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(12)

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(72) , 가

	,	5656	.	6
	, , .			
	,	5656	.	6

(74)

(54)

(72) (69) (4 - 8) (28)
(1) , (2)
(10) . (28)
(102), (102) (1) (11)
(120) , (120)
가 .

1

, (organiser)
 .
 , (polymer light emitting diode)
 (field emission display) 가 (array)
 (TFT) 가
 (5,130,829)
 , , (piezoelectric buzzer)
 ()
 가 가
 가 가
 , 가 가
 , 가
 , 가 가
 , 가
 (Vol.5, No.3 (Quanbo Zu)
 " ; 1996 12 ,
 (cantilever)
 (batch)
 " Vol.5, No.4 S. (Seung S. Lee)
 " ; EP - A - 0 979 992
 " (micromachining)"

가

(at a premium) ,

(packaging) 가

(miniaturisation)

1 ;

(cavity)

2 , 1

가 가

가

가

가

3 ;

(cavity)

4 3

(powderblasting)

(sacrificial layer)

(joint provision)

/ 가

(diaphragm) 가

1

2 . 가 ,

()

가 가

가 .

5 , ; 가 ; ;

6 ; ; 가 ;

가

1 , 가 ; 가 ;

2 .

5, 6 1 4 가

가

가 5 6 / / , 가 .

가

가 .

1 .

2 1 .

3 1 2

4a - 4f 3 (1) (buid - up)

5

6a 6b 5 (build - up)

7a

7b (cantilever)

7c

7d

1 1 (1) (1)
(2) 가 (2) (1)
) " (display element)"
, (4,5,6,7,8) 1 가

(2) (10) 가 (2)
(10)
(12) (13) (10)
(relative to)
가

1 $X_1 - X_2$ (1) 2
(1) (11) (4, 5, 6) $X_1 - X_2$ (2), (10) (4, 5, 6, 7, 8) TF
T (12) (2)

(2) (2) (whole depth) (28) (10)
(28) (28) (

(2) (12) (14) (10)

(14) (2)

1) (2) (14) (20) (16) (1)

(16) (18) (22) (26)

(24) (24) (2, 16) (20, 22) (twisted nematic)

(10) (edge) (20, 24) (

(14)

(5,130,829)

가

3 (1)

(1) (build - up) 4a - 4f

4a - 4f (1) 1 $X_1 - X_3$

(12), (10) (4) (4)

4a (s2) (2) (s4)

(powderblast resist layer) (42) (10) (2)

(s6) (4) TFT 가 (44)

(s8) 1 (SiN) (48) (2)

(s10 s12) TFT가 (amorphous)

(s10) (undoped) (50) (44) 1 SiN (48)

n+ (52) (s12) 4a

4b 가 (s14) 가 TFT 가

(56) (58) (60)

n+ (52) (44) 4b

4c 가 (s16) 2 SiN (62)

(2) TFT (69) (s18)

(through hole) 2 SiN (62) (58) (66)

(60) (68) 4c

4d 가 (s20) (ITO) 2
 SiN (62) (64, 66, 68) (72), (72) TFT (69) (58)
 (74), (76) , 1
 (13)($X_1 - X_3$ 4d)
 (60) (12)(1 2) (7
 6) (60) (stiffness) ITO (60) 1 SiN (48)
 (joint thickness) 가 , (76) , (76)
 (80, 81, 82, 83) .(4d

4e 가 (s22) 2 (43)
 (10) (2) 1mm 2mm
 (s24) (2) (28)
 (2) (2)
 2 (43) ,
 1 SiN (48) 1 SiN (48) 1 (42)
 가
 (,) 가
 가 가 (,) 가
 4e

4f 가 (s26) , (42, 43)
 (s28) 2 SiN (62) (10)
 (60) (76) (92)
 (80,81,82 83) (92) 2 SiN (62)
 (28) (60) 1 SiN (48) (10)
 (94) 가 (s28) 2 SiN (62) (10)
 (92) (80, 81, 82, 83) (94)
 (76)

(10) 가 , 4f (4) (12)
 (4) (72) TFT (69) (4)((14) 1, 2 (2)
 TFT)

가 1mm ,
 2 SiN (62) (42,43) TFT
 0.05mm 1 (micron) (42,43)

2 SiN (62)

(trade-off)가 TFT
가

(photolithographic) (5,130,829) (10)
(1) (4),
(5,130,829) 가

(s24) (solid metal)
H.J. (H.J.)
Lighthart), P.J. (P.J. Slikkerveer), F.H. (F.H. In't Veld), P.H.W. (P.H.W. Swink
els) M.H. (M.H. Zonneveld) Vol.50, No. 3/4 p.475 - 499(1996)
re) 가 (rib - structu

(43) (s24)
(43)
(Ebecryl) 270TM (UCB 가)
(elastomeric polymer) 100
(doctor blade) 가

1 (42) (28) (2)
(s24) 1
(42) / 가
(polymide) (S4)
(10) (s4)
(s24) (28) 가

(가)
2 (43) 1
(42) /

(28)

(2) 가 (liquid crystal on silicon, LC

OS)

TFT (69)

6

· , TFT가 (,
 , (field shielded pixel), (bottom gate etch stop))
 (mask count) 가 (transmissive)
 (transflective) TFT (oppo
 sed)

(10)

TFT (69)

TFT

, TFT

/

(16)

(18)

가

(polymer)

(field emission)

(,)

(electret microphone)

)

가

(

가

가

가

가
가
가

가 (discrete) 가

5 7 가 5 7 1 4
(가)

5

6a 6b

6a (s40) 0.7mm (102) ((s42) (104) (102) (105) (106) (102) (104, 106) 100 UCB 270TM (Ebeetyl 270TM) (가 1 0.05mm (s44) (102)) 가) 가 1 (1 SiN () (108), (110)(), (112)(), 2 SiN (,) (114) () (116)() . 6a

6b 가 (s46) (120) (102) (s48) (106) ; (120) (112); 2 SiN (114) (116)() (122)((122) (120) 1 SiN (108) (110)), (124)((124) (122) (122) 2 SiN (114) (129) (126)), (128) . 6b

1

6b

((2) (102))

SiN, Al

가

(204) *10mm (202) (202) (204) (201) 10mm (202)

100

10mm X 10 mm

(208, 210) (PZT) (206) (206) (204) (202)
 (201) (206)
 (202)

(206) (204)

7b

(212)

7c()

7d() (204) (206)

(206)

(206)

(204, 212) (206)

(202) (208, 210)

가

() ()

/

가

(subcombination)

(prosecution)

/

가

(57)

1.

(plate) ;

(component) ;

(acoustic transducer) ,

2.

1 , (diaphragm electrode)
 가 (movable diaphragm) , .

3.

;

;

,

4.

3 , 가 .

5.

2 (component) 1 4 , , .

6.

2 5 2 4 5 , ,

7.

2 6
가 , .

8.

7 , .

9.

1 2 5 8 3 8
, .

10.

1 2 5 8 3 8
, .

11.

10 , (whole depth) ,

12.

10 11 , (powderblasted) , .

13.

1 2 5 12 3 12
, , .

14.

5 13 , , .

15.

6 13 14 , , .

16.

1 2 5 12 3 12
,
,
.

17.

,
;
;
;
,
가 , .

18.

17 ,
가 ; 가
1 가
; 2 , .

19.

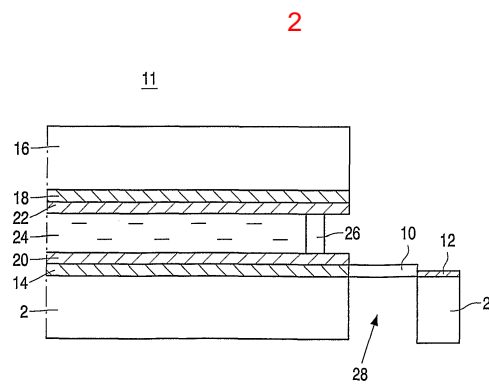
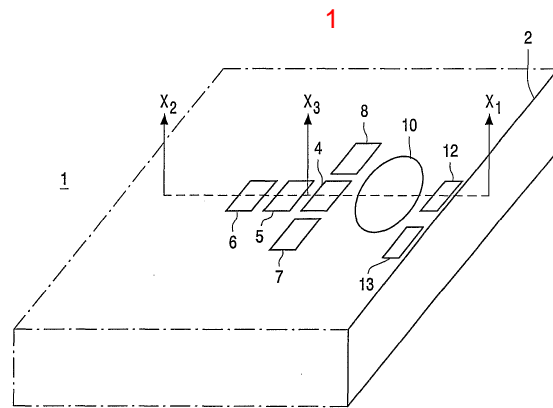
,
;
;
;
;
가 ,
.

20.

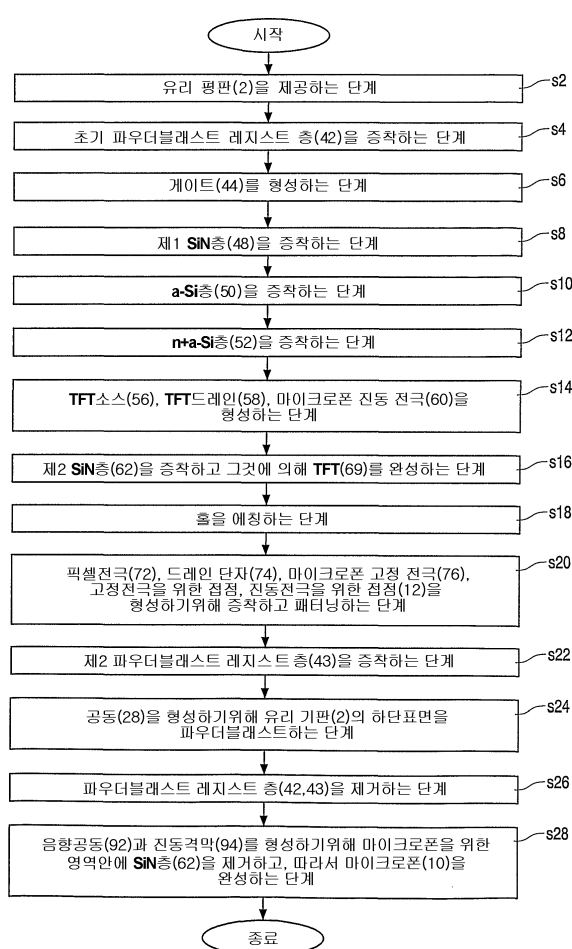
19 , 가 ,
가 1
가 ; 2 ,
.

21.

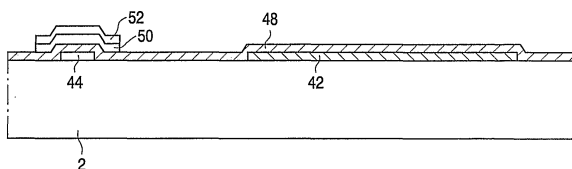
19 20 , .



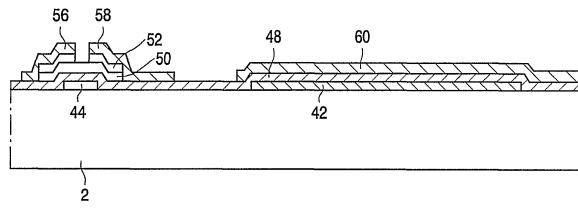
3



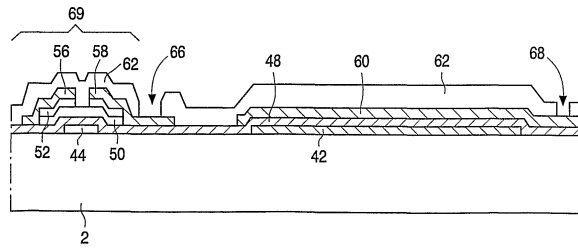
4a



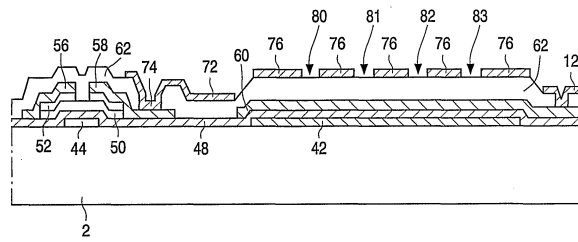
4b



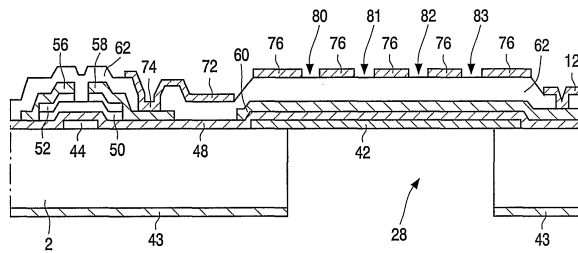
4c



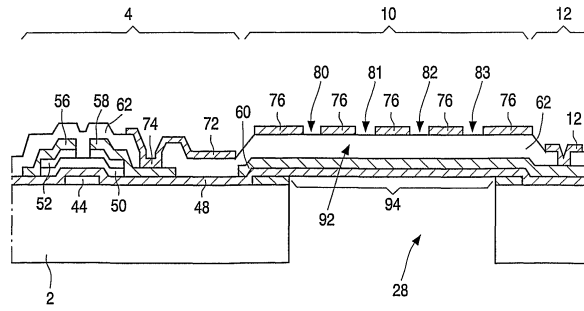
4d



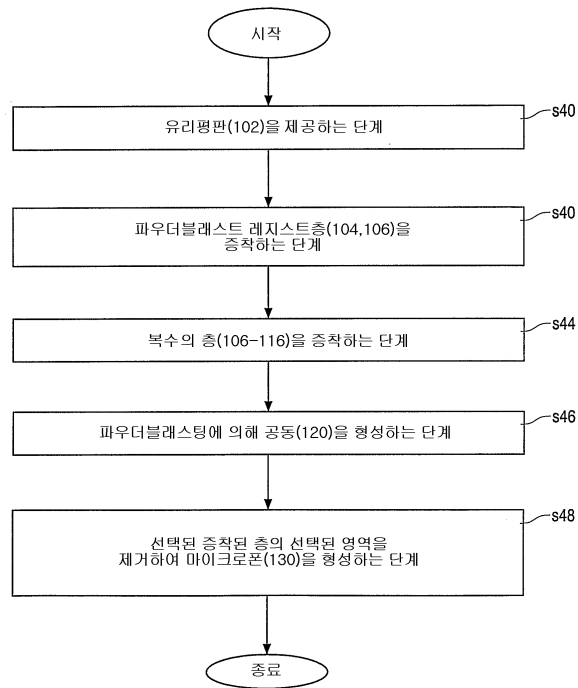
4e



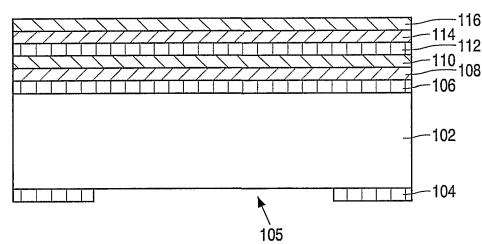
4f



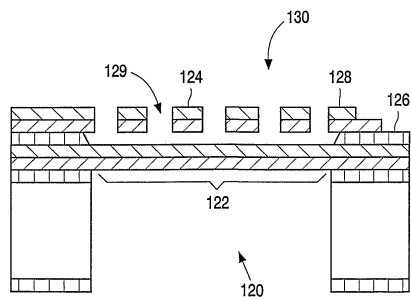
5



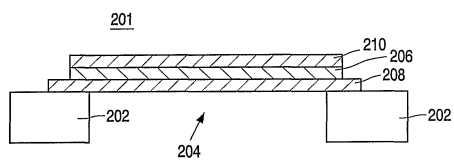
6a



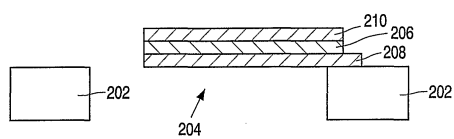
6b



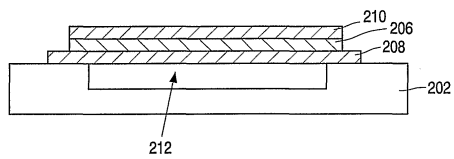
7a



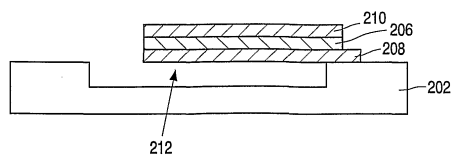
7b



7c



7d



专利名称(译)	一种带有集成声换能器的显示基板		
公开(公告)号	KR1020030003292A	公开(公告)日	2003-01-09
申请号	KR1020027015660	申请日	2002-03-04
[标]申请(专利权)人(译)	皇家飞利浦电子股份有限公司		
申请(专利权)人(译)	科宁欣克利凯恩菲利普斯日元.V.		
当前申请(专利权)人(译)	科宁欣克利凯恩菲利普斯日元.V.		
[标]发明人	MURDEN VEGA GREEN PETER W		
发明人	무르덴,베가 그린,페테르,베.		
IPC分类号	G02F1/1333 G02F1/1368 G09F9/00 H04R19/01 G02F1/13 H04R1/28 G09F9/35 H04R17/02 H04R19/04		
CPC分类号	G02F1/1333 G02F1/133308 H04R19/005 H04R19/016 H04R17/02 H04R31/00		
代理人(译)	MOON , KYOUNG 金		
优先权	2001007404 2001-03-23 GB		
外部链接	Espacenet		

摘要(译)

包括平板的显示基板 (1) 与包括声换能器的玻璃平面 (2) 相同，例如形成为显示元件的麦克风和从薄膜层上侧的空腔 (28)，以及扬声器或蜂鸣器形成在包括像素电极 (72) 和薄膜晶体管 (69) 的像素 (4-8) 处。腔 (28) 可以通过粉末喷射通过玻璃平面的深度来提供。具有集成声换能器 (10) 的显示基板 (1) 可以包括在显示装置中，以与液晶显示装置 (11) 的显示装置相同。下面说明包括绝缘材料 (102) 的单独的声换能器，在平板 (102) 中的腔 (120) 平板上沉积的多个层，以及可动构件。可动构件由沉积层形成，其位于悬臂梁 (120) 上。

