

4

(active matrix liquid crystal display)

(TFT)

(flat)

TFT
(polycrystalline)
가

TFT

(amorphous)

(two - layer)

ate) TFT (lower)

가
TFT (top - g
(deposited) (region)

JP - A - 4 - 219736

(vacuum deposition)

가

가 가

가

2

(spin - on)

(film) (uniformity) ,
 (charging) 가
 1 2
 가

가 : C_{store} , d_{inorg} - d_{poly}

$$d_{poly} = (C_{store} / C_{LC}) \cdot (\epsilon_{poly} / \epsilon_{inorg}) \cdot d_{inorg}$$

C_{LC} (permittivity constants) , ϵ_{poly} ϵ_{inorg}

GB 2311653

가 C_{store} , C_{LC}

가

1 2 ,

2

1 2
 1

가,

2

1

가

1 d_1 2 d_2 가 :

$$d_2 = (C_{store} / C_{LC}) \cdot (\epsilon_2 / \epsilon_1) \cdot d_1$$

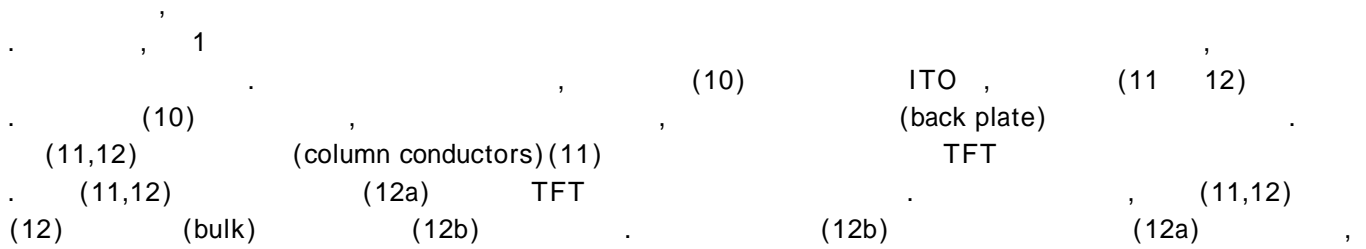
1 2 1 2

가

$d_2 = (C_{store} / C_{LC}) \cdot (d_2 / d_1) \cdot d_1$

가, d_1 d_2 C_{store} C_{LC} :

- 1
- 2
- 3 1 X-X
- 4 1
- 5
- 6 (bottom) 2



(12c)

(25)

(20a) (25) TFT
1 (20a) (20a)

TFT
(islands)

1 가

2 1 (25)
TFT(30) (11) 1 (3)
0) (34) (32) (36) (30)
(25a)

가 (11) 가 (25) 가 (32) 가 (30) - (turn on)
(36) 가 (32) 가
(30)가 (turned off)
(25a) (36)가, (32) 가

(25a) 가가 (36)
(32) (25a) 가
(25a)

3 TFT , 1 X-X
(11,12) (10) , ITO (10)
(11,12) , TFT (20)
(40) (20) (20c) (20a) 1
(20) 1 (40) (40) (20)
(20)

2, (upper) (42) (44) (4)
2) (42) (36) (25a) (12) (12c) (36)

가 (52) 가 (52) (50)
(34) (56) (54) (face)
(52)

가 3 가
 TFT
 TFT
 44) (11,12) 3 (20c)
 (11,12) (20) (44)
 (20) (20c)
 (implantation)
 (silicide mat
 erial)

가 2 가 (planarising)
 (42) (well) (12) 가
 가
 1 (40) 가 80nm 1 (silicon nitride) 2
 (42) 250nm 가 가 2
 4 TFT 가 3 4 가
 3
 4 가 1 (400) 가 2
 (420) (spinning), (rolling) (PECVD) (spray) PECV
 D

(bias)
 (50) (36)} {

5 MOSFET (), (d) (μ)
 (W), (L), (n- MOSFET) (K) (normalised)
 (, W L), :

$$C = \frac{A\epsilon}{d}$$

C (bias) (effective)

$$\frac{1}{C_{gate}} = \frac{1}{C_1} + \frac{1}{C_2}$$

$$= \frac{d_1}{A\epsilon_1} + \frac{d_2}{A\epsilon_2}$$

$$C_{gate} = \frac{A\epsilon_1\epsilon_2}{d_1\epsilon_2 + d_2\epsilon_1}$$

, d_1 d_2 1 2

$$R_{TFT} \propto \frac{d_1\epsilon_2 + d_2\epsilon_1}{A\epsilon_1\epsilon_2}$$

(, 1 2가), 가 ,

$$R_{TFT} \propto d_1\epsilon_2 + d_2\epsilon_1$$

TFT -
가

, LC (32)

(36)

$$C_{LC} + C_s = C_{LC} + \frac{A_s\epsilon_2}{d_2}$$

, C_{LC}

, C_s

, A_s

$$\tau_{RC} \propto C_{LC}d_1\epsilon_2 + A_s\epsilon_1\epsilon_2 + C_{LC}d_2\epsilon_1 + \frac{\epsilon_2^2 A_s d_1}{d_2}$$

$$\frac{\partial}{\partial d_2} \tau_{RC} = C$$

(d₂)

$$d_2 = \frac{A_s \epsilon_2}{d_2 C_{LC}} \cdot \frac{\epsilon_2}{\epsilon_1} \cdot d_1$$

$$d_2 = \frac{C_s}{C_{LC}} \cdot \frac{\epsilon_2}{\epsilon_1} \cdot d_1$$

가

가

(kickback)

(behavior)

6

TFT

(60)

(10)

(36)

(37)

(37)

(10)

(conducting)

(420)

" 2 "

d₂ 가 2

(420)

(36)

1

(400)

(20)

1

(400)

(20a)

(20,400)

(400)

20)

가

가

(etch stop plug) (62)

(60)

(64,6

6)

ct) (38)

(36)

(top conta

1

3

가

가

가

(36)

가

가

e)

(aperture)

(transmissiv

, 가

, C_{store} / C_{LC} 1

(ratio)

3

, 4

가

poly / inorg . 1 SiN , inorg 6.4 . poly
 가 , (Kapton) 3.4 가 (polyimide)
 가 (AMM: Allied Signal Advanced Microelectronic Materials) (Accuspin) T - 18 , 2.7
 (AMM family) AMM
 (Accuglass) P - TTY A (family) 4.2

가 : 가 ,
 0.5 2 가 ,
 가 ,
 3.4 가 6.4 가

2 가 ,
 (, SiN TFT) 300
 400nm가 ,
 , 350nm

$$C = \frac{A\epsilon_1}{350 \times 10^{-9}}$$

$$C = \frac{A\epsilon_1\epsilon_2}{d_1\epsilon_2 + \frac{C_s}{C_{LC}}\epsilon_2d_2}$$

$$d_1 = \frac{350}{1 + \frac{C_s}{C_{LC}}} \text{ nm}$$

93nm LC 4 가 , LC 가 , d₁ 70nm d₂ 147nm , d₁ 175nm , d₂

TFT

가

가

(scope)

가

가

가

(active matrix liquid crystal display)

(57)

1.

가

1

2

2.

1

3.

1

2

(top)

4.

1

3

가,

1

2

가

2

1

5.

$$d_{\text{poly}} = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_{\text{poly}}}{d_{\text{inorg}}} \right) \cdot d_{\text{inorg}}$$

$$d_{\text{poly}} = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_{\text{poly}}}{d_{\text{inorg}}} \right) \cdot d_{\text{inorg}}$$

6.

$$d_2 = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_2}{d_1} \right) \cdot d_1$$

$$d_2 = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_2}{d_1} \right) \cdot d_1$$

$$d_2 = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_2}{d_1} \right) \cdot d_1$$

7.

$$d_2 = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_2}{d_1} \right) \cdot d_1$$

$$d_2 = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_2}{d_1} \right) \cdot d_1$$

8.

$$d_2 = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_2}{d_1} \right) \cdot d_1$$

9.

$$d_2 = \left(\frac{C_{\text{store}}}{C_{\text{LC}}} \right) \cdot \left(\frac{d_2}{d_1} \right) \cdot d_1$$

10.

- 가 , ,

1 2 , 1 , 2 -

2

11.

8

1 d₁ 2 d₂ , 가,

12.

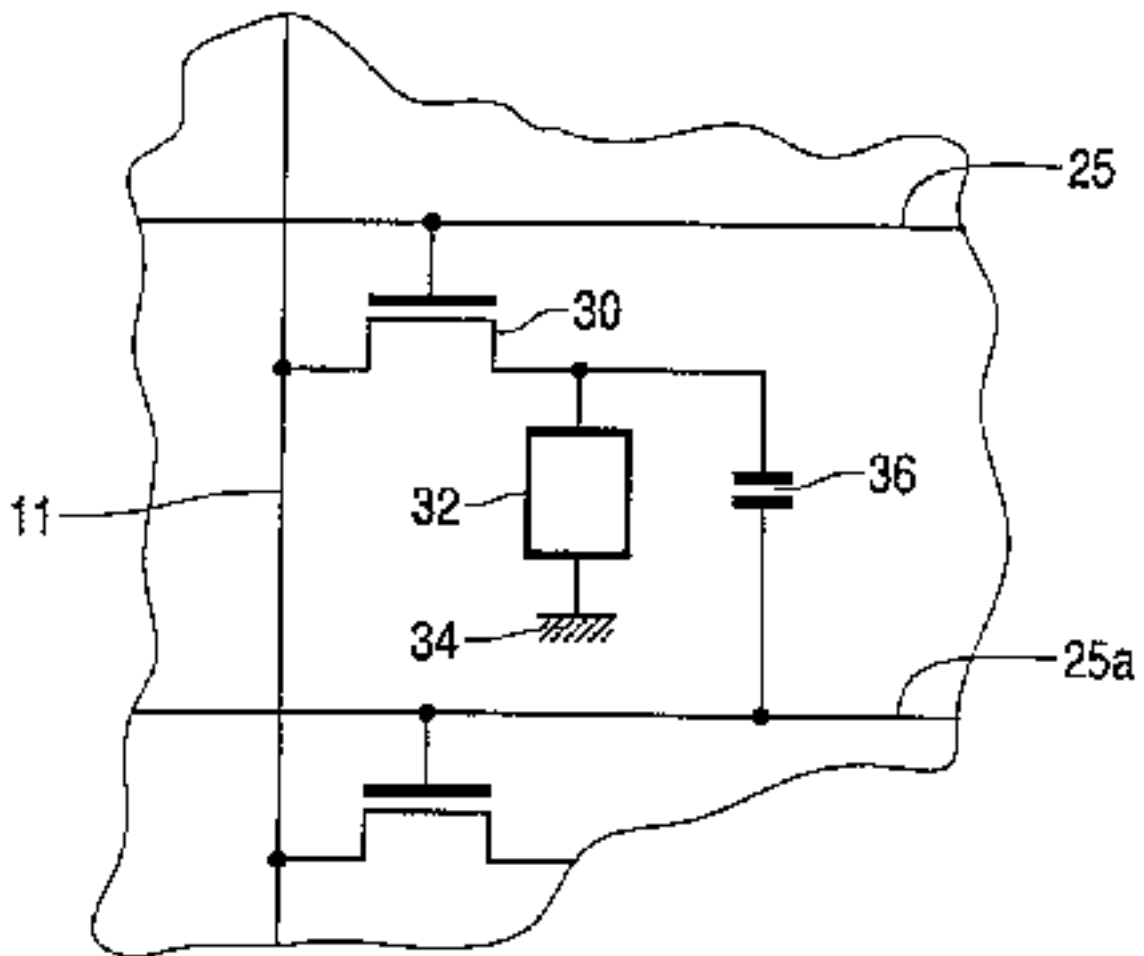
11 , C_{store} 가 , C_{LC} ,

1 d₁ 2 d₂

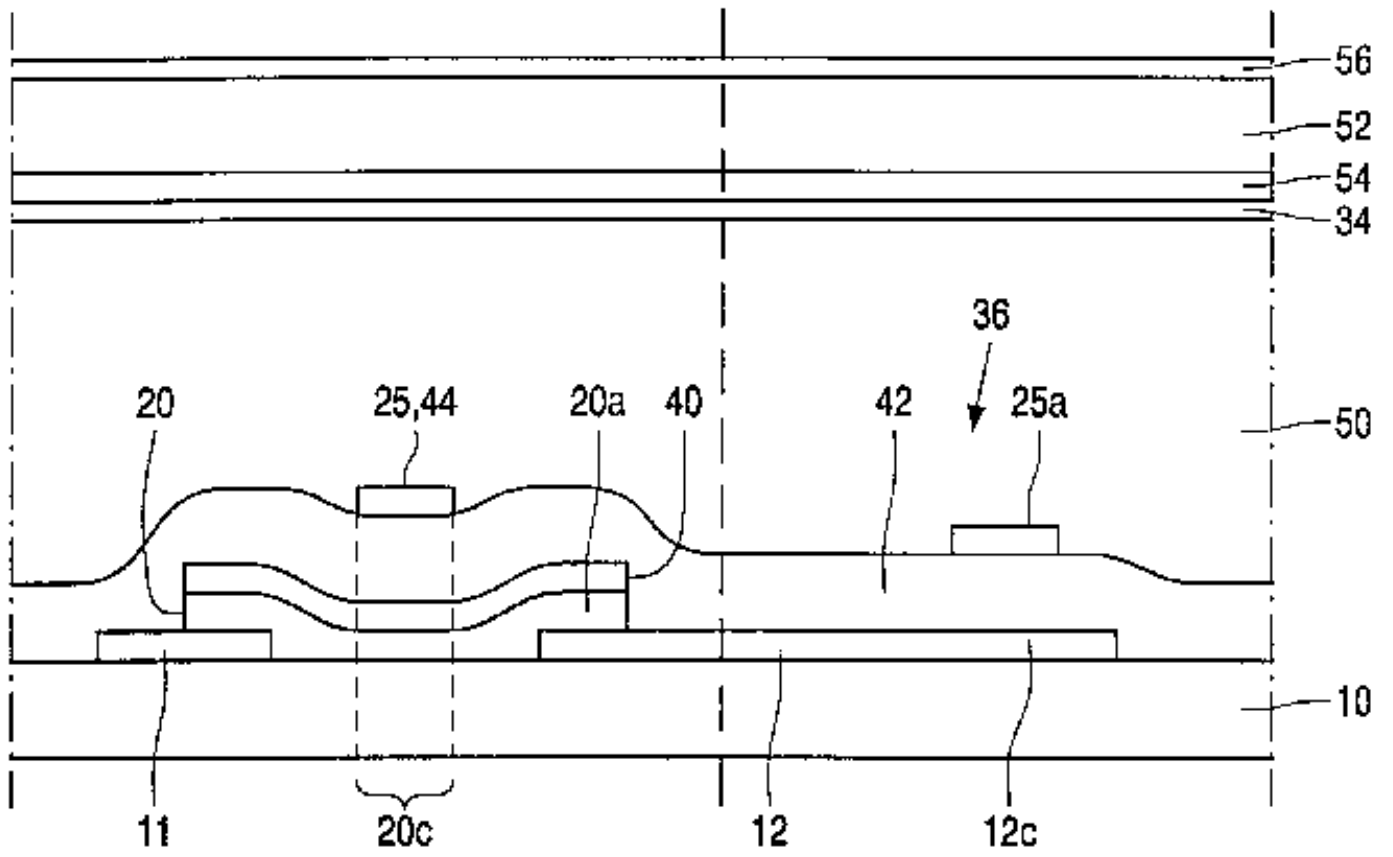
$$d_2 = (C_{store} / C_{LC}) \cdot (2 / 1) \cdot d_1$$

, 1 2 1 2 ,

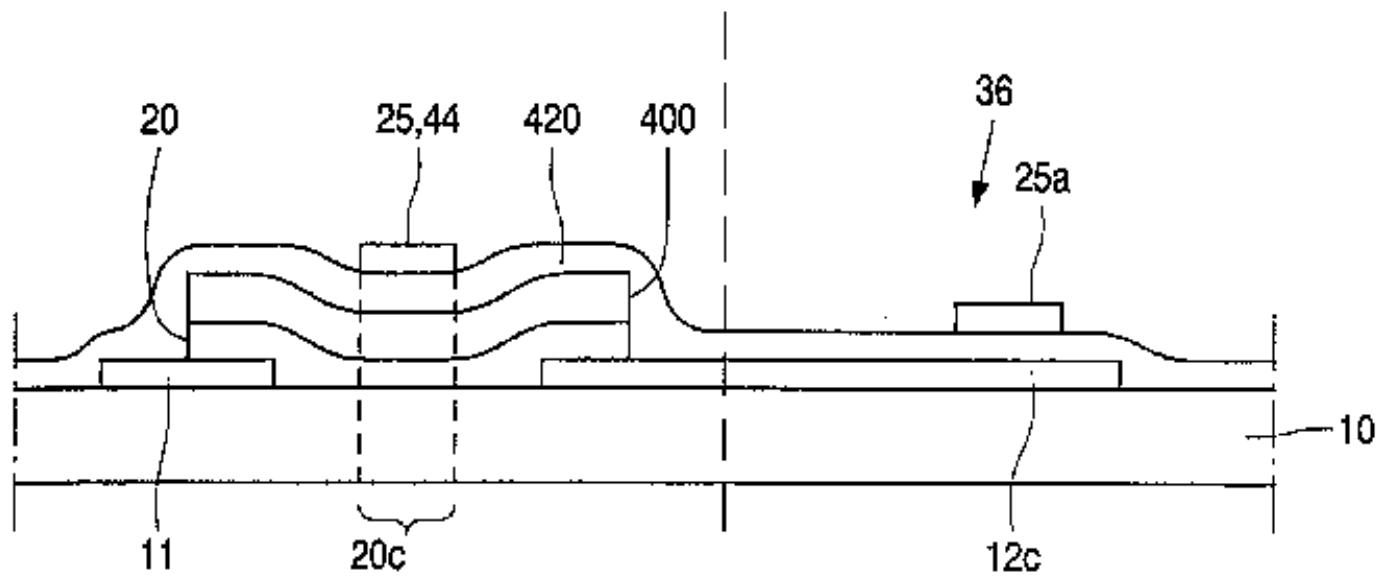
2



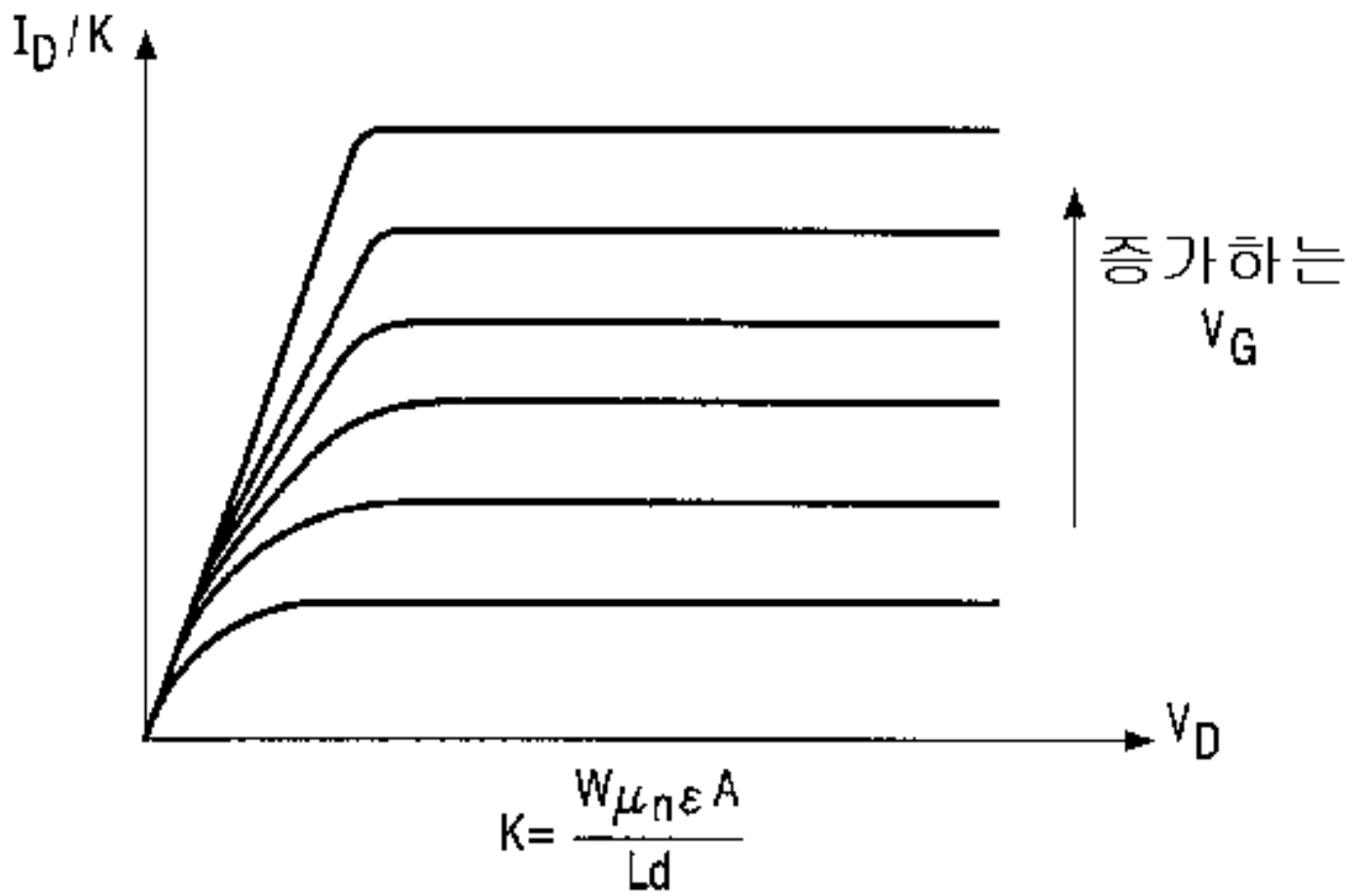
3



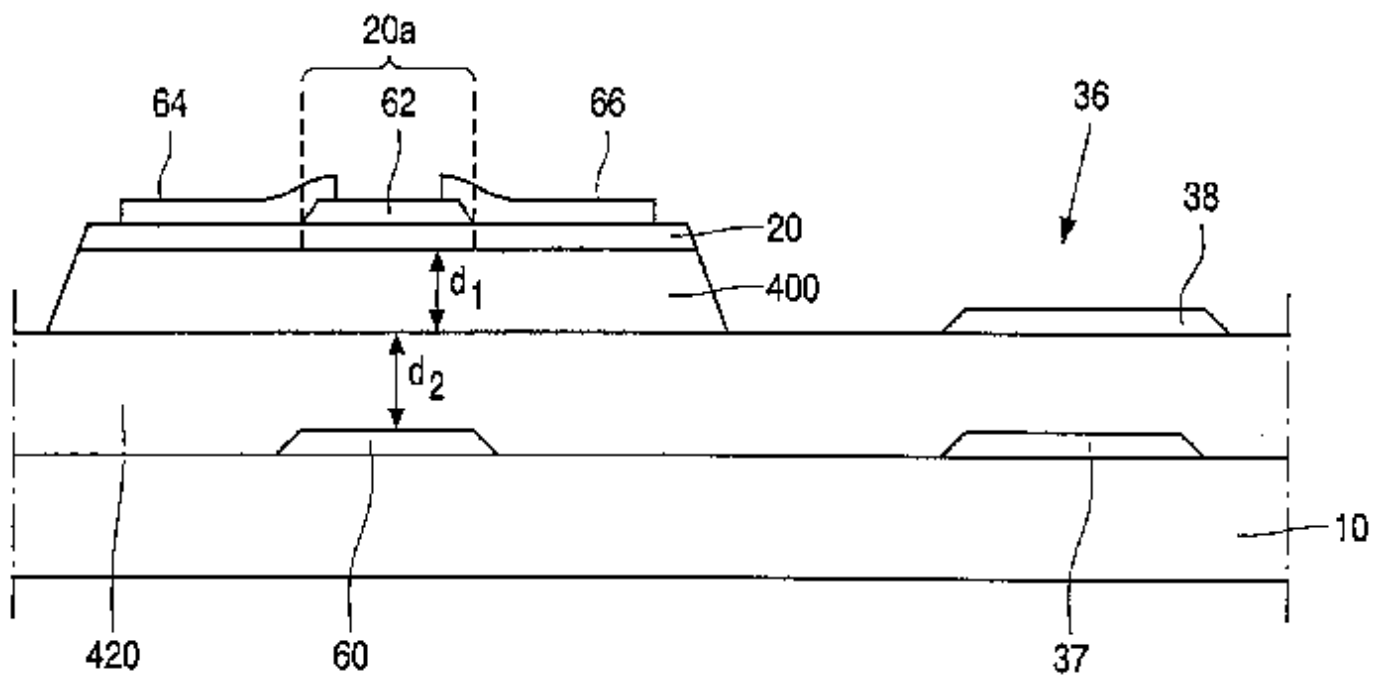
4



5



6



专利名称(译)	用于液晶显示器的晶体管基板，其制造方法以及液晶显示器		
公开(公告)号	KR1020010101885A	公开(公告)日	2001-11-15
申请号	KR1020017009622	申请日	2000-11-15
[标]申请(专利权)人(译)	统宝香港控股有限公司		
申请(专利权)人(译)	血来香港控股的品牌		
[标]发明人	BATTERSBY STEPHEN J 바테르스비슈테펜요트 DEANE STEVEN C 데아네슈테벤체		
发明人	바테르스비, 슈테펜, 요트. 데아네, 슈테벤, 체.		
IPC分类号	G02F1/1333 G02F1/1362 G02F1/1368 H01L21/336 H01L29/786 G02F1/136		
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代理人(译)	文京的		
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其他公开文献	KR100787140B1		
外部链接	Espacenet		

摘要(译)

用于液晶显示器的晶体管基板包括具有交错的绝缘栅极的TFT阵列和与每个晶体管相关联的电容器36。栅极绝缘体400和420包括第一无机层400和第二聚合物或旋涂玻璃层420，其中在电容器中仅存在聚合物或旋涂玻璃层420 Lt; RTI ID = 0.06 & gt; - 1 - 4

