

1 1
2a, 2b, 2c 1 , 2a , 2b 2a A-A' , 2c
2a B-B'
3 2
4a, 4b, 4c 3 , 4a , 4b 4a A-A' , 4c
4a B-B'
5a, 5b 4a A-A' , 3
6 3
7a, 7b 6 , 7a , 7b 7a A-A'
8a, 8b 7a A-A' , 6
9
10

< >

101, 102 :

103 :

104 : ()

105 : ()

106 : ()

107 :

108 :

109 :

110 : ()

111 :

112 :

113 : ()

115 :

가
(optical rotatory power)
(TN) TN
가
(IN-PLANE SWITCHING : IPS)
(6-22739 6-160878) IPS
TN 가 TN
IPS (9-7310
1). ()
(TFT; THIN FILM TRANSISTOR)가
(CF) (CF)

가 , , TFT , CF , IPS
4-253028 (BM)
, CF (, 11-190856).
, 가 (, 2000-111957).

, 11-190856
CF ,
가 .
, 2000-111957 ,
가 . CF BM
, IPS
가

1 2 ,
1 ,
2
가

가
가

가
1 2 ,
1 ,
2 1

가 , 가
2
가

가
(1)
(2) 2
(3)
(4) 2

(5)

(6)
(7)
(8)
(9)
(10) (ZnO)
(11) , Al, Cr, Mo, Ta, W
(12)
(13)
(14)
(15)
(16)
(17)
(18) 5 °
< >
(1)
1 1 2a, 2b, 2c
1 2a B-B' 1 2a A-A' 2b 2a A-A' 2c
104) (: 120) (1 : 101) (: 104) (120)
(104) (107) (107) (116) (116)
(116) (TFT) (: 106) (: 105)
(108) (111) (113) (: 112)
(111) (113)
(107), (108), (113), (112)
(120) (103) (112) (105) 2a (120)
(103) 1 (105) (111) (112) (108) (103)
(105) (111) (105) (103) 1 가
(103) (112) (109) (109)
(102) (109) (109)
(101) (2 : 109) (109) (102) (11
(110) (101)
4) TFT 가 (110)
(101, 102) 가 가 (104) 가 (TFT) (105)
(103) (110) (117)가 가 (110)
(114)
, TFT (1
01) (111) ,
(113)

(1) ; , 가 (111) (113) , , .

(2) ; , (powdered) 가 , , .

(3) ; , , .

(4) ; , , .

(5) ; , , .

(6) ; , () . BM

, (112) , , , , .

, (112) (105) (103) (111) (111)

, (105) (103) (112), (111)

, 가 (105) (103) (111)

, (111) (105) (103) 가

, (105) (103) (111) 가

(2)

, 2 , 3, 4a, 4b, 4c 5a, 5b

, 3 , 4a , 4b 4a A-A'

, 4c 4a B-B' 4a A-A'

, 5a, 5b 4a A-A'

, 3 4a A-A'

, 3

(101) (104) (107) (116)

(120) , (104) (107) (116)

, (116) (106) (108) (112) (105) ITO(In₂O₃: Sn) (111)

, (112) , (111) (112) (107), (108), (111)

, (112) (103) (120) (103) 1

, (105) (103) (111) (112) (106), (104)

, (103) (112) (103)

, (109) (109) (109) (110)

, (101) (102) (109) (114) (111) (103)

, (101) (102) (109) (114) (111) (103)

, 1 가 (105) (111) (112) (103)

, (103) (105) (111) (103) (103) (120) (103)

, 가 (120) (103) (103)

, 가

, 1, 4a (103), (105) 4 (103) 1 가
 , TFT (101, 102) , 가 (110)
 (104) 가 , (TFT) , (10
 5) (103) (117)가 가 ,
 (110)
 (114)
 , 5a (105) (108)
 , (111) (103) BM 가 ,
 , 4a, 4b, 4c 5a (112)
 , (103)
 , 5b (112)
 , (103)
 , (103)
 가 , (103) 가 , , (I)
 , ()
 (103)
 , 1 가 , (105) (103)
 (111) (105) (103) (110)
 (111)
 , , (105) (103) (112),
 (111) 가
 , (105) (103)
 , (111) 가 가
 , 가
 , (120)
 , 1, 2 가
 , 가
 (3)
 , 3 , 6, 7a, 7b 8a, 8b
 , 6 7a A-A' 7a A-A'
 , 6 7a A-A' 6
 , 8a, 8b 7a A-A'
 (101) () : 104)
 (120) (120) (103)
 , (104) (120), (103)
 (107)
 , (104) (107) (116)
 , (116) (TFT) (106) (: 105) (108)
 (106), (105) TFT
 (108) (111) (113)
 (111) (113) (: 112)
 , (105)
 (107), (108), (111) (112) (105) (105)
 , 7a 1 (105)
 (103)

, (105) (103) (111) 가
 가 , 가
 , (112)
 (105) (109) , ,
 (102) (109) (110) (
 101) (102) (109) , (114) (110)
 (101) TFT 가 , (110)
 (101, 102) 가 ,
 (103) (104) 가 (TFT) (105)
 (117)가 가 ,
 (110)
 (114)
 , 8a (111) (105)
 (112) 가 , (109)
 8b , (103) (104)
 (111) 가 ,
 , 8a, 8b , 1, 2 가 , (105) (103)
 (111) (105) (103) (110)
 (112), (111) , (105) (103)
 , 가
 ,
 가 , 가
 , 가
 , 1 3 , 가 , (ITO)
 ,
 , IPS TN () 가
 ,
 (1) 1 1 2a, 2b, 2c
 , (101, 102) 가 0.7mm ,
 (115) (105), (106), (104) (116)
 (104), (120) (106), (105) (103)
 (105) (103) 7 μ m , (105)
 , ITO ,
 가 (107) (108) 0.3 μ m
 (111) , 가 R,
 G, B 3 가 R, G, B 3 , 가 ,
 (113) , 220 , 1 가 (112)

본 발명은, 2a, 2b, 2c, 2d, 2e, 2f, 2g, 2h, 2i, 2j, 2k, 2l, 2m, 2n, 2o, 2p, 2q, 2r, 2s, 2t, 2u, 2v, 2w, 2x, 2y, 2z, 2aa, 2ab, 2ac, 2ad, 2ae, 2af, 2ag, 2ah, 2ai, 2aj, 2ak, 2al, 2am, 2an, 2ao, 2ap, 2aq, 2ar, 2as, 2at, 2au, 2av, 2aw, 2ax, 2ay, 2az, 2ba, 2bb, 2bc, 2bd, 2be, 2bf, 2bg, 2bh, 2bi, 2bj, 2bk, 2bl, 2bm, 2bn, 2bo, 2bp, 2bq, 2br, 2bs, 2bt, 2bu, 2bv, 2bw, 2bx, 2by, 2bz, 2ca, 2cb, 2cc, 2cd, 2ce, 2cf, 2cg, 2ch, 2ci, 2cj, 2ck, 2cl, 2cm, 2cn, 2co, 2cp, 2cq, 2cr, 2cs, 2ct, 2cu, 2cv, 2cw, 2cx, 2cy, 2cz, 2da, 2db, 2dc, 2dd, 2de, 2df, 2dg, 2dh, 2di, 2dj, 2dk, 2dl, 2dm, 2dn, 2do, 2dp, 2dq, 2dr, 2ds, 2dt, 2du, 2dv, 2dw, 2dx, 2dy, 2dz, 2ea, 2eb, 2ec, 2ed, 2ee, 2ef, 2eg, 2eh, 2ei, 2ej, 2ek, 2el, 2em, 2en, 2eo, 2ep, 2eq, 2er, 2es, 2et, 2eu, 2ev, 2ew, 2ex, 2ey, 2ez, 2fa, 2fb, 2fc, 2fd, 2fe, 2ff, 2fg, 2fh, 2fi, 2fj, 2fk, 2fl, 2fm, 2fn, 2fo, 2fp, 2fq, 2fr, 2fs, 2ft, 2fu, 2fv, 2fw, 2fx, 2fy, 2fz, 2ga, 2gb, 2gc, 2gd, 2ge, 2gf, 2gg, 2gh, 2gi, 2gj, 2gk, 2gl, 2gm, 2gn, 2go, 2gp, 2gq, 2gr, 2gs, 2gt, 2gu, 2gv, 2gw, 2gx, 2gy, 2gz, 2ha, 2hb, 2hc, 2hd, 2he, 2hf, 2hg, 2hi, 2hj, 2hk, 2hl, 2hm, 2hn, 2ho, 2hp, 2hq, 2hr, 2hs, 2ht, 2hu, 2hv, 2hw, 2hx, 2hy, 2hz, 2ia, 2ib, 2ic, 2id, 2ie, 2if, 2ig, 2ih, 2ii, 2ij, 2ik, 2il, 2im, 2in, 2io, 2ip, 2iq, 2ir, 2is, 2it, 2iu, 2iv, 2iw, 2ix, 2iy, 2iz, 2ja, 2jb, 2jc, 2jd, 2je, 2jf, 2jg, 2jh, 2ji, 2jj, 2jk, 2jl, 2jm, 2jn, 2jo, 2jp, 2jq, 2jr, 2js, 2jt, 2ju, 2jv, 2jw, 2jx, 2jy, 2jz, 2ka, 2kb, 2kc, 2kd, 2ke, 2kf, 2kg, 2kh, 2ki, 2kj, 2kk, 2kl, 2km, 2kn, 2ko, 2kp, 2kq, 2kr, 2ks, 2kt, 2ku, 2kv, 2kw, 2kx, 2ky, 2kz, 2la, 2lb, 2lc, 2ld, 2le, 2lf, 2lg, 2lh, 2li, 2lj, 2lk, 2ll, 2lm, 2ln, 2lo, 2lp, 2lq, 2lr, 2ls, 2lt, 2lu, 2lv, 2lw, 2lx, 2ly, 2lz, 2ma, 2mb, 2mc, 2md, 2me, 2mf, 2mg, 2mh, 2mi, 2mj, 2mk, 2ml, 2mm, 2mn, 2mo, 2mp, 2mq, 2mr, 2ms, 2mt, 2mu, 2mv, 2mw, 2mx, 2my, 2mz, 2na, 2nb, 2nc, 2nd, 2ne, 2nf, 2ng, 2nh, 2ni, 2nj, 2nk, 2nl, 2nm, 2nn, 2no, 2np, 2nq, 2nr, 2ns, 2nt, 2nu, 2nv, 2nw, 2nx, 2ny, 2nz, 2oa, 2ob, 2oc, 2od, 2oe, 2of, 2og, 2oh, 2oi, 2oj, 2ok, 2ol, 2om, 2on, 2oo, 2op, 2oq, 2or, 2os, 2ot, 2ou, 2ov, 2ow, 2ox, 2oy, 2oz, 2pa, 2pb, 2pc, 2pd, 2pe, 2pf, 2pg, 2ph, 2pi, 2pj, 2pk, 2pl, 2pm, 2pn, 2po, 2pp, 2pq, 2pr, 2ps, 2pt, 2pu, 2pv, 2pw, 2px, 2py, 2pz, 2qa, 2qb, 2qc, 2qd, 2qe, 2qf, 2qg, 2qh, 2qi, 2qj, 2qk, 2ql, 2qm, 2qn, 2qo, 2qp, 2qq, 2qr, 2qs, 2qt, 2qu, 2qv, 2qw, 2qx, 2qy, 2qz, 2ra, 2rb, 2rc, 2rd, 2re, 2rf, 2rg, 2rh, 2ri, 2rj, 2rk, 2rl, 2rm, 2rn, 2ro, 2rp, 2rq, 2rr, 2rs, 2rt, 2ru, 2rv, 2rw, 2rx, 2ry, 2rz, 2sa, 2sb, 2sc, 2sd, 2se, 2sf, 2sg, 2sh, 2si, 2sj, 2sk, 2sl, 2sm, 2sn, 2so, 2sp, 2sq, 2sr, 2ss, 2st, 2su, 2sv, 2sw, 2sx, 2sy, 2sz, 2ta, 2tb, 2tc, 2td, 2te, 2tf, 2tg, 2th, 2ti, 2tj, 2tk, 2tl, 2tm, 2tn, 2to, 2tp, 2tq, 2tr, 2ts, 2tt, 2tu, 2tv, 2tw, 2tx, 2ty, 2tz, 2ua, 2ub, 2uc, 2ud, 2ue, 2uf, 2ug, 2uh, 2ui, 2uj, 2uk, 2ul, 2um, 2un, 2uo, 2up, 2uq, 2ur, 2us, 2ut, 2uu, 2uv, 2uw, 2ux, 2uy, 2uz, 2va, 2vb, 2vc, 2vd, 2ve, 2vf, 2vg, 2vh, 2vi, 2vj, 2vk, 2vl, 2vm, 2vn, 2vo, 2vp, 2vq, 2vr, 2vs, 2vt, 2vu, 2vv, 2vw, 2vx, 2vy, 2vz, 2wa, 2wb, 2wc, 2wd, 2we, 2wf, 2wg, 2wh, 2wi, 2wj, 2wk, 2wl, 2wm, 2wn, 2wo, 2wp, 2wq, 2wr, 2ws, 2wt, 2wu, 2wv, 2ww, 2wx, 2wy, 2wz, 2xa, 2xb, 2xc, 2xd, 2xe, 2xf, 2xg, 2xh, 2xi, 2xj, 2xk, 2xl, 2xm, 2xn, 2xo, 2xp, 2xq, 2xr, 2xs, 2xt, 2xu, 2xv, 2xw, 2xx, 2xy, 2xz, 2ya, 2yb, 2yc, 2yd, 2ye, 2yf, 2yg, 2yh, 2yi, 2yj, 2yk, 2yl, 2ym, 2yn, 2yo, 2yp, 2yq, 2yr, 2ys, 2yt, 2yu, 2yv, 2yw, 2yx, 2yy, 2yz, 2za, 2zb, 2zc, 2zd, 2ze, 2zf, 2zg, 2zh, 2zi, 2zj, 2zk, 2zl, 2zm, 2zn, 2zo, 2zp, 2zq, 2zr, 2zs, 2zt, 2zu, 2zv, 2zw, 2zx, 2zy, 2zz, 2aa, 2ab, 2ac, 2ad, 2ae, 2af, 2ag, 2ah, 2ai, 2aj, 2ak, 2al, 2am, 2an, 2ao, 2ap, 2aq, 2ar, 2as, 2at, 2au, 2av, 2aw, 2ax, 2ay, 2az, 2ba, 2bb, 2bc, 2bd, 2be, 2bf, 2bg, 2bh, 2bi, 2bj, 2bk, 2bl, 2bm, 2bn, 2bo, 2bp, 2bq, 2br, 2bs, 2bt, 2bu, 2bv, 2bw, 2bx, 2by, 2bz, 2ca, 2cb, 2cc, 2cd, 2ce, 2cf, 2cg, 2ch, 2ci, 2cj, 2ck, 2cl, 2cm, 2cn, 2co, 2cp, 2cq, 2cr, 2cs, 2ct, 2cu, 2cv, 2cw, 2cx, 2cy, 2cz, 2da, 2db, 2dc, 2dd, 2de, 2df, 2dg, 2dh, 2di, 2dj, 2dk, 2dl, 2dm, 2dn, 2do, 2dp, 2dq, 2dr, 2ds, 2dt, 2du, 2dv, 2dw, 2dx, 2dy, 2dz, 2ea, 2eb, 2ec, 2ed, 2ee, 2ef, 2eg, 2eh, 2ei, 2ej, 2ek, 2el, 2em, 2en, 2eo, 2ep, 2eq, 2er, 2es, 2et, 2eu, 2ev, 2ew, 2ex, 2ey, 2ez, 2fa, 2fb, 2fc, 2fd, 2fe, 2ff, 2fg, 2fh, 2fi, 2fj, 2fk, 2fl, 2fm, 2fn, 2fo, 2fp, 2fq, 2fr, 2fs, 2ft, 2fu, 2fv, 2fw, 2fx, 2fy, 2fz, 2ga, 2gb, 2gc, 2gd, 2ge, 2gf, 2gg, 2gh, 2gi, 2gj, 2gk, 2gl, 2gm, 2gn, 2go, 2gp, 2gq, 2gr, 2gs, 2gt, 2gu, 2gv, 2gw, 2gx, 2gy, 2gz, 2ha, 2hb, 2hc, 2hd, 2he, 2hf, 2hg, 2hi, 2hj, 2hk, 2hl, 2hm, 2hn, 2ho, 2hp, 2hq, 2hr, 2hs, 2ht, 2hu, 2hv, 2hw, 2hx, 2hy, 2hz, 2ia, 2ib, 2ic, 2id, 2ie, 2if, 2ig, 2ih, 2ii, 2ij, 2ik, 2il, 2im, 2in, 2io, 2ip, 2iq, 2ir, 2is, 2it, 2iu, 2iv, 2iw, 2ix, 2iy, 2iz, 2ja, 2jb, 2jc, 2jd, 2je, 2jf, 2jg, 2jh, 2ji, 2jj, 2jk, 2jl, 2jm, 2jn, 2jo, 2jp, 2jq, 2jr, 2js, 2jt, 2ju, 2jv, 2jw, 2jx, 2jy, 2jz, 2ka, 2kb, 2kc, 2kd, 2ke, 2kf, 2kg, 2kh, 2ki, 2kj, 2kk, 2kl, 2km, 2kn, 2ko, 2kp, 2kq, 2kr, 2ks, 2kt, 2ku, 2kv, 2kw, 2kx, 2ky, 2kz, 2la, 2lb, 2lc, 2ld, 2le, 2lf, 2lg, 2lh, 2li, 2lj, 2lk, 2ll, 2lm, 2ln, 2lo, 2lp, 2lq, 2lr, 2ls, 2lt, 2lu, 2

024×3×768

- (109) 1 가 .
- IPS TN
- IPS
- 2
- 가
- 0) T(N-I)가 76 Δn 0.075(75° 590nm, 20 A), $\Delta \epsilon$ K2가 7.0pN, 10.2(1kHz, 2
- () 4.2 μ m ($\Delta n d$) , 0.31 μ m가
- 2° 2 (114)
- 가
- 가 1
- 가
- 1 가
- 1
- (3) 7V 1
- 3 (103) ITO
- 1 (120) 1/3 (103) 2 가
- RGB 1 1 가 , 2 가
- 1 가 2 가 1
- 6.5V 1
- (4) 4 3 가 , (103) ITO
- (103) (103) 2 가
- UV
- 가
- 가 3
- 가
- 1 가 3 가 1
- 6.5V 1
- (5) 5 4 가 , (103) ITO
- (103) (103)
- 4 가
- 가 4
- 가
- 1 가 4 가 1
- 6.5V 1
- (6)

, 6 , 가 TFT
 , 10 μ m (103)
 (104) 3 가 3 가
 , 3
 , 1 가 2 가 1 , 가 ,
 , 6.5V 1
 (7)
 , 3 , 6 7a, 7b
 , (101, 102) 가 0.7mm
 (115) (105), (106), (104) (116)
 (104) (120) (106)
 (103) ITO (120)
 (107) (108) 0.3 μ m
 (111) R, G, B 3
 , R, G, B 3
 , 7b (105) 10 μ m
 , 220 , 1 가 (112)
 (105) 4 (112) 0.2 μ m BM (111)
 , 7 μ m (105) (103) (105) 4 μ m (103)
 ITO , 5 (105) (103)
 , 1024 $\times$ 3(R, G, B 7a) (106) 768 (104) (103) 1024 $\times$ 3 $\times$ 768
 , 5 가 가 , 1 가
 , (109)
 , IPS TN
 , IPS
 , 2 , 2
 , 가 15 $^{\circ}$ $\Delta \epsilon$ -2.2(1kHz,
 20) , Δn 0.1(590nm, 20) B
 ($\Delta n d$) 0.35 μ m가 () 3.5 μ m
 (114) 2 $^{\circ}$ 2
 , 가 1
 , 가 1
 , 1 가 가 , 가 ,
 1 1
 , 6.7V 1
 (8)

, 8 , 1 가 ,
 4, 4'- , 1, 2, 3, 4- ,
 230 , 30 50nm,
 20nm 254nm
 , 1 가 A , 100 , 10 ,
 , d가 $4.0\mu\text{m}$,
 , 1° ,
 , 1 가 , 가 , 1
 , 1 가 , 가 ,
 1 가 ,
 6.5V 1 .
 (1)
 9 1 , (101, 102) 가
 0.7mm
 (104) (115) (105), (106), (104) (116)
 (120) (106) (105)
 (107) (108) , 0.3 μm .
 B 3 가 , 가 R, G,
 R, G, B 3 ,
 , 9 (105) 10 μm
 (105) (105) ITO 4
 (112) 0.5 μm , 220 , 1 가 (112) (105)
 (111)
 , ITO , (120) 10 μm
 7 μm (103) (105) (103)
 (103) (106), (104) (115)
 , 2 가 , (105)
 3 (103) 1024 $\times$ 3(R, G, B) (106)
 768 (104) 1024 $\times$ 3 $\times$ 768
 1 가 , 9
 , 가 , 1
 가 ,
 , 1 가 , 가 ,
 10 ,
 (2)
 10 2 , (101, 102)
 가 0.7mm
 (104), (115) (105), (106), (104) (116)
 (120) (106), (105) (103)
 (105) (103) 7 μm .
 (107) (105) (108) , 0.3 μm .
 (111) , 가 R, G,
 B 3 가 ,
 , R, G, B 3 ,
 (113) .

, 220 , 1 가 (112)
 , 1024×3(R, G, B) (106) 768 (104) 1024×3
 ×768 1 가 , 10
 , 가 , 1
 , 1 가 , 가
 , 1 1 , 가
 , 7.6V 1 1V .

가 가 , , , .

(57)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

- 8.
- 9.

1

가

2

가

10.

7

9

11.

7

9

12.

11

13.

7

9

Al, Cr, Mo, Ta, W

14.

13

15.

14

16.

14

17.

14

18.

7

9

2

19.

18

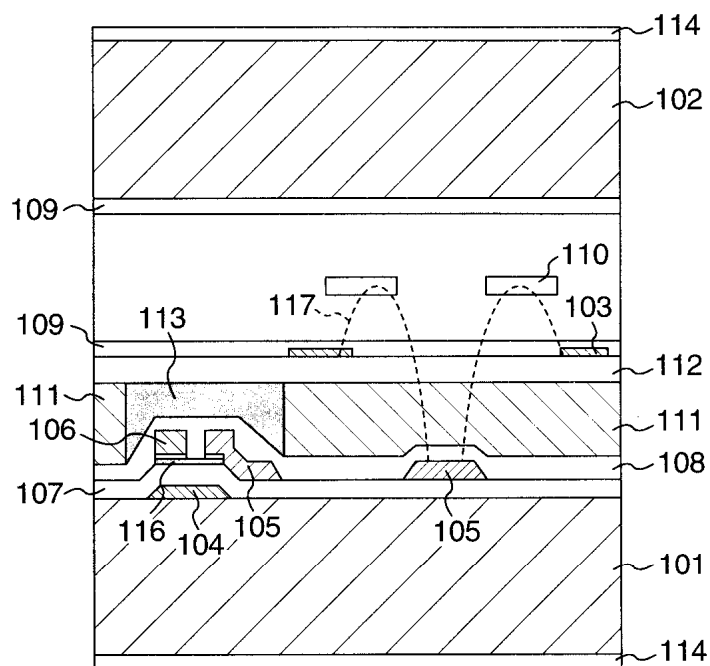
20.

7

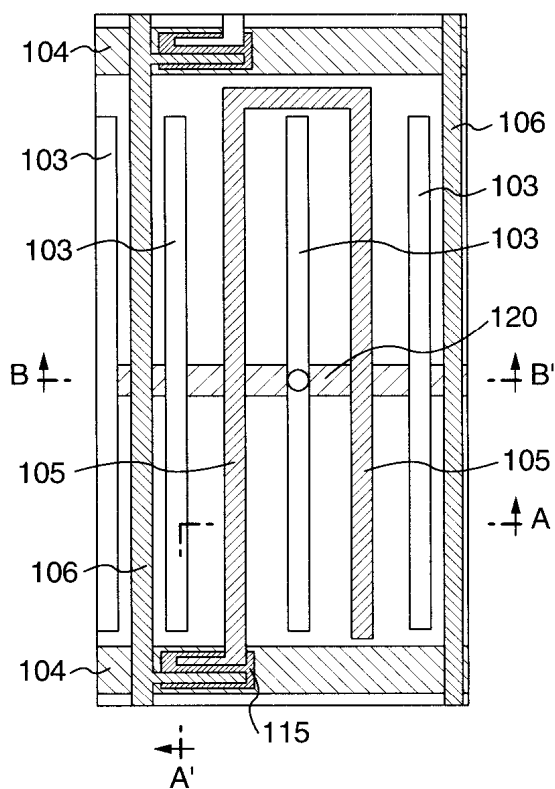
9

5 °

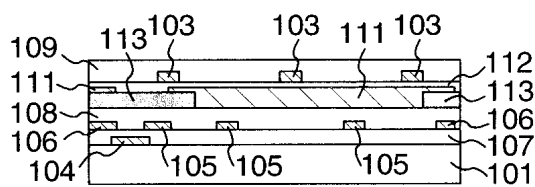
1



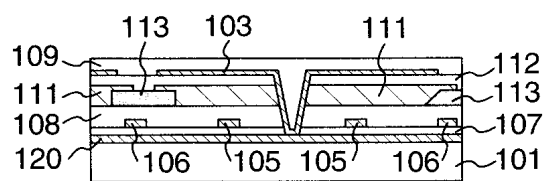
2a



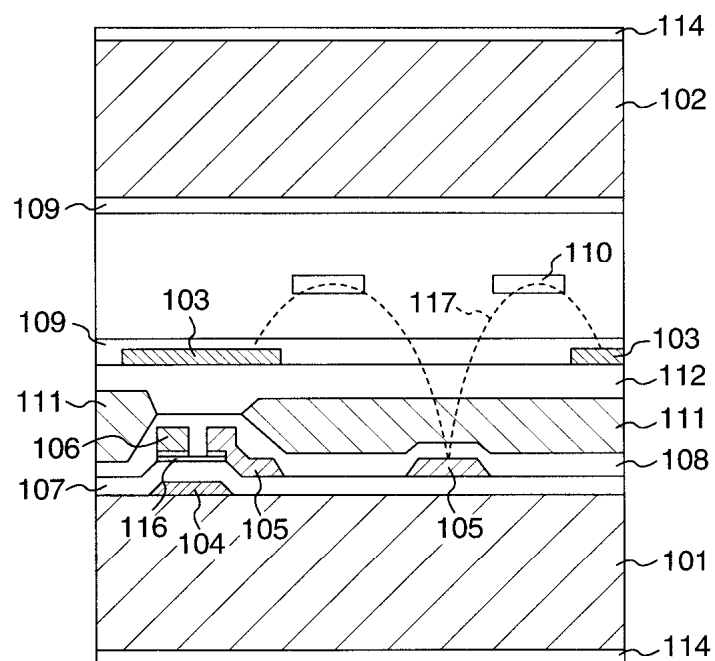
2b



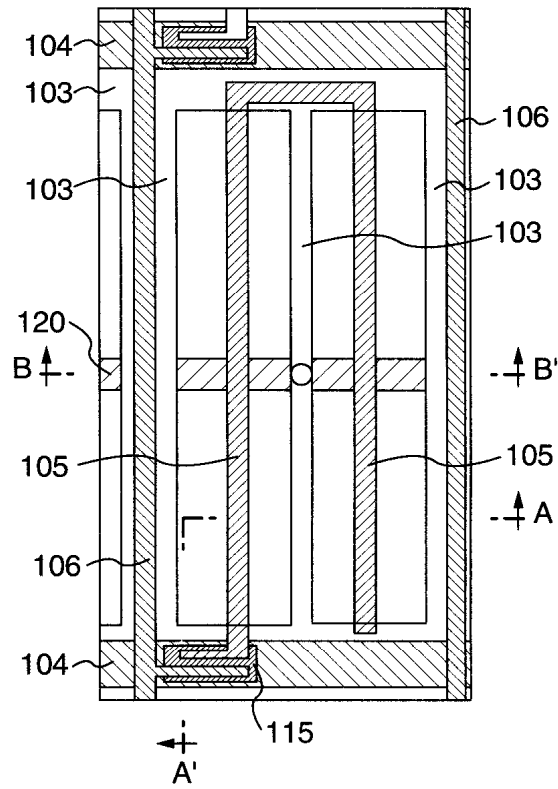
2c



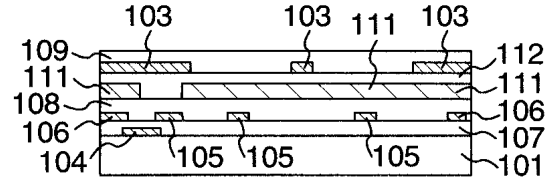
3



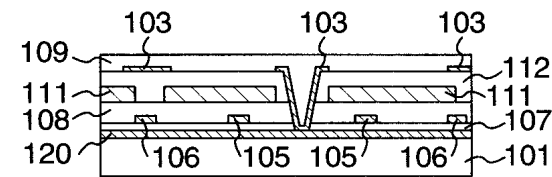
4a



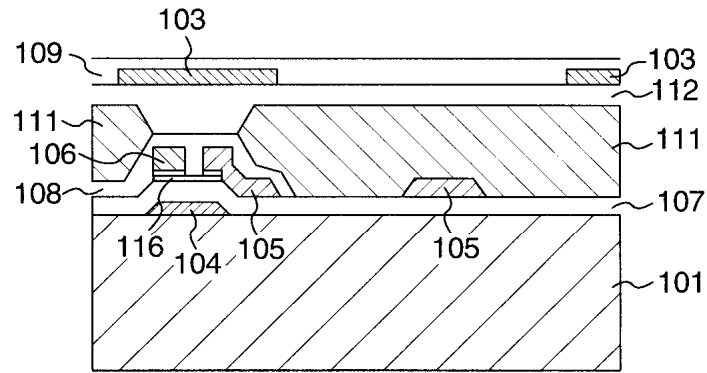
4b



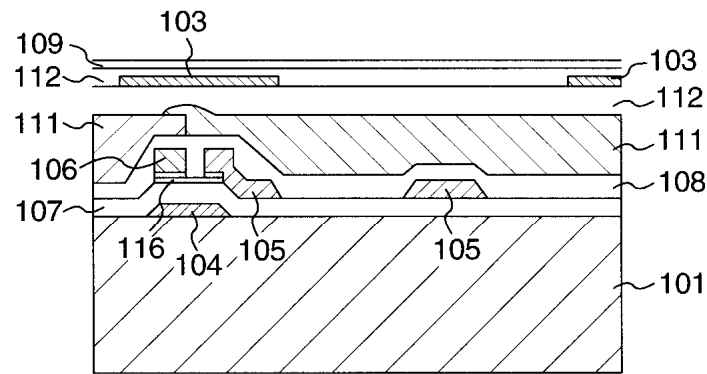
4c



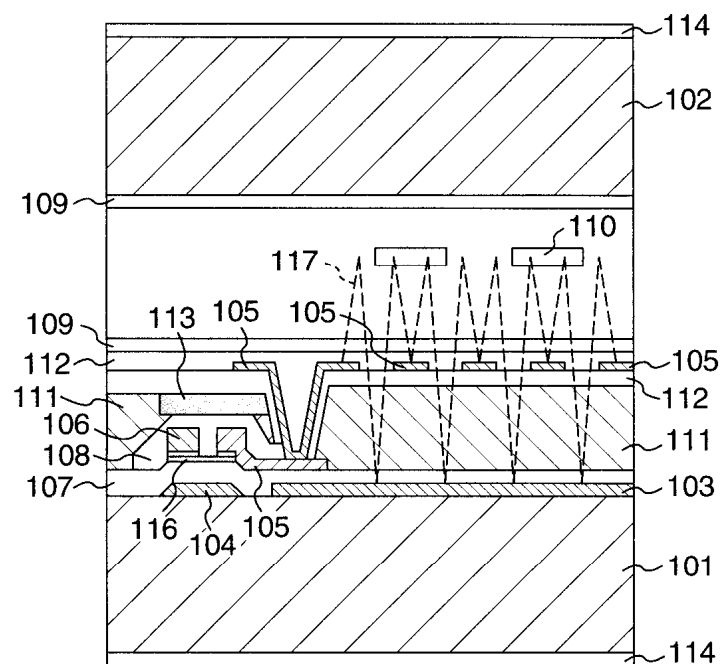
5a



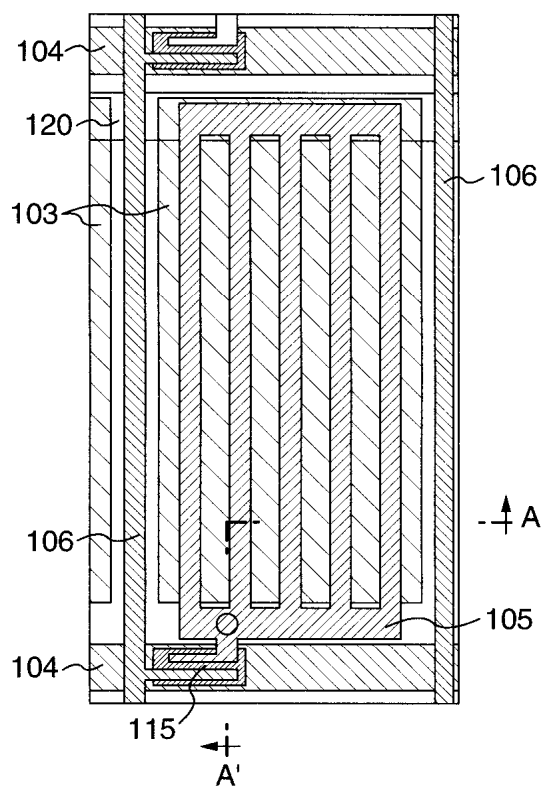
5b



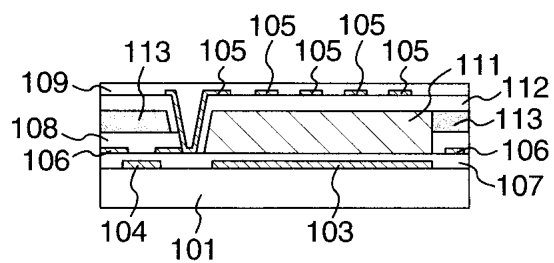
6



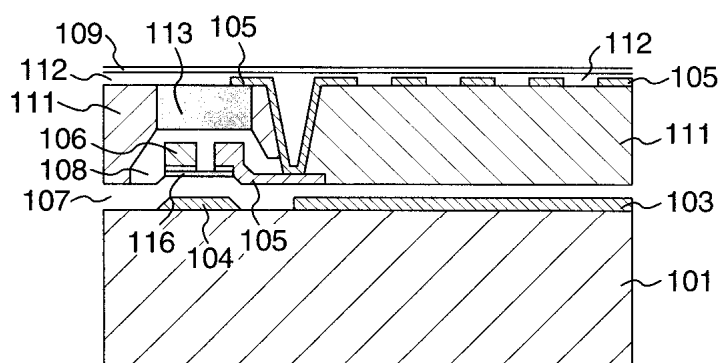
7a



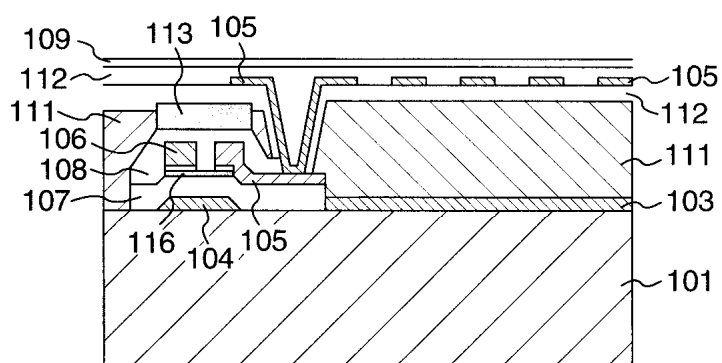
7b



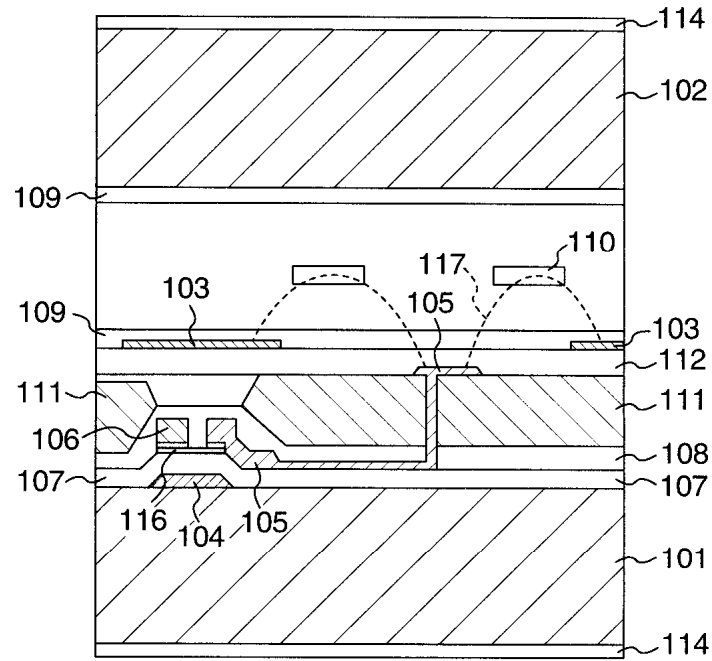
8a



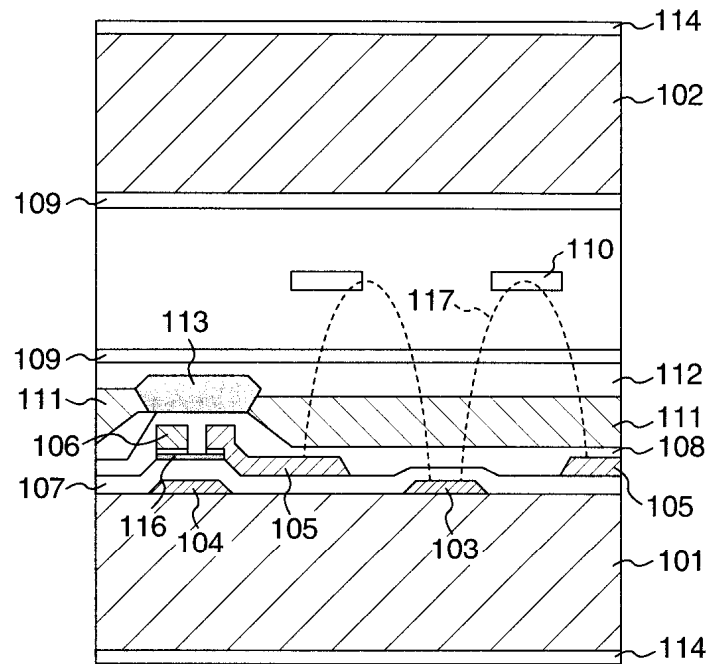
8b



9



10



专利名称(译)	液晶显示器		
公开(公告)号	KR100460472B1	公开(公告)日	2004-12-08
申请号	KR1020010052446	申请日	2001-08-29
[标]申请(专利权)人(译)	日立HITACHI SEISAKUSHODBA		
申请(专利权)人(译)	株式会社日立制作所		
当前申请(专利权)人(译)	株式会社日立制作所		
[标]发明人	TOMIOKA YASUSHI 도미오까야스시 UMEDA YOSHIYUKI 우메다요시유키 KONDO KATSUMI 콘도가쯔미		
发明人	도미오까야스시 우메다요시유키 콘도가쯔미		
IPC分类号	G02F1/1335 G02F1/1368 G02F1/1333 G02F1/13363 G02F1/1343 G09F9/30		
CPC分类号	G02F1/134363		
代理人(译)	CHANG, SOO KIL		
优先权	2001053826 2001-02-28 JP		
其他公开文献	KR1020020070756A		
外部链接	Espacenet		

摘要(译)

一种液晶显示器，包括：一对基板，具有第一基板和第二基板，第一基板和第二基板中的至少一个是透明的，液晶层和滤色器层均设置在所述一对基板之间，多个薄膜晶体管设置在第一基板上并连接到图像信号布线和扫描信号布线，公共电极和像素电极连接到薄膜晶体管并且与像素区域中的公共电极相对放置。公共电极和像素电极通过层间绝缘膜放置在不同的层中，所述层间绝缘膜由包括滤色器层的至少两层形成，并且液晶层的液晶分子的取向方向由施加在其上的电压控制。至少通过层间绝缘膜。

