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G02F 1/136(11)
(43)2002 - 0074302
2002 09 30(21) 10 - 2001 - 0014219
(22) 2001 03 20(71) .
20(72) 2 152 1 - 106
282 - 2 101 401(74)
:

(54)

가 , 가 , ,
 , , , , 가 가 1 , 2
 1 가 1

1			TFT		.
2	1		TFT	A - A'	.
3a	3e	2	TFT		.
4				TFT	.
5a	5g	4	TFT		.
6	$(\text{NH}_4)_2\text{S}_2\text{O}_8$			(Cu)	.
7	(Oxone)			(Cu)	.
8	HF			(Ti)	.
<				>	

10,30 :	12,32 :
15,35 :	14,34 :
16,36 :	18,38 :
20,40 :	22,42 :
24,44 :	26,46 :
28,48 :	29,49 :

, (Liquid Crystal Display; LCD) 가 (Active Matrix) (Thin Fi
Im Transistor; " TFT")가 .

1			TFT		.
2	1		TFT	A - A'	.

1 (14) 2 (15) (14) (28) TFT (15)

TFT TFT (10) (12), (16), (18), (22,24)
(12) (15) (22) (14)
(24) TFT (26) (29)

, TFT (12) 가 (14) (28)

3a 3e 2 TFT

3a (12) TFT (10) (12) (sputtering) (15)
(12) (Al) (Cu) (N
 $H_4)_2S_2O_8$

3b (12) TFT (10) (16), (18) (20)

(16) (10)
(16) (Chemical Vapor Depo
sition : " CVD")
(18) (20)

3c (16) (18) (22,24)
(22,24) (16) (20) CVD (sputt
ering)
(22,24) (Mo), MoW, MoTa MoNb (Mo alloy) (NH₄)
 $2S_2O_8$ (22,24) (20)
(22,24) (18) (18)
(22,24) (12)

3d (26) (24)
(29) (26) (acryl)
, (Teflon), BCB (benzocyclobutene), (cytop) PFCB(perfluorocyclobutane)
가

3e (26) (28) (28) - -
(Indium - Tin - Oxide ; " ITO"), - - (Indium - Zinc - Oxide ; " IZO"),
- - - (Indium - Tin - Zinc - Oxide ; " ITZO")
(28) (24) (29)

(Cu) (Cu)
(Cu) 가 (Cu)

(Cu) (200 ° C) 가 (Cu)
(diffusion) TFT 가

가 , 가

가 가 1

가 , 가 ,

1 1 2

'

1 2 1 ,

1 2 .

4 8

4 TFT .

$$4 \quad , \quad \text{TFT} \quad , \quad (48)$$

TFT	TFT	(30)	(32),	(36),	(38),	(40),
	(42,44)		.	(32)	(	)
(42)	(	)	.	(44)	(36)	(49)
(48)	.					

(32) 1 (32A) 2 (32B) .

가 , (42,44) 1 (42A,44A) 2 (42B,44B)

, TFT (32) 가 ()

(48)

5a 5g 4 TFT

5a , (30) 1 (32A) 2 (32B) . 1
(Cu) , 2 (Ti), (Ta), (Ni), (Al)
 . 1 (31) 2 (30) (sputtering) .

5b , 1 (31) (Oxone)
(, 2KHSO₅, KHSO₄, K₂SO₄) .

1 , 5c , 1 2 (32A,32B) (32) . (32)
(32A) 2 (32B)
(Buffer Oxide Etchant : " BOE") F (, HF, KF, NH₄F, NaF)

5d , (32) TFT (30) (36), (38) (40)

(36)
(36) TFT (30)
(38) (40) CVD

5e , (36) (40) (42,44) .
(42,44) 1 (42A,44A) 2 (42B,44B)

(40) (42,44) 1 (42A,44A) 2 (42B,44B) (36)
CVD (Sputtering) ,
 , 1 (42A,44A) (Oxone) (
, 2KHSO₅, KHSO₄, K₂SO₄) , 2 (42B,44B)
(Buffered Oxide Etchant : " BOE") F (, HF, KF, NH₄F, NaF)
(42,44) 1 (Cu) , 2 (Ti),
(Ta), (Ni), (Al) (42,44)
(40) (42,44) (18)
(38) (42,44)

5f , (46) , (44)
(49) (46) (acryl)
, (Teflon), BCB (benzocyclobutene), (cytop) PFCB(perfluorocyclobutane)
가

5g , (46) (48) . (48) ITO, IZO, ITZO
(48) (44) (29)

6 8 (Cu) (Ti) .
 6 8 , 가 .
 6 (Oxone) (Cu) .
 6 (Cu) (Oxone) 가 0.03~0.3(mol) 650~5000(Å/min)

7 (NH₄)₂S₂O₈ (Cu) .
 7 (Cu) (NH₄)₂S₂O₈ 가 0.025~0.15(mol) 400~2400
 (Å/min)

8 HF (Ti) .
 8 (Ti) HF 0.1~0.5(mol) 1100~2400(Å/min)

가

(57)

1.

가 , 가 ,

,

, , ,

가 가 1 ,

1 가 1

2 .

2.

1 ,

1 (Cu) .

3.

1 ,

2 (Ti) .

4.

가 , 가 ,

,

, , , 1 ,

1 2 .

5.

4 ,

1 (Cu) .

6.

4 ,

2 (Ti) .

7.

가 , 가 ,

,

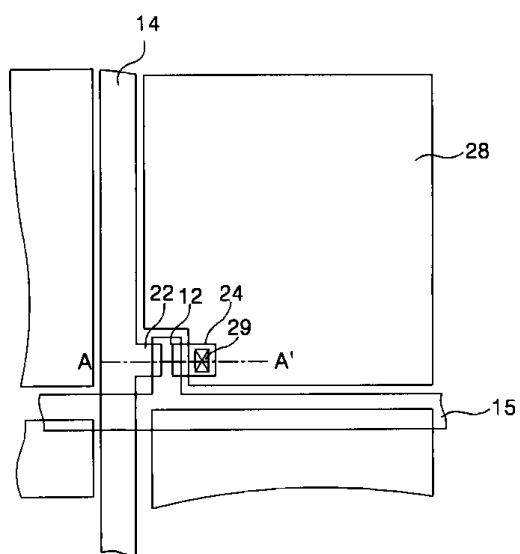
, , , 1 1

2 .

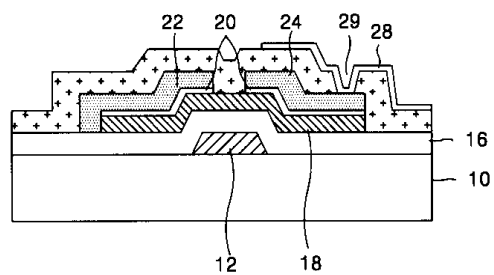
8.

- 7 ,
2 1 ,
1 2 .
9.
- 7 ,
1 (Cu) .
10.
- 7 ,
2 (Ti) .
11.
가 , 가 , ,
 ,
 , , ,
1 1
2 .
12.
- 11 ,
2 1 ,
1 2 .
13.
- 11 ,
1 (Cu) .
14.
- 11 ,
2 (Ti) .

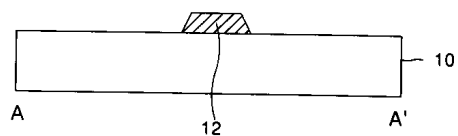
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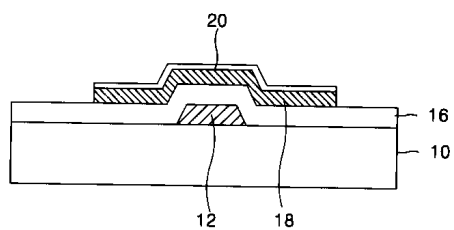
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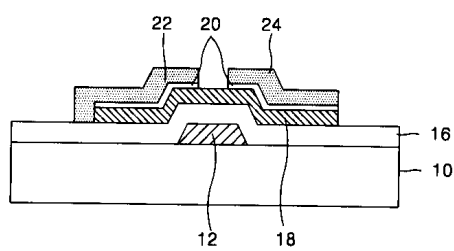
3a



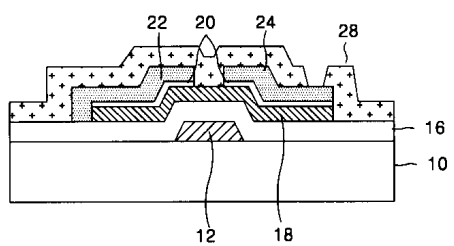
3b



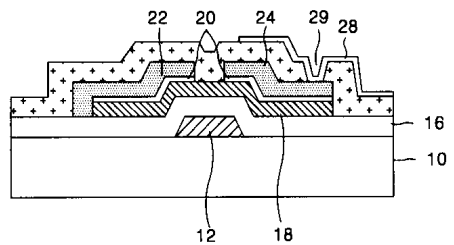
3c



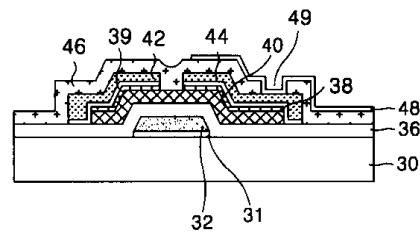
3d



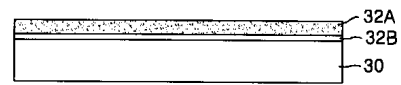
3e



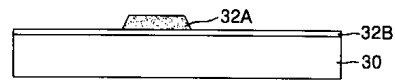
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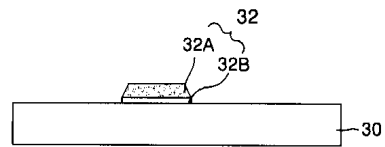
5a



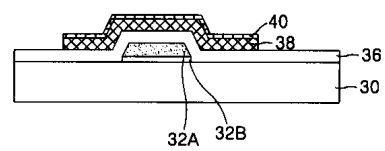
5b



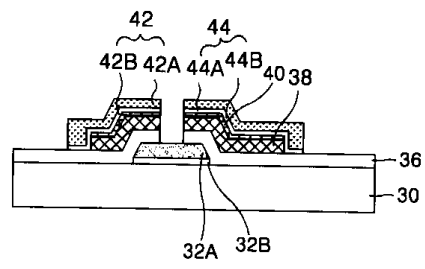
5c



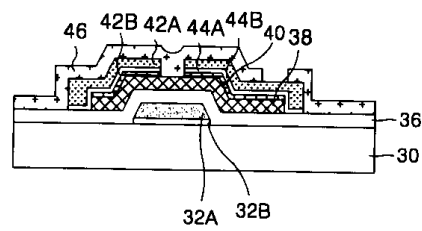
5d



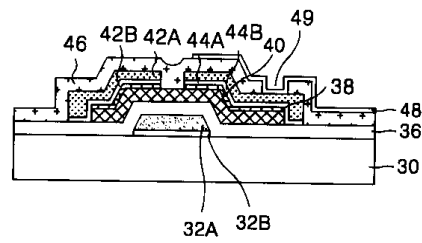
5e



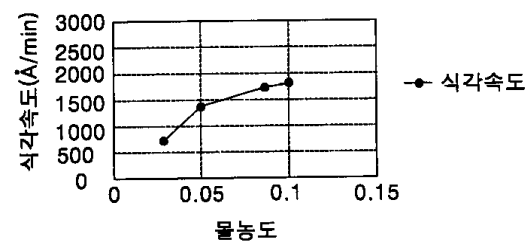
5f



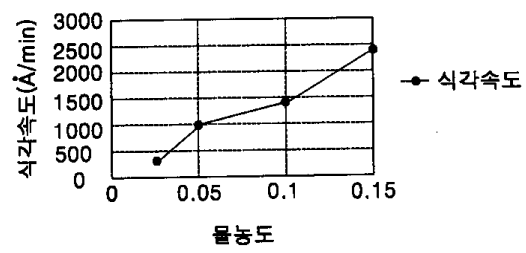
5g



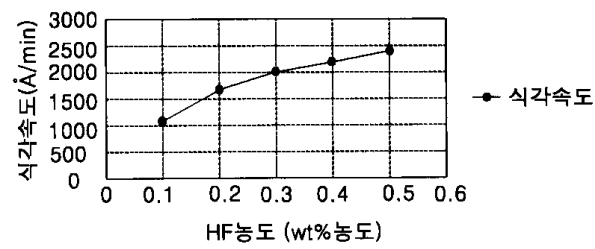
6



7



8



专利名称(译)	液晶显示装置及其制造方法		
公开(公告)号	KR1020020074302A	公开(公告)日	2002-09-30
申请号	KR1020010014219	申请日	2001-03-20
[标]申请(专利权)人(译)	乐金显示有限公司		
申请(专利权)人(译)	LG显示器有限公司		
当前申请(专利权)人(译)	LG显示器有限公司		
[标]发明人	LEE KYOUNGMOOK 이경목 KWON OHNAM 권오남		
发明人	이경목 권오남		
IPC分类号	G02F1/136		
其他公开文献	KR100843472B1		
外部链接	Espacenet		

摘要(译)

本发明涉及一种能够防止铜线故障的液晶显示装置及其制造方法。根据本发明的液晶显示器包括第二金属层，该第二金属层是与第一金属层不同的界面特性，第一金属层具有由能够形成栅电极的铜（Cu）制成的第一金属层，栅极线，数据线，源和漏电极是蚀刻过程中的下层材料和膜分离栅电极和栅极线形成在基板上，栅极绝缘层形成在栅电极和栅极线，有源层和欧姆形成在栅极绝缘层上的接触层，数据线包括钛（Ti）中的任何一种，用于通过具有钽（Ta）和镍（以及钽（Ta）和镍）来补偿第一金属层和下层材料之间的界面性质。你）。数据线形成为在欧姆接触层上朝向源极和形成的漏极电极以及栅极线交叉。因此，通过在铜布线下形成钛层，可以在蚀刻工艺中防止膜分离。并且可以在规定温度或更高温度下防止与半导体层的化学反应。

