) (33)  
 (33) (35)( 22(a) )  
 , 22(a) (30) , (34) (33) 가 (7)  
 , 2 (8)  
 , 22(b) , (30) 2 , ,  
 (4) 5 (4) 5  
 (4)  
 , 23(a) , (8) (5) (9)  
 , (8) , 2 , 23(b)  
 (1e)가  
 , 4

( 6)

6 2

24 25

((a), (b), (c)),

26

6 (1g) (8) 가 (1g) ,  
(8) , 1 (1g) ,

(1g) , 24 25

가 2 , 4 (2)  
(2) , 24(a) ,

(4) 5

24(b) , 2 (40) (41) 2 , 2  
(40) (41) (42) (24) 2 , 2  
(43) (40)

(40) , (44) (43) 가 (7)  
, 25(a) , 2 (2), (4)

(40) 2 (8) (5) (9) , 25(b) , 2 (8)  
(8) , 25(c) (1g)가

4

( 7)

27

27 (1h) 6

6 (1h) (8) (5)가  
(5)가 (1h) 2  
(4) (5) 가 1  
(1h)

( 8)

28

(1j) 1 (2) 1 (8)  
(1j) 1  
(1j) 1

( 9)

29

, 2 (1k) 2 (2, 50) 가 (8) (4)  
 , 1 (8) , (50) 5  
 , (51) (51) (4) 가

( 10)

30

30 , (1m) 9  
 , (50) (50) (2) 가 (51)

( 11)

31

31 , (1n) 9  
 , (50) (51) , 가 (52)

( 12)

32

33

34 35

( ) 2 (1g) (53) (53) (9)  
 (1g) (8) (5)가 (53) (54) (1g)  
 (8) (5) (9) (5)가 (9)

2 (1g) . 2 (1g) 2

1 :

33 , 2 (1g) (53) , , (9)  
 (9) (1g) (9), (1g)

2 :

34 (1g) , (1g) (1g) , , 35 (1g) , (9)  
 (1g) (1g) (9) , (1g) (9)

, (1g) , 2 (8) (1g) (5)가  
 , 2 (1g) (1h) 28 , 2 (1j)  
 , 가 가 ,  
 , 가

(57)

**1.**  
(主面)

, 가 1 1 , 1 2 2 , 가 2 1  
 , 1 2 ,  
 1 2 ,

**2.**  
1 ,

1 2 , ,

**3.**  
1 ,

1 2 , (外周邊) 가 (延在) ,  
 1 2 , 1 2

**4.**  
1 ,

1 2 , (折曲) 2 , 2 1 , 1  
 3 가 ,  
 1 2 , 1 2 3

5.  
4 ,  
1 2 1 ,

6.  
1 ,  
7.  
1 ,  
(裏面) ,

8.  
1 ,

9.  
4 ,  
1 2 , 1 2 3

10.  
4 ,  
1 2 , 1 2 3

11.  
1 ,  
1 2 , 1 2

12.  
1 ,  
1 2 ,

13.  
1 ,

14.  
1 ,



2

15.

1

(長邊)

16.

1

1 2

17.

1 (邊)

1 (群)

1 2 2

1 2 가

1 1 2 가 1 1 2 2 가 2

18.

17

1 1 2 1

2 1 2 1 2

19.

17

1 2 2 1 1 3

가

1 2 1 2 3

20.

1 2 1 1 2

가 1, 1 (mating surface) 1 2 가 (cavity) 1 2 (型) , 1 2 (型) 가 (成形型) , 1 2

$$1 \quad 2 \quad ,$$

1 2 1 2 (resin sheet) 1 2  
, 1 2 2 , , 1 2  
.

20                      **21.**                      ,

$$\begin{matrix} 1 & 2 & \\ & & , \\ & & . \end{matrix}$$

20                      **22.**                      ,

1 2 , 가 (延在) ,  
1 2 , 1 2 .

20 **23.** ,

1 2 , 1 2 3  
가 ,  
1 2 , 1 2 3

23                      24.

$$1 \quad 2 \quad 1 \quad ,$$

20 25. ,

20 26. ,

,

20 27. ,

23 28.  
1 2 1 2 3

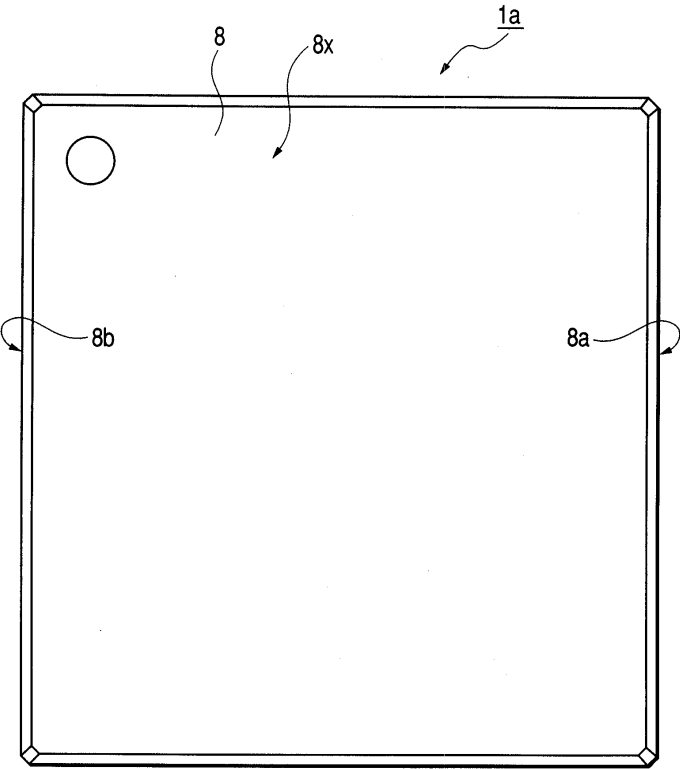
20 29.  
1 2 1 2

20 30.  
1 2

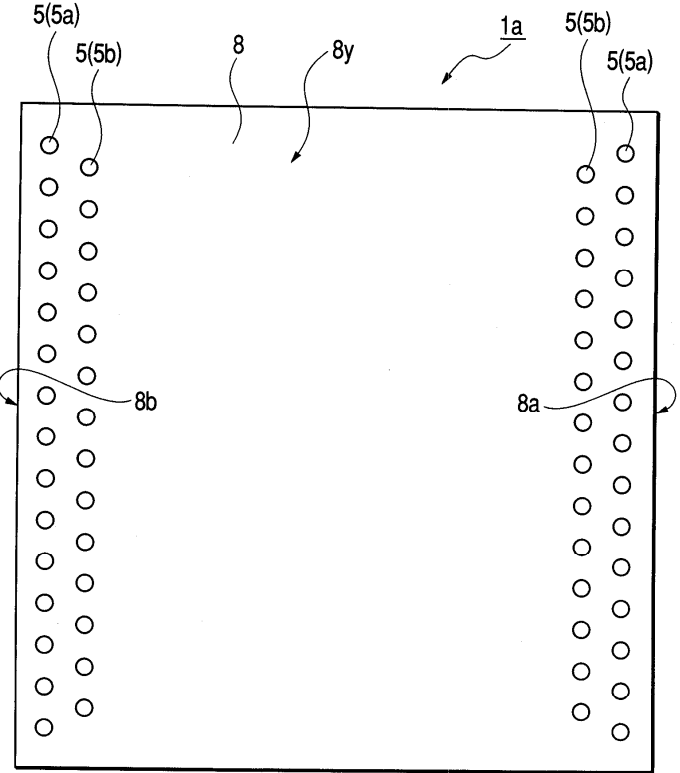
20 31.  
2

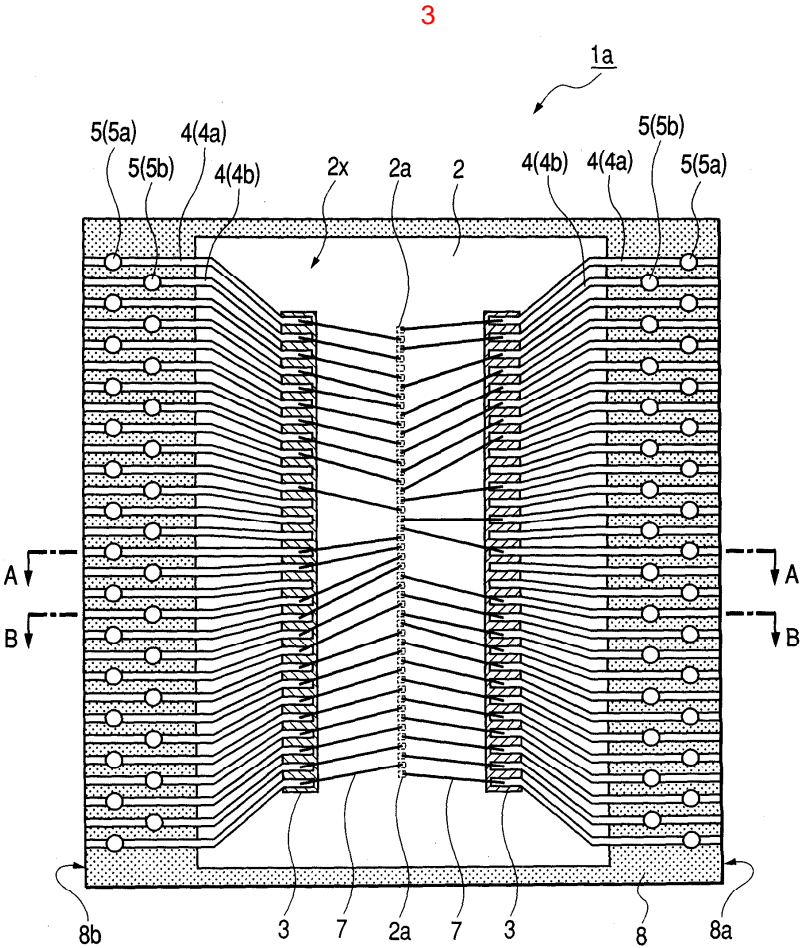
20 32.  
1 2

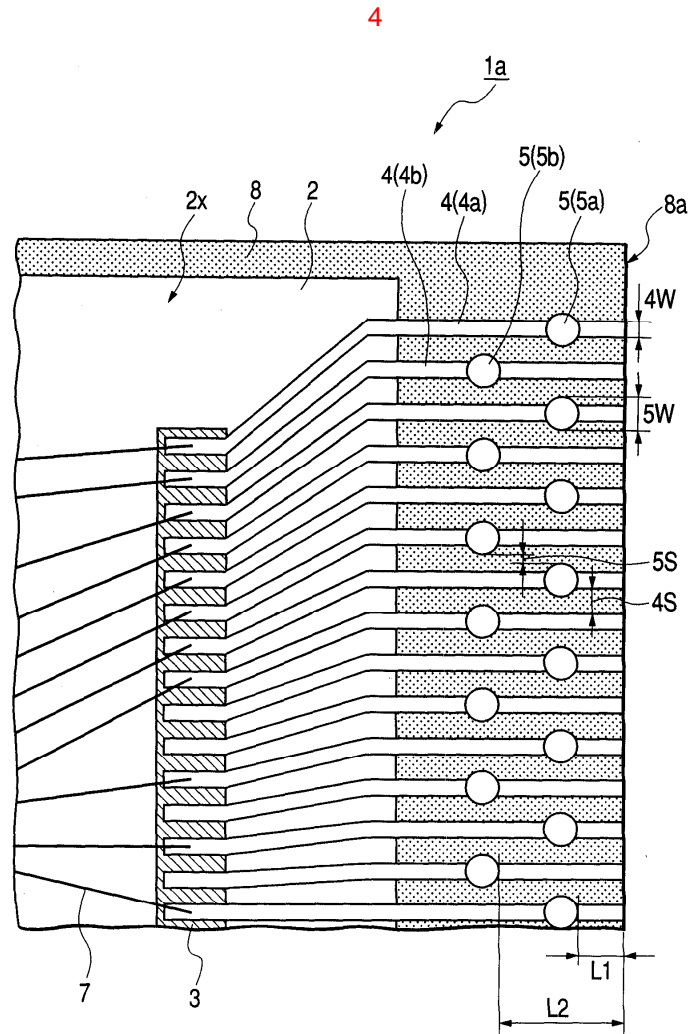
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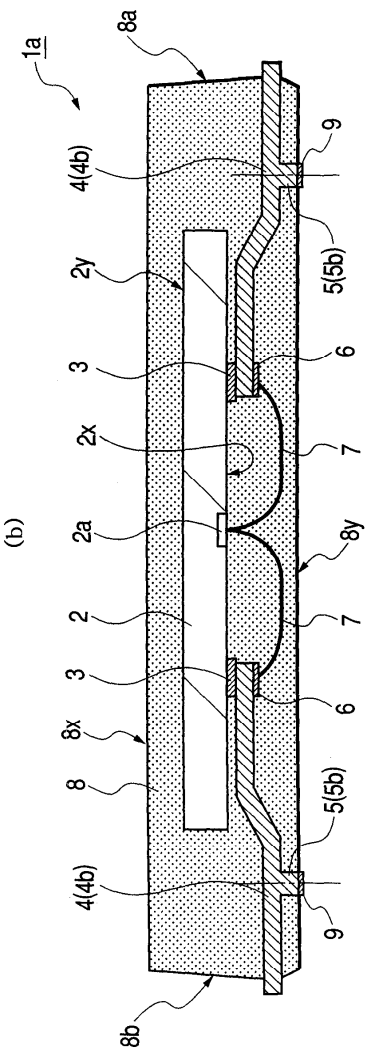
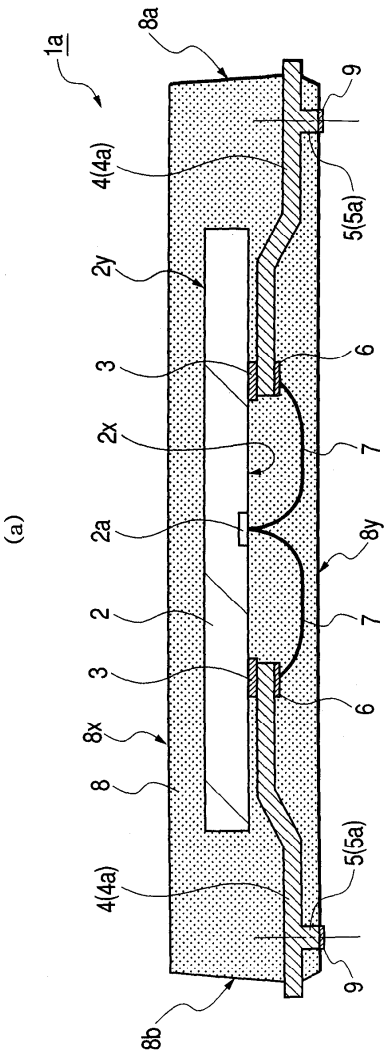
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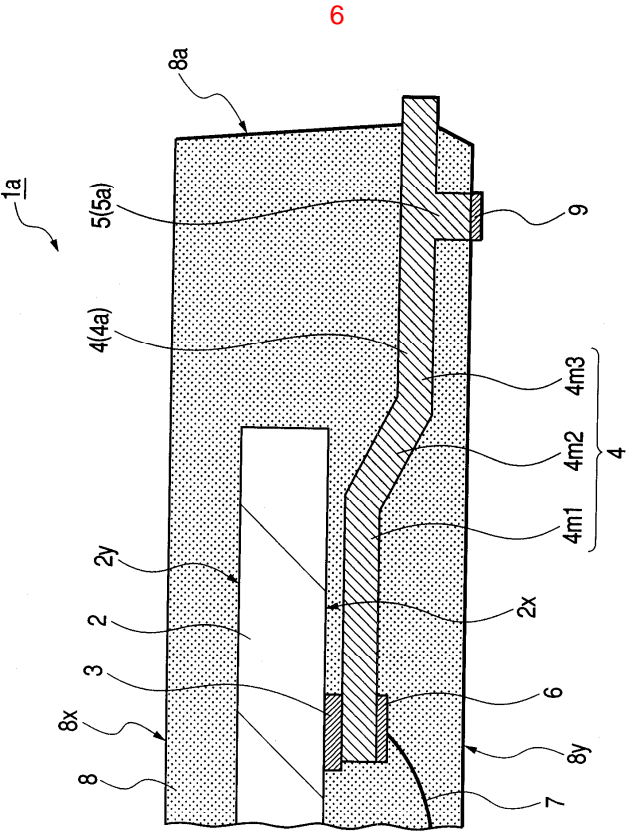




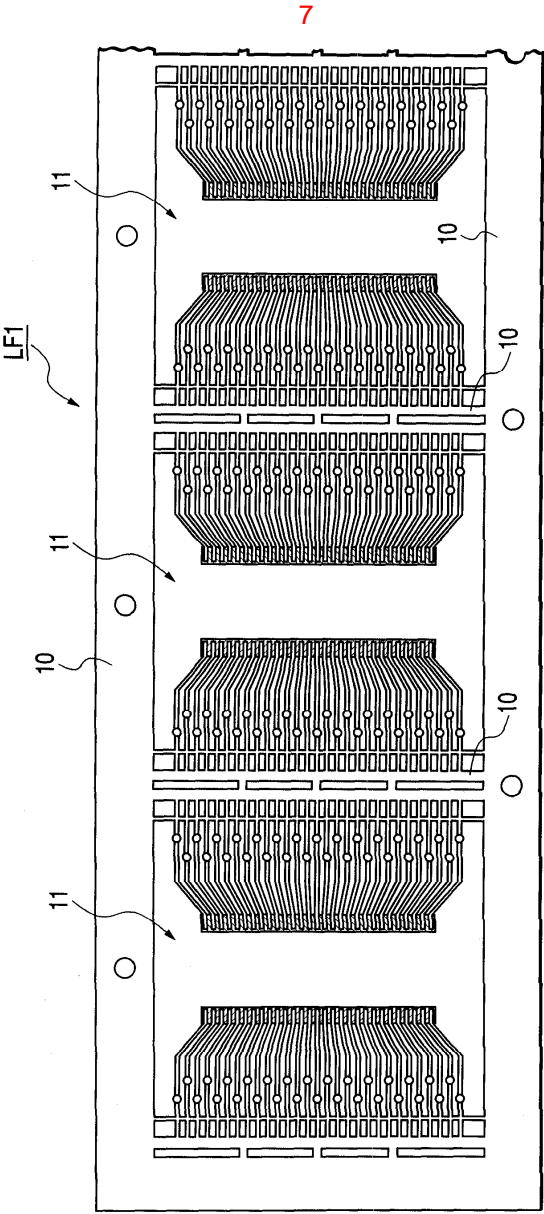


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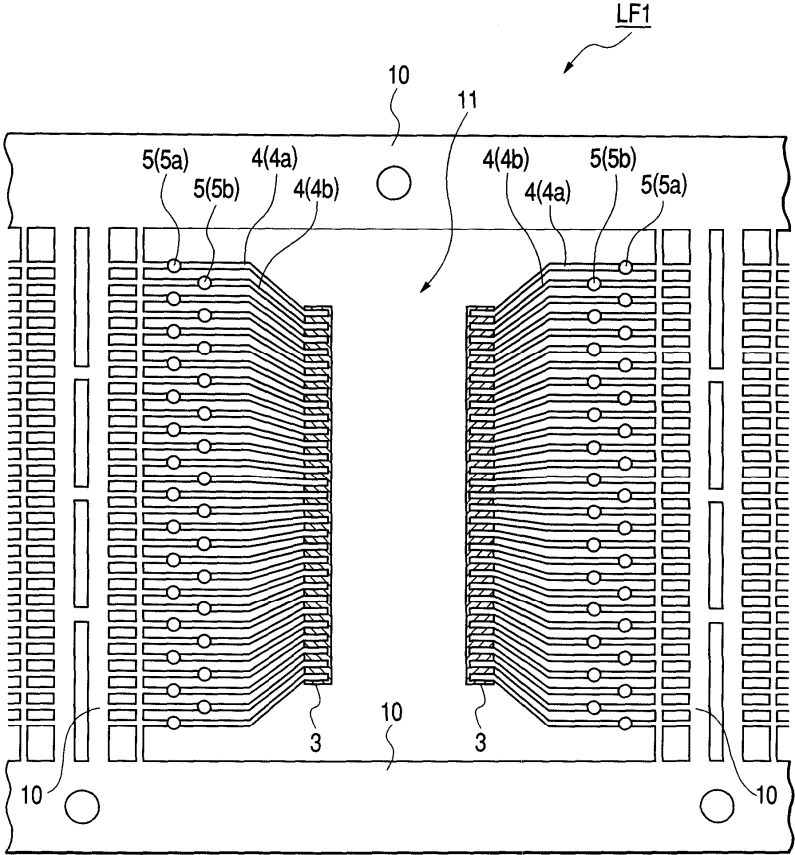


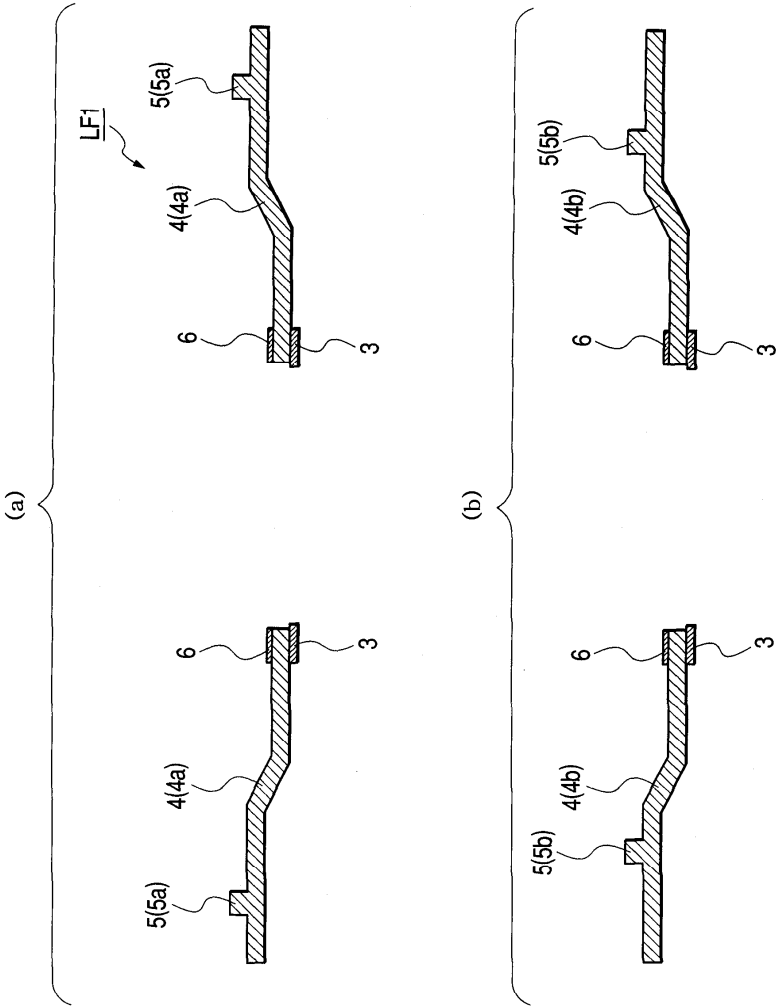




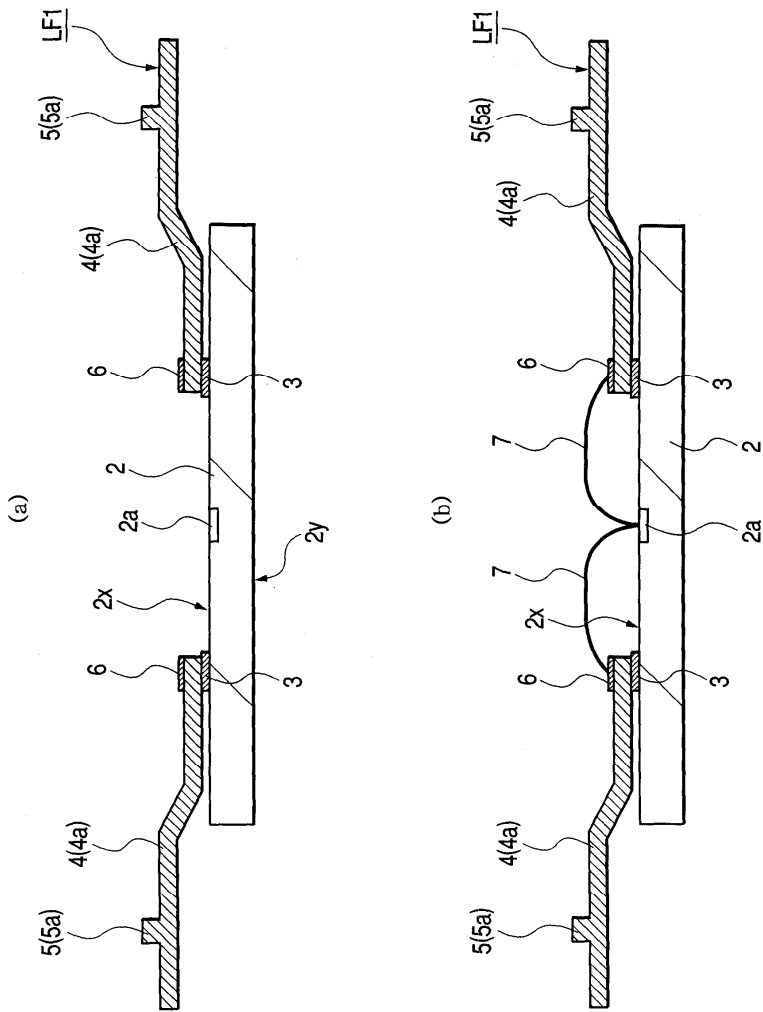


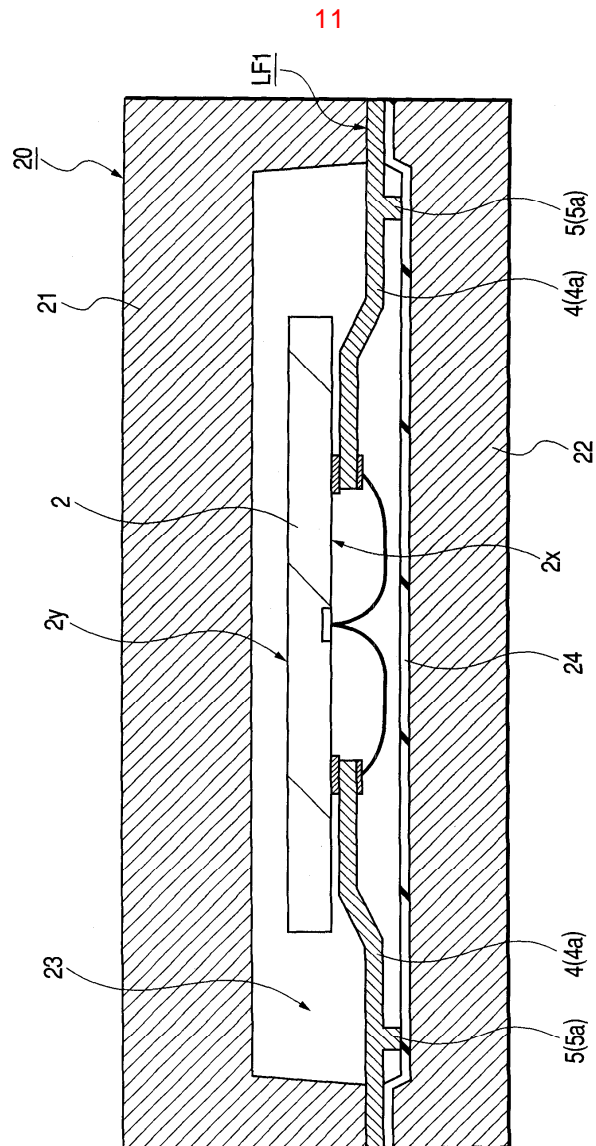
8



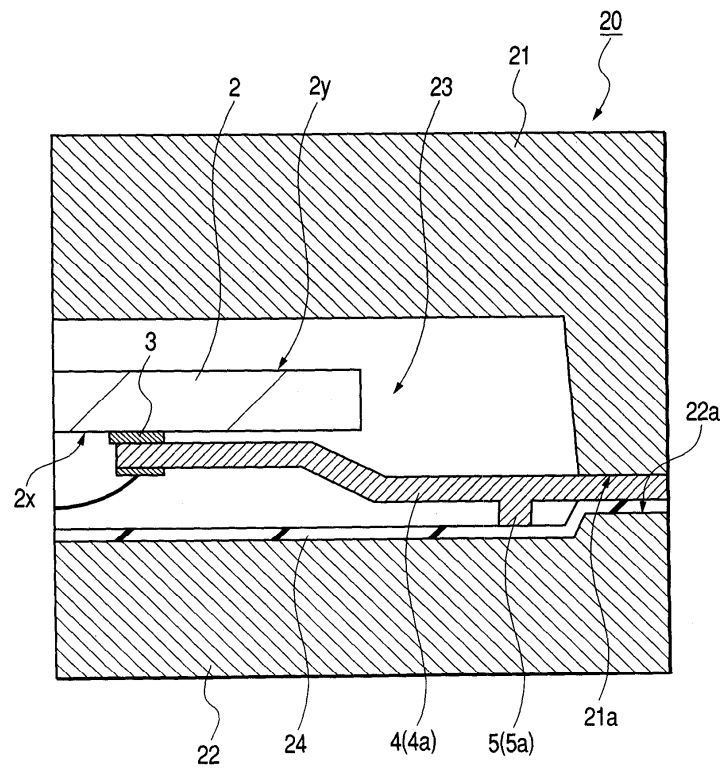


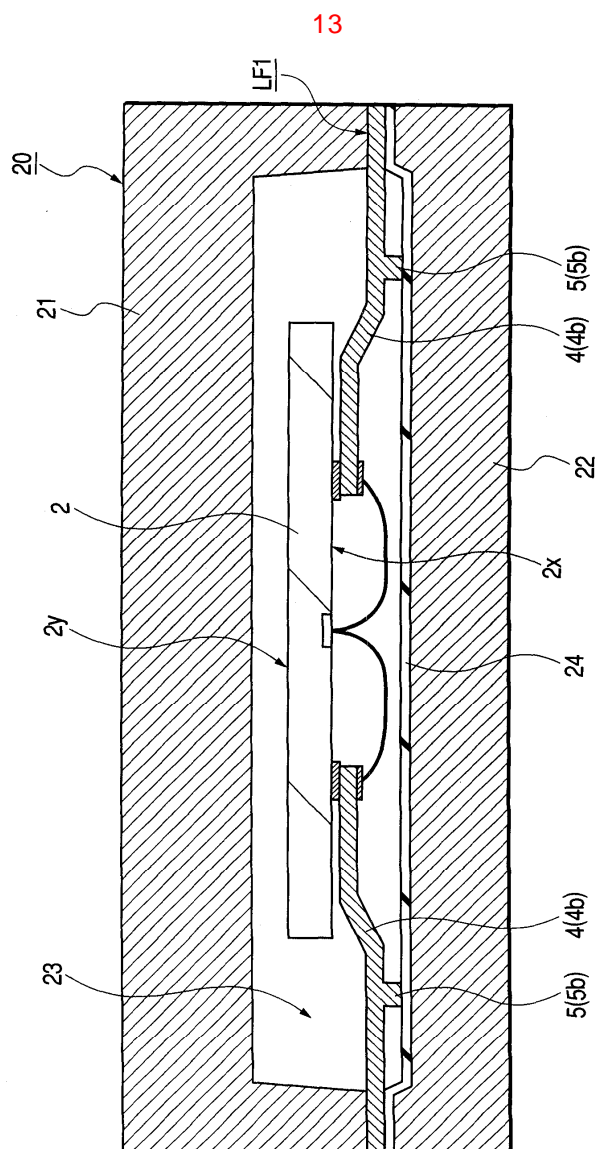
10



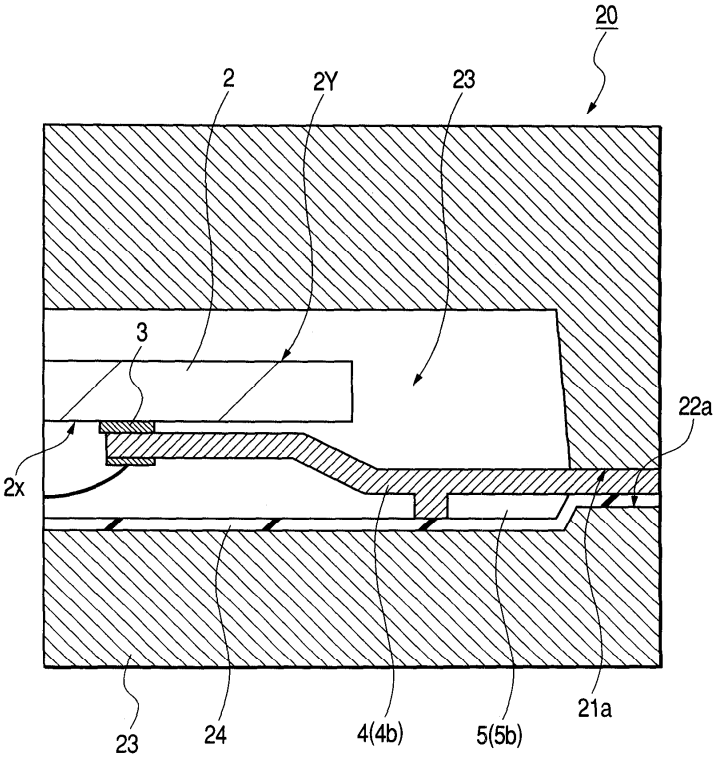


12



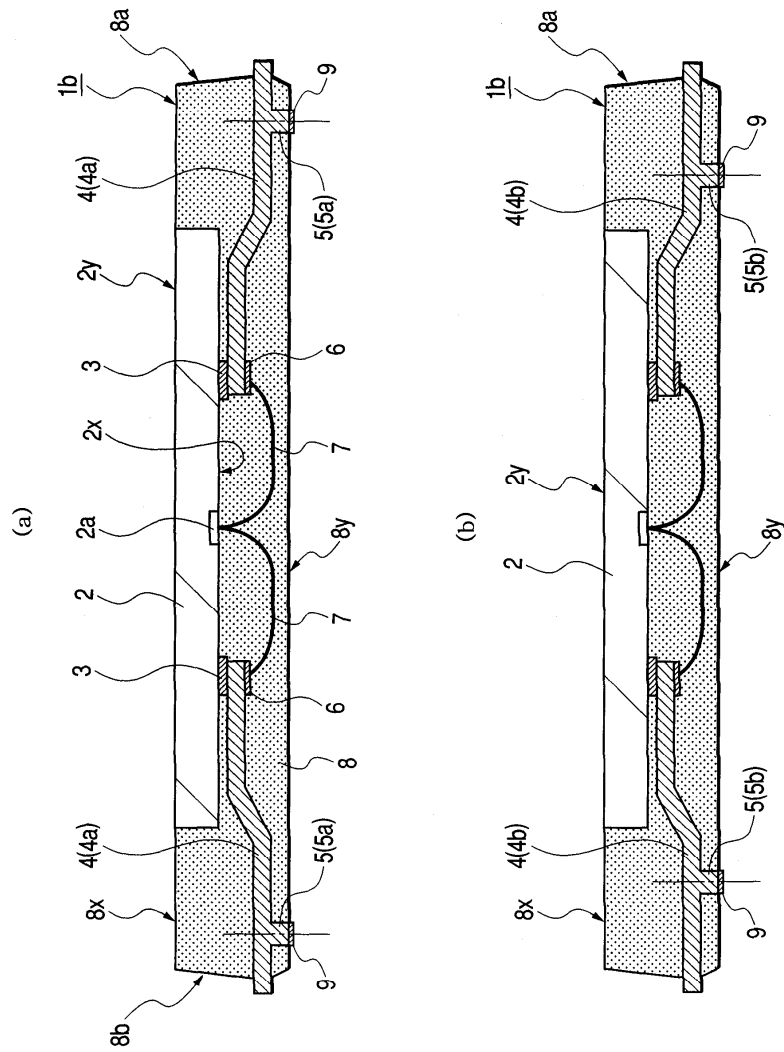


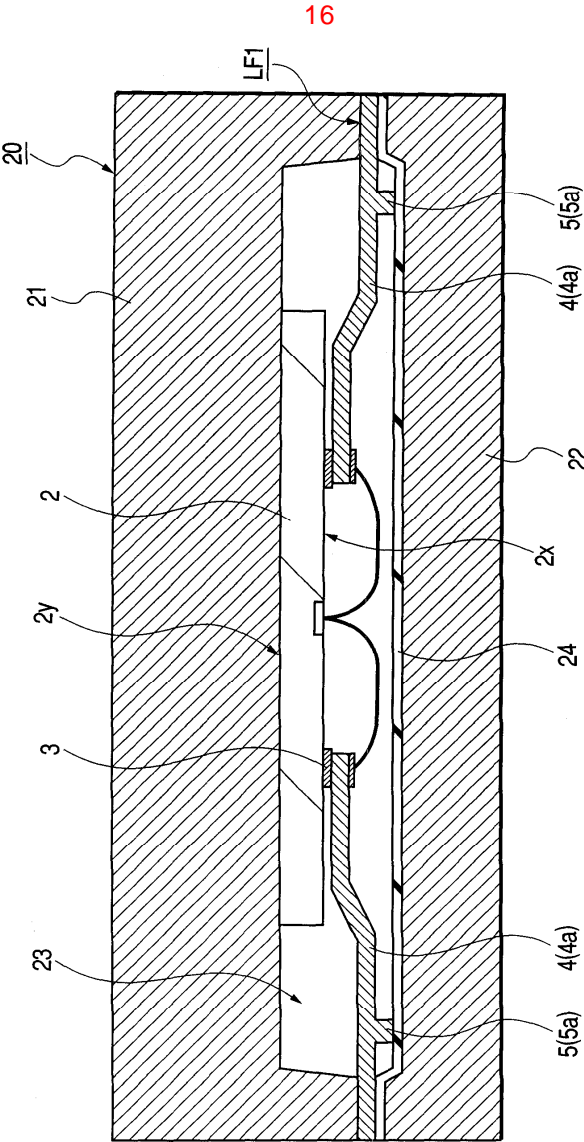
14

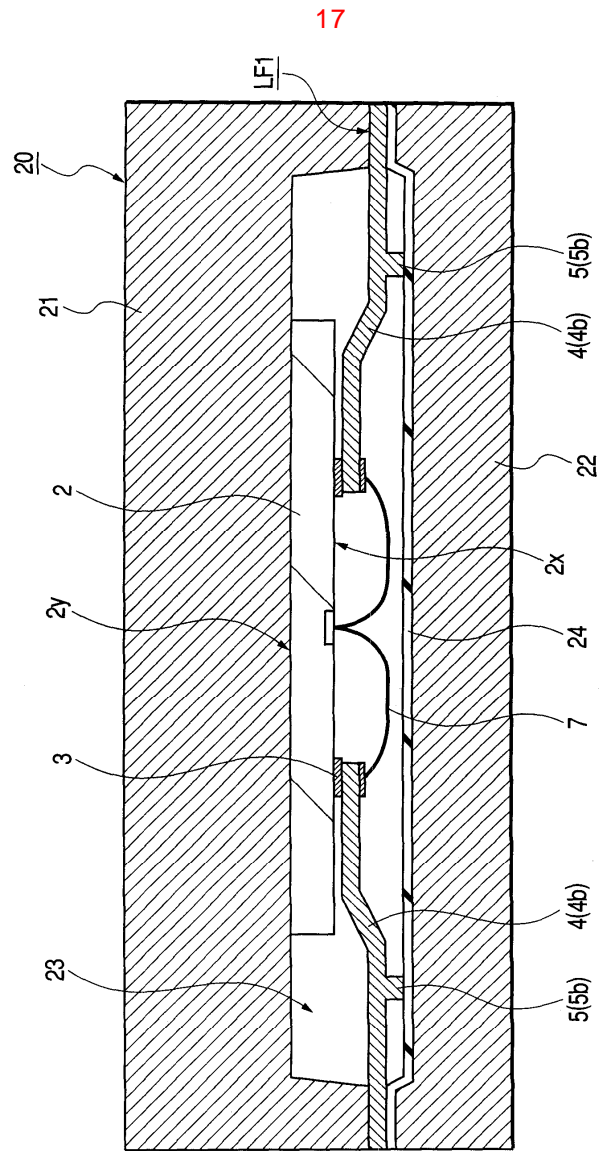


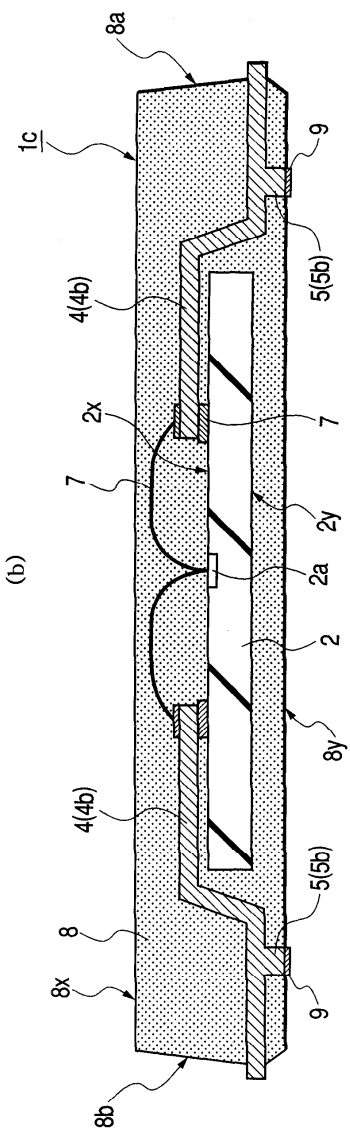
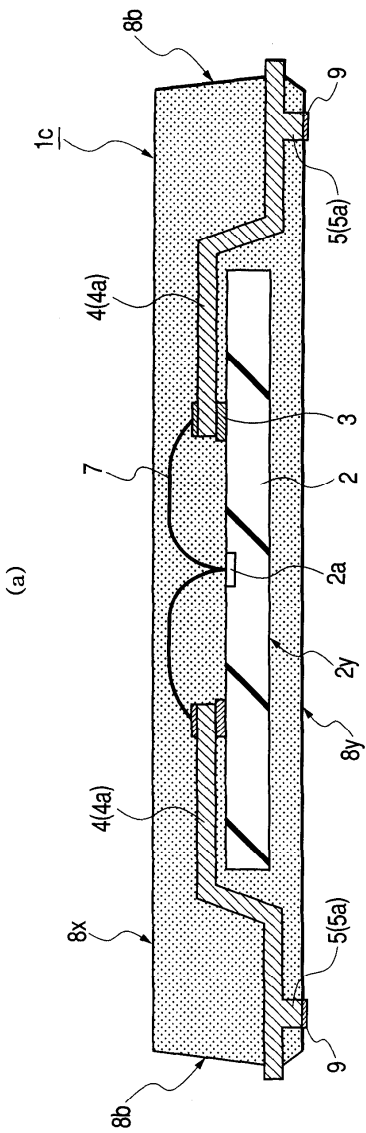


15



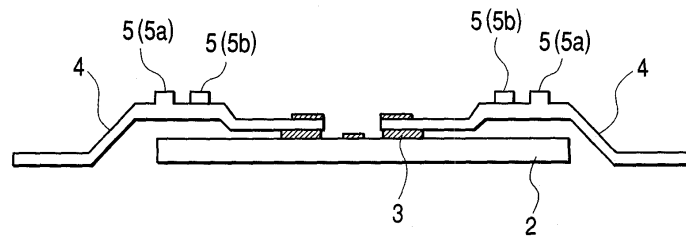




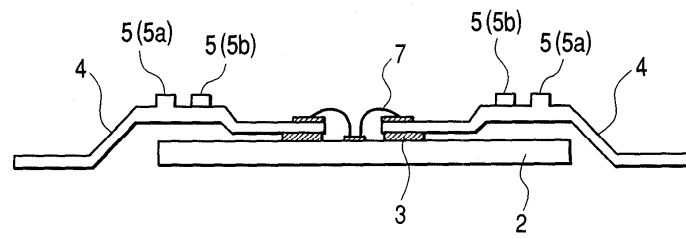


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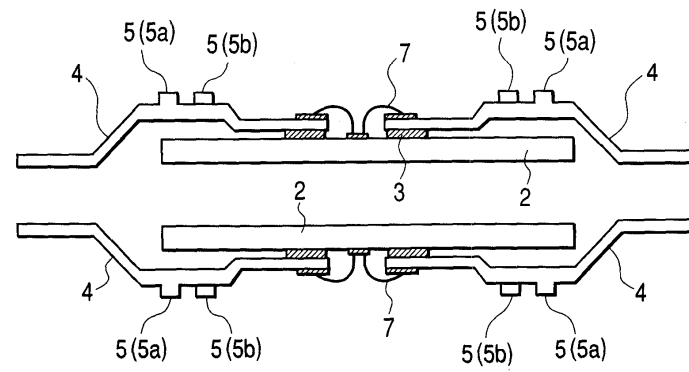
(a)



(b)



(c)



20

