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(24)2003 08 19
10-0394876
2003 08 04(21) 10-2001-0031404
(22) 2001 06 05(65)
(43)2002-0092644
2002 12 12

(73)

725 2000 208,209

(72)

5 5 501

1015 1-1006

105

10-52

3가20

6 1677-1 209

2 203-601

(74)

:

(54)

CMOS

,

,

,

,

,

,
(N x M)

,

3

2

1a

1(a) 1 , 1(b) 1(a) A-A
 2 1
 3(a) 2 , 3(b) 3(a) B-B
 4 2
 5(a) 3 , 5(b) 5(a) C-C
 6 3
 < >
 10 ----- 13 -----
 15 ----- 16 -----
 17, 18 ----- 19 -----
 21 ----- 23 -----
 25 ----- 27 -----
 C1 C8 -----

2 (N x M) , 3
 : 1MHz, 6 7cm), (: 1 10MHz), (가
 . 500kHz 25MHz), (,
 n) . 28k-40kHz), ((Cavitation)
 3
 (linear piezoelectric element array) 2
 가 가 3
 3 (element) 가 (bulk) (piezoelect
 ric material) (resolution) 가 (dicing)
 , 가 가 가 가
 , ,
 , 2
 , 2
 가 가 ,
 가
 (thin film) (thick film) , 2

가 가 , 3 2 (N x M)

CMOS ,

(damping)

1(a) 1 1(b) 1(a) A-A

CMOS(complementary metal oxide semiconductor)

(10) , (10) (17) , (17)

(19) , (19) (21) , (21)

(23) , (23) (25) , (25) (

2)

1 , (N x M)

(N x M) CMOS (10) (S101).

SiOx (17) SiNx LPCVD, APCVD, PECVD (17) (S101).

8,000 10,000

13 , 15

CMOS 300 400 가

800

TiN - Ti - TiON - W MOS

가

(17) LPCVD, APCVD, P

ECVD (19) (S103). (19) 2,000 4,000

(19) (21) (S105). (21) (PI

atinum), RuO (Tantalum) (Buffer layer) (

Titanium), CVD 1,000 2,000 (21)

(21) (23) (S107).

ZnO, AlN, PZT(PbZrTiO₃), PLZT(PbLaZrTiO₃), BT(BaTiO₃)

(: 0.1um 1um) (: 2 um) (23)

(reactive sputtering), - (sol-gel process), MOCVD

(23) (25) (S109). (21)

RuO (25) CVD 1,000 1,500

(photolithography) (25) (21)

(S111), (19) (17) C1 C2 (S113).

(27) (21) (13)가 (25)

(15)가 (21) (S115). (25) (matching layer)

(27)

3(a) 2 3(b) 3(a) B-B

19) 가 (20) , (17, 20) 1 (17) (

4 2 (N x M) (N x M)

CMOS (10) SiOx SiNx LP
 CVD, APCVD, PECVD (17) (S201).
 13, 15 C3 C4 (S203), (1
 8) (S205).
 (17) (18) SiOx SiNx LPCVD, APCVD, PECVD
 (20) (S207), LPCVD, APCVD, PECVD
 (19) (S209).
 (20) (19) C5 (S
 211), (19) (21) (S213).
 (21) (23) (S215),
 CVD (25) (S217).
 (25) (21) (S219),
 (19) (20) C6 (S221).
 (27) (13)가 (25)
 (15)가 (21) (S223).
 1 (27) (25)
 5(a) 3 5(b) 5(a) C-C
) (Air Gap) 3 1 (17) (19
 가 (18)
 6 3
 , (N x M)
 D, APCVD, PECVD (10) SiOx SiNx LPCV
 13 (17) (S301).
 (Poly-silicon) LPCVD, APCVD PECVD
 (Air Gap) (16) (S303).
 (17) (19) (31)
 (16) (S305).
 (18) (Planarization) CMP(chemical mechanical polishin
 g) (S307), (19) LPCVD, APCVD PECVD (S
 S309).
 (19) (21) (S311), (21)
 (23) (S313), CVD
 (25) (S315).
 (25), (23), (21), (19)
 (S317), (19) (18), (17) C7 C8
 (S319).
 (27) (13)가 (25)
 (15)가 (21) (S321),
 XeF2 XeF2 (Vapor)
 (Poly-silicion) (S323).
 (27) (23)

N x M) 2 가 가 3 2 (

(57)

1.
 CMOS (13) (15)가 (10) (17)

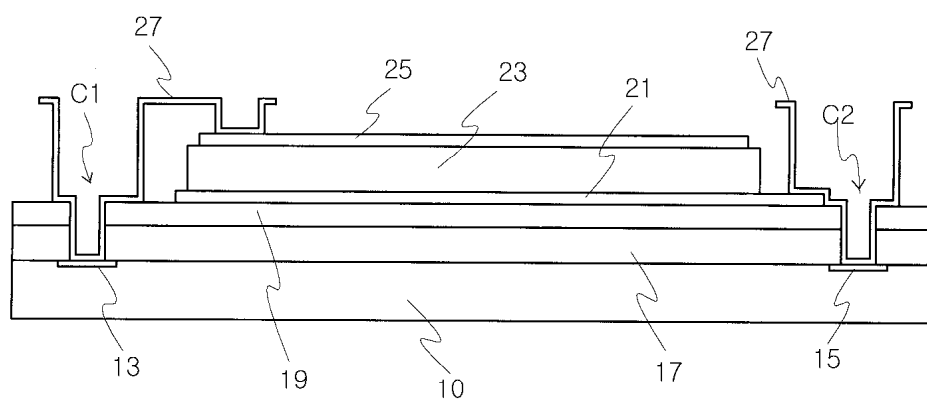
(17) (19) ,
 (19) (21) ,
 (21) (23) ,
 (23) (25) ,
 (25), (23), (21) ,
 (19) (17) ,
 (27) (13) (25) ,
 (15) (21) ,
 (27) (25) .

2.
 CMOS (13) (15)가 (10) (17)
 ,
 (17) C3 C4 ,
 (17) (18) ,
 (17) (18) (20) ,
 (20) (19) ,
 (20) (19) C5 ,
 (19) (21) ,
 (21) (23) ,
 (23) (25) ,
 (25), (23), (21) ,
 (19) (20) C6 ,
 (27) (13) (25) (15)
 (21) ,
 (27) (25) .

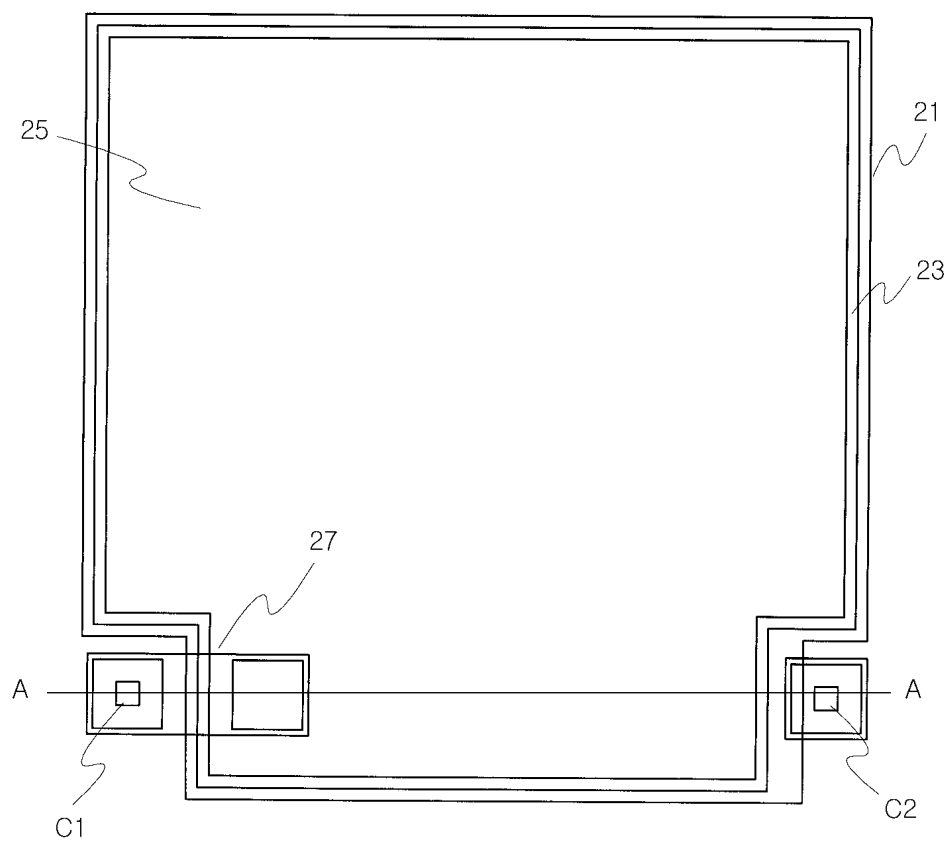
3.
 CMOS (13) (15)가 (10) (17)
 ,
 (17) (16) ,
 (16) ,
 (16) (18) ,
 (18) (19) ,
 (19) (21) ,
 (21) (23) ,
 (23) (25) ,
 (25), (23), (21), (19) ,
 (19), (18), (17) C7 C8 ,
 (27) (13) (25) ,
 (15) (21) ,
 (16) ,
 (27) (25) .

4.
 1 3 , CMOS TiN - Ti - TiON - W

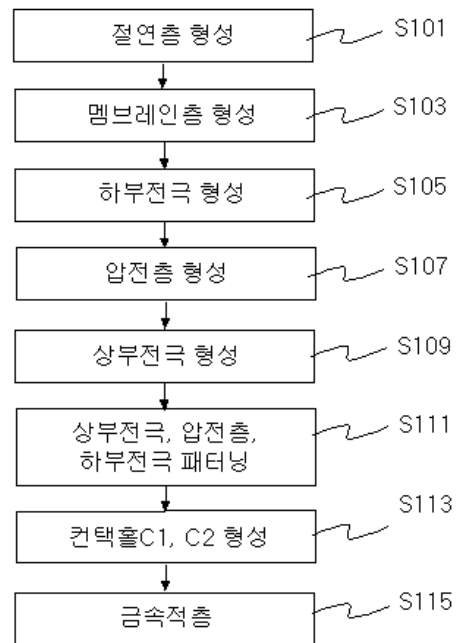
1a



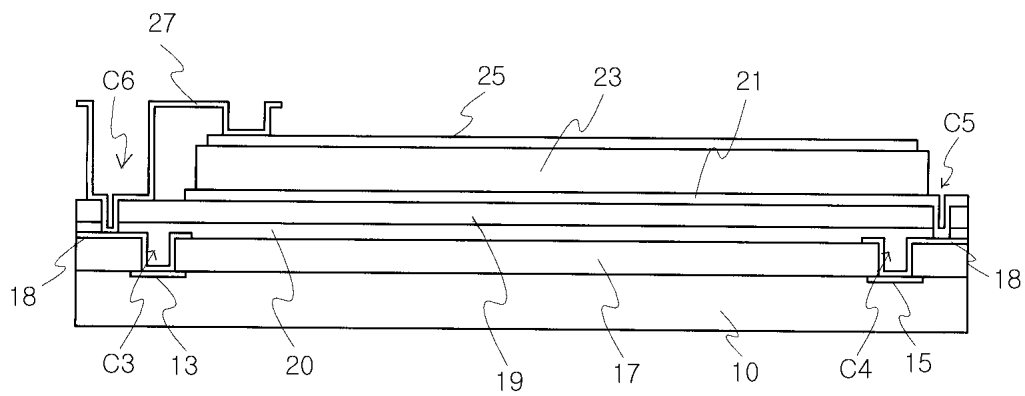
1b



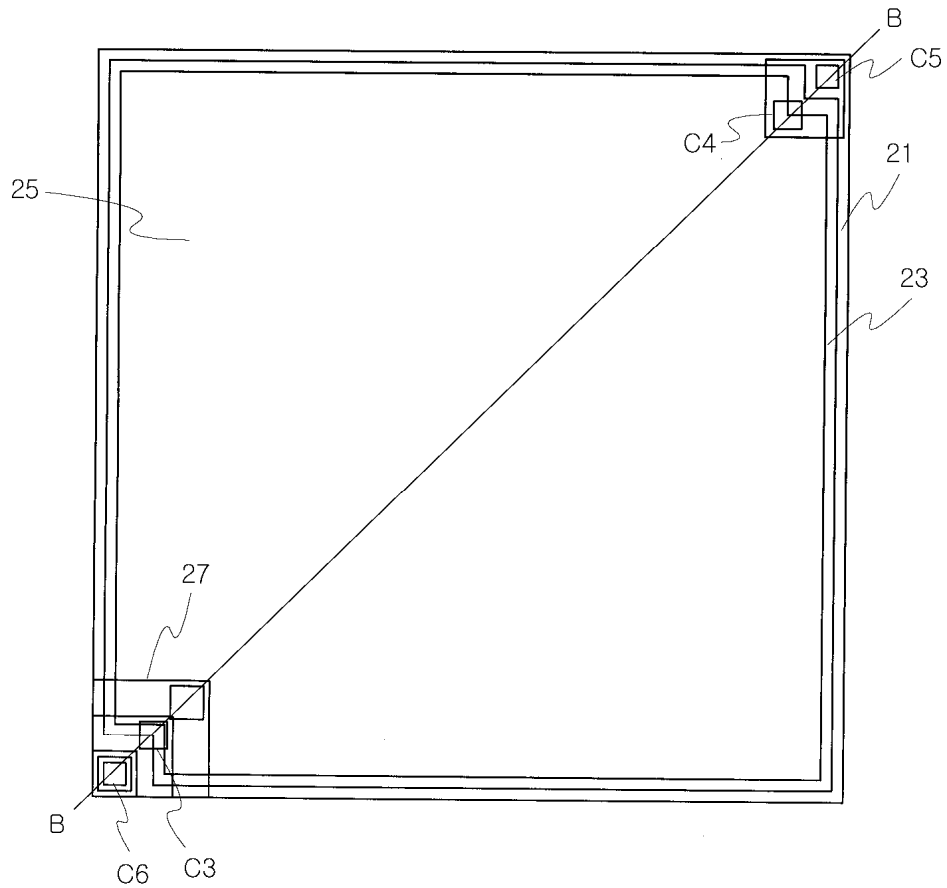
2



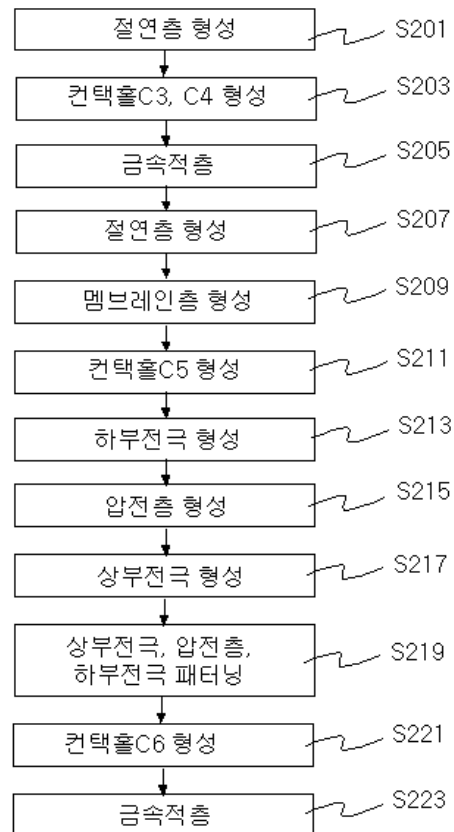
3a



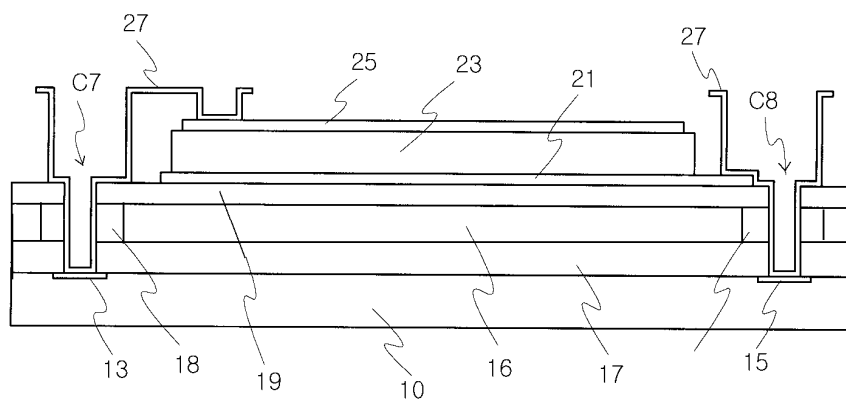
3b



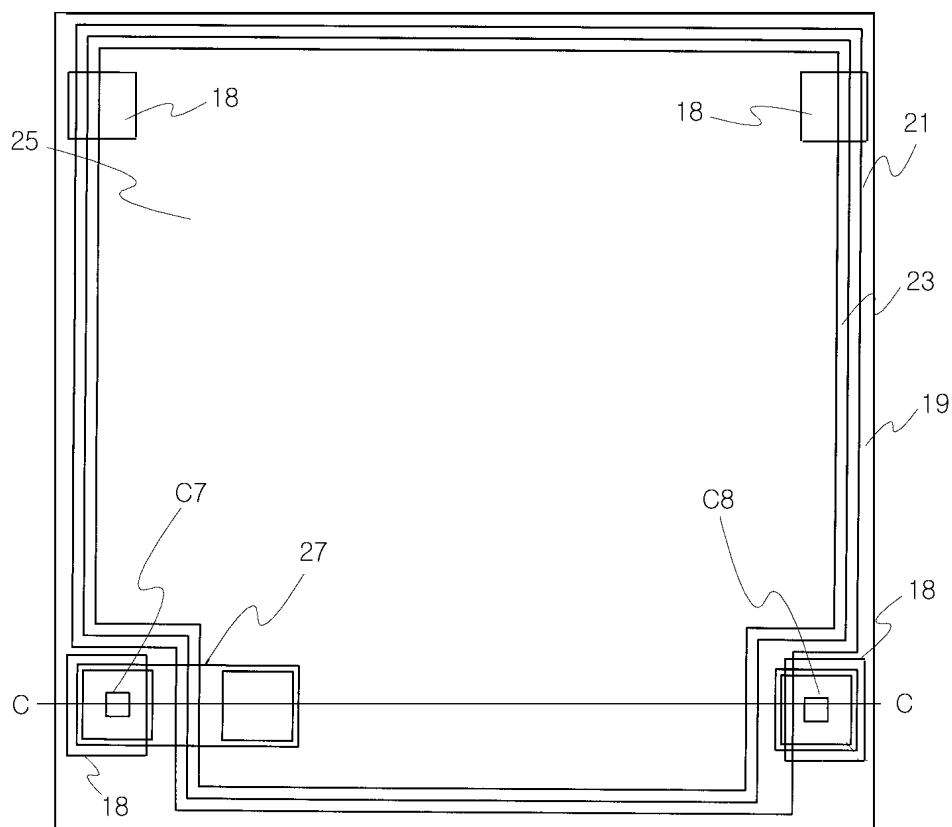
4



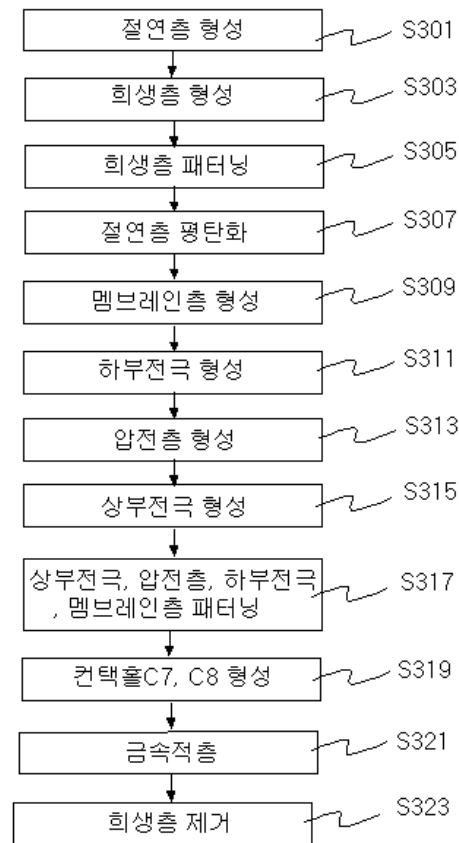
5a



5b



6



专利名称(译)	如何制作超声波探头		
公开(公告)号	KR100394876B1	公开(公告)日	2003-08-19
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[标]申请(专利权)人(译)	南非		
申请(专利权)人(译)	纳米磁材有限公司		
当前申请(专利权)人(译)	纳米磁材有限公司		
[标]发明人	JOO SANGBAEK 주상백 CHOI YOUNGJUN 최영준 LEE JONGWON 이종원 KIM DONGKYUN 김동균 JEON YOUNGDEUK 전영득 PARK CHANGSU 박창수 OHK JAIYONG 옥재용		
发明人	주상백 최영준 이종원 김동균 전영득 박창수 옥재용		
IPC分类号	A61B8/00		
CPC分类号	A61B8/4444 B06B1/06 G01N29/24 G01S15/8925 G01S15/8993		
代理人(译)	HA, 桑KU HA, 杨郁		
其他公开文献	KR1020020092644A		
外部链接	Espacenet		

摘要(译)

目的：提供一种用于制造超声探头的方法，以通过沉积作为薄膜或厚膜的体型压电材料来形成二维阵列超声探头。组成：CMOS（互补金属氧化物半导体）安装在基板上（10）。在基板（10）上形成有公共电极焊盘（13）和晶体管焊盘（15）。在衬底（10）的上部上形成层间电介质（17）。为了控制层间产生的应力，在层间电介质（17）的上部形成膜（19）。在膜（19）的上部形成有下部电极（21）。在下部电极（21）的上部形成有压电体层（23）。在压电体层（23）的上部形成有上部电极（25）。在上部电极（25）的上部形成有结合层。

