(51) Int. Cl. ^{7}

H01L 23/48

(11)   2003- 0008450

(43)   2003 01 29

(21)   10- 2001- 0043100
(22)   2001 07 18

(71)

3   416

(72)

101   304

(74)

:

(54)

(flexible)   ,   ,

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,

,

,   (hole)

,   ,   (group)   ,

,   .

,   ,

,   .

2

, , BGA, CSP

1   ,

2   ,

3   ,

4a   ,

4b   ,

5   ,   (hole)   .

*   *

10, 110:   11:

12:              20, 200:

30:      (solder) 31, 131:

32:            (bonding wire)

40a: 40b:

50:        51:   (heater block)

60, 160:   60a:

60b: 63:

70a, 70b, 70c: (via hole)

80a, 180a: (solder bump) 80b: (solder ball)

81:          (solder filet) 82:   (hole)

83a, 83c: 83b :

(flexible)

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,   ,   ,

.   ,

(solder bump)   ,   .

1   (11,12; substrate)

(31)   (10)   .   1   (100)   (3

1),   (60a,60b),   (31)   (60a,60b)   (32; bonding wir

e)   (31)   (11, 12)   (10)   (11, 12)   (6

0a)   (60b)   (70a; via hole)   (80a)   (11, 12)

(20)   .   (11, 12)   (60a, 60b)

(70a)   ,   (11)   (60b)   (12)   (60a)   (

80a)   (10)   .   (11, 12)   (6

0a, 60b),   (63)   (60a, 60b)   (70a)   .

(10)   2   3

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(CSP; chip scale package)   ,

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2   .
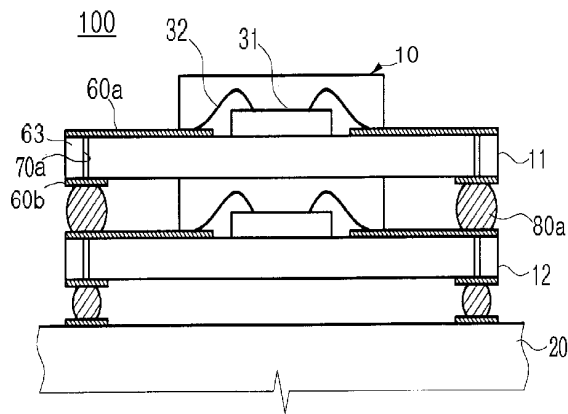
2   ,   ,   (200)   ,   (180a)
(110)   .   (110)   (131)
(200)   (160)   (CSP)   .
(110)   (60)   ,   (50)   (flexible)
(polyimide)   (40b)   .   (40b)
(180a)   (110)   (40b)   (83b)
.   (110)   ,   (A, B)
(40b)   (83a)   (200)   (30)
.

(110)   (40a)   ,
(110)   .   (110)   (40a)
,   (A, B)   (83c)
(20)   .   (30)   (200)   (40b)
(83a)   (80b)   (40a)   (83c)
3   (A, B)   .

,   3
,

.

(180a)   (110)   (40)   (83b)
3   ,   (180a)   (64)
(83b)   ,   (83b)   (18
0a)   (70b; via hole)   .   (110)   (
40b)   (50)   ,   (40b)   (83b)   (110)
(180a)   (180a)   (83b)   .

,   2   A   B   (200)

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(40a, 40b)   (110)   (40a, 40b)
,   (60)   .   (40a, 40b)   (83a, 83c)
(30)   (80b)   (200)   ,   (40b)   (83a)
(40a)   (83c)   .   (200)   (40a,
40b)   (83a, 83c)   ,   (40a, 40b)   (50)
(64)   (83a, 83c)   (70c)   .   ,   5
(40a, 40b)   (110)   (60)
(82)   .

(110)   (40a, 40b)   (83a, 83c)
2   4a   ,   (200)   (30)
(40a, 40b)   (heater block; 51)   ,   (40b)   (f
lux)   (80b)   ,   (40a)
.

,   4b   (200)   (solder filet; 81)   (80b)
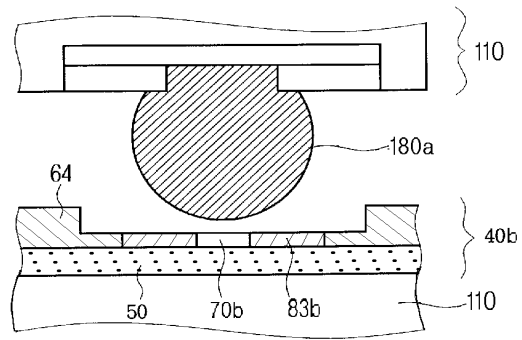,   .

,
(CSP)   ,
.

(57)

1.

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2.

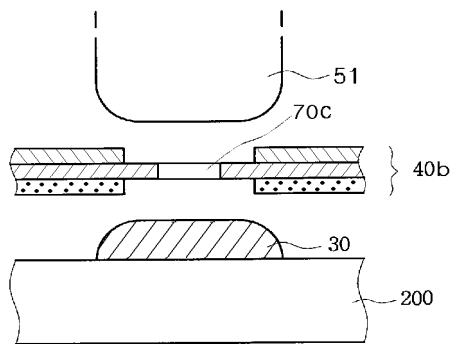1   ,   .

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4a

4b

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