

(19) (KR)
(12) (B1)

(51) . Int. Cl. 7 (45) 2002 09 27
H01L 21/60 (11) 10 - 0353606
H01L 23/48 (24) 2002 09 09

(21) 10 - 2000 - 0051925 (65) 2001 - 0076188
(22) 2000 09 04 (43) 2001 08 11

(30) 2000 - 009208 2000 01 18 (JP)

(72) 2 2 3 가 가

(74)

(54)

, 1 (9) (12) 1 (9) , (15)
 , 2 (12) 1 (9) ,
 가 . , 1 (9) (12) (12) (14)
 , 1 (9) 2 (12) , 2 (12)

2

1 1 FCBGA ,
2 3 1 FCBGA
,

4 1 FCBGA ,
5 4 ,
6 2 FCBGA ,
7 8 3 FCBGA ,
9 FCBGA ,
10 FCBGA ,
11 FCBGA ,
12 13 FCBGA
14 FCBGA

9 10 . , FCBGA(Flip Chip Ball Grid Array)
 , , , , , FCBGA
 ↗ (100) , , BGA(Ball Grid Array) (101) , BGA (101)
 (105)(solder bump) (102) . BGA (101)
 , (106)(solder ball)
 BGA (101) (102) ,
 (104)(encapsulation material)↗ (102) (102) , (102)
 (108) , (102) (107) , (102) (heat spreader)↗
 (107) , (103) , . BGA (101)
 (103) , , (102)

$$, \quad 9 \quad , \quad , \quad , \quad (107) \\ , \quad 9 \quad 10 \quad , \quad , \quad , \quad , \quad (105) \quad (106)$$

2 , (9)(, 『 1 (9) 』) , (12) , 1 (9)
, (106) , (102) (102c)
, (15) 』 , (17) . 『
(15) 』 , (12) が , 1 (9)
(12) が , , (15) . 15)

(12) 5 . , (15) 가 800 μ m
 102) (102c) (8) 2.1mm . .

(17) (9)(, 「 3 (9)」) (17) (15) , . (106)

$$1 \quad (9) \quad , \quad 4 \quad . \quad 2 \quad 4 \quad , \quad 1 \quad (9)$$

$$(12) \quad \text{가} \quad (12, \quad 14) \quad , \quad 1 \quad (9) \quad , \quad (9)$$

$$(12) \quad , \quad (14) \quad . \quad , \quad 1 \quad , \quad (14)$$

$$(11) \quad . \quad , \quad 1$$

$$1 \quad (16a) \quad , \quad (17) \quad (15) \quad , \quad 2 \quad (9) \quad (106)$$

1 (9) 1 (9), (15)
 , 3 (9), , 3 (9), (106) 3 (12)

, 1 (9) (15), , 2 (9) (15) 가
 (12) , , , , , (101) 가 가 .
 , 1 (9) 2 (9) , , , , ,

, 3 (9), 13, , 3 (12), 3 (9) (12b), 1 (9).

, 1 3 3 (9) , 가
9) 3 (9) 2 , 가 .

, , , (15) 가 800 μ m (8)
 가 , (8) (15) , , , (16a)
 가 , (102) , , , (105a) ,
 (102) . , , , 가 .

(2).

6 , FCBGA , (18)
 (18) , (27) , (13) , (14)

$$, \quad , \quad (13) \quad , \quad , \quad (14)$$

(3).

(16) 가 (12), 7
,
(16)
(16)가,
(16)
(12) 가 가 가
1

, (16)가 , (165)가 , (16) , (16) , (165)

$$, \quad 8 \quad , \quad (16) \quad , \quad (27)$$

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

(57)

1.

(101) ,
 (106)

(101)

(102) ,

(101)

(101) ,

(15)

(8) ,

(8)

,

(8)

,

(102)

16a) ,

(

(16a)

(106)

(12)

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(12)

(17)

,

(9) ,

(12)

(14)

(11)

,

(9) , 1
 , 2

(11)

1 1 (102) (102c) (1) 1
 2) , 1 (15) (12) (12) , , ,
 , , , (17) (12) , , ,
 (17) , , , (15) (106) , , ,
 , , , (106) , , ,

2 (102) (102c) (1) 2
 2) , (12) (106) , , ,
 (15) (17) , , , (15) , , ,
 , , , (106) , , ,

1 , (12)

2.

1 ,

(14) (18) (17) (18) , (14)

3.

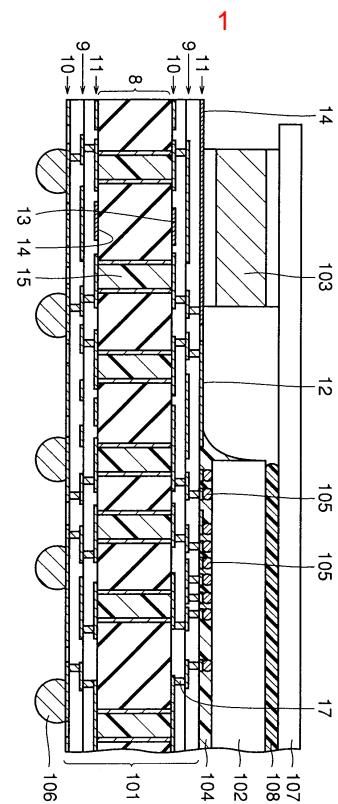
(101) , (101) (102) , (101)
 (106) ,

(101) , (15) (8) ,
 (8) ,

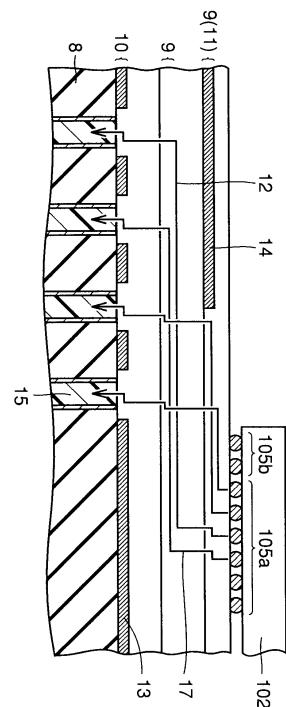
(8) , (102) (102)
 16a) , (16a) (106) (12)

, (12) , (17) , ,

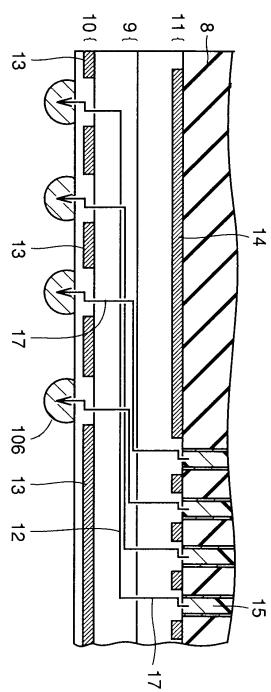
27) (16, 27) 가, , , (16,
 가 , ,



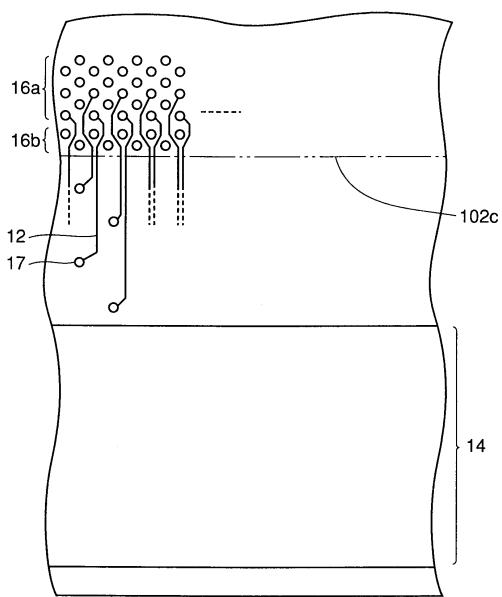
2



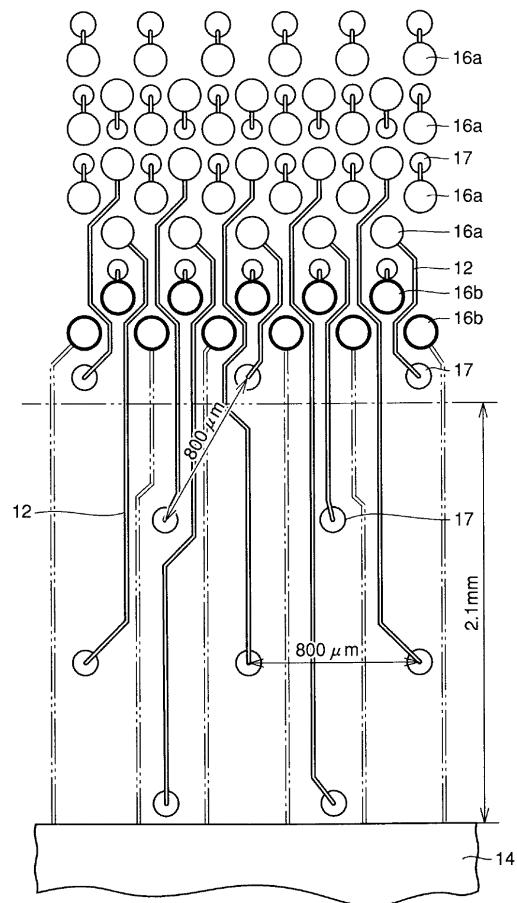
3



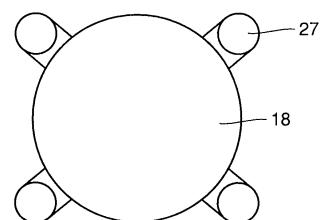
4



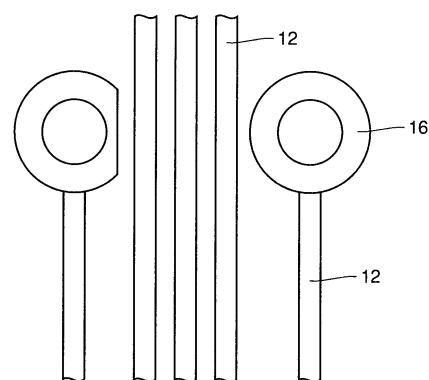
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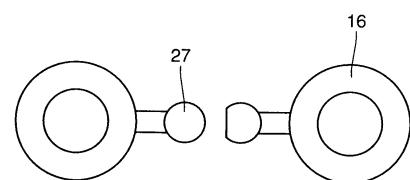
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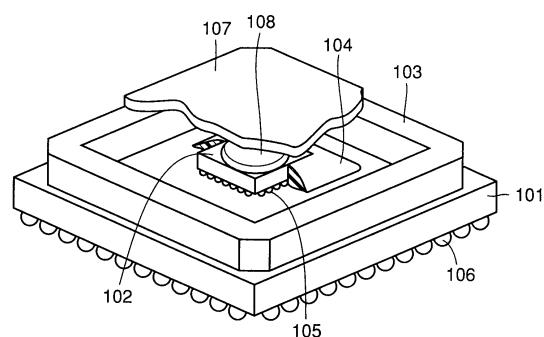
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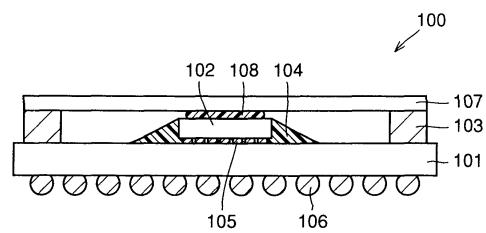
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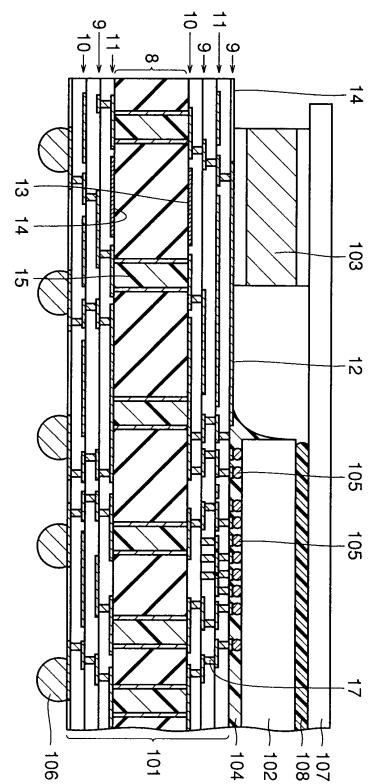
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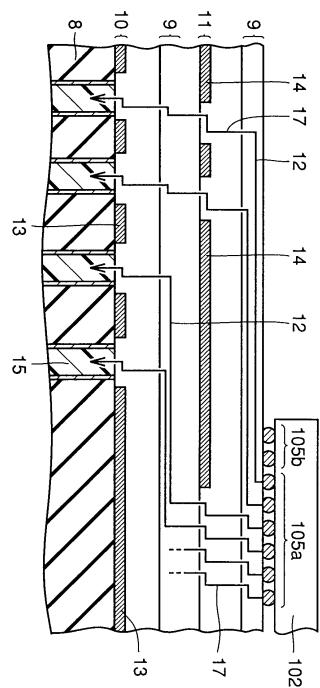
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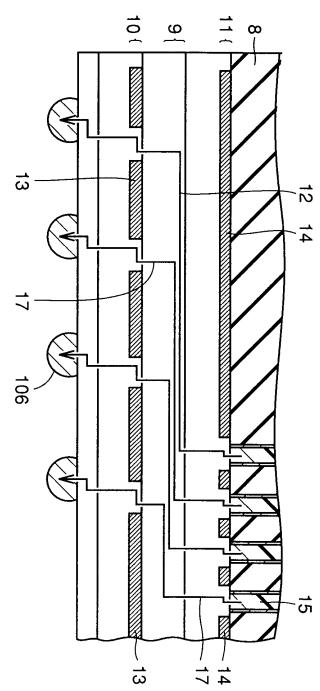
11



12



13



14

