

(19)
(12)

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G02F 1/133

(45)
(11)
(24)

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2002 03 05

(21) 10 - 2000 - 0024547
(22) 2000 05 09

(65) 2000 - 0077189
(43) 2000 12 26

(30) 99 - 128393 1999 05 10 (JP)

(73) 가 가
 가

가 4 6

(72) 1 - 5 - 1 가 가

1 - 5 - 1 가 가

1 - 5 - 1 가 가

1 - 5 - 1 가 가

1 - 5 - 1 가 가

(74)

(54) (冗長)

(冗長)

(i) 가 (ii) 가 (iii) 가 (iv) 가

1

2 2 (flip chip)

3 3 .

4 4 .

5 5 .

6 6 .

7 . 1

8A, 8B 8C

9 가 .

10 FCA .

11 PC .

12

 \wedge

101 : 102 :

103 : 104 :
 BM : CN1, CN2 :
 CONT : DA :
 DAN : DATA :
 DB : DD :
 DH1, DH2, DHG : FIL :
 ITO2 : GB :
 GBS : GC1, GC2 :
 GD : LCD :
 LCT : LPC :
 MCA : MDL :
 ORI2 : PCB :
 PSV2 : SCR :
 SUB2 : TCP :

·
 ·
 PC (OA)
 ()
 (1.0) 가
 (TFT)가
 63 - 309921
 193
 210, 1986 12 15 , 12.5 ,
 -

(,) ,
2
(□)

(, , LCD : Liquid Crystal Display) ,

가 , 가
가 .

12

LCD , SCR () , GD (IC) , GB
, DD (IC) , DB , CONT , DATA
DAN (DATA) , DH , CN1 , CN2 1 2

12 (LCD) (SCR) (DATA)
(DATA)

ATA) (DAN) (DD) (DATA) (D
(DAN) 12

D) (DH) 「 ㄱ 」 (SCR) (LC
(DAN) (CN1) 2 (CN2) (DATA)
(DH)

1 (DAN) 12 (DH) 2 (DD)
12 (CN1) (CN2)

(DATA) (DH) , (SCR)

ow) (r

가 .

가 .

가 .

가 .

IC

가

1

1 1

LCD , SCR (), GD (IC), GB , DD (, CONT , DATA , DAN (DATA) , DH1, DH2, DHG , CN1, CN2 , DA , B), (DB) (GD), (DD) (LCD) (G (TCP) 1 (DATA) (LCD) (SCR) (1) (DATA) , (LCD) (DB) (DD) (SCR) (GD)가 (LCD) (GB)

(DB) , (DD) , (DD)

(GB) , (GD) , (GD)

(CONT) , PC
(DB)

(GB)

, (DATA) 1 , (DATA)
(DATA) , (DAN)가 (DAN)가 , (DAN)
, 가 (DD) (DAN) 가 , (DAN)
가 ,

2) (LCD) (8) , 1 (DH1) 2 (DH
2 (DH2) (DD) 가 1 (DH1) , 1
(DH1, DH2) , (DATA)
, (DH1, DH2, DHG)
, (DATA) 5 , (, 25 μ m)

3 (DHG) 1 2 (DH1 DH2)
(GB) , (DD)가 (LCD) 1
, (GD)가 1 (LCD)
2 , 1 2 (DH1 DH2) (DD)
, 3 (DHG) (GD)
3 (DHG) 2 (LCD) 3

, (GB) (DHG) , (LCD) 1 (DH1)
2 (DH2) ,
(GD) (dummy)

가 1 2 (DH1 DH2) 3 (DHG) 1 2
(DH1 DH2) 3 (DHG)

, (GB) (DHG) , (DHG)
(DA) , (DA) (GB) ()
(DA) (GB) OP

(DAN) (DATA) (LCD) (DD)
 (DH1, DH2) 1, 2 (CN1, CN2)

(DATA) (DAN) (DD) 1 (DD)
 (CN) (DH1), 3 (DHG), (DA), 3 (DHG), 2
 (DH2), 2 (CN2)

1 (DH1), 3 (DHG) 2 (DH2)
 (DA) 가 (DHG)

(DAN) (DATA) (DD)
 가 (DAN)) (DAN) ((DD)
 가 (DATA)) (DAN)

1 (DH1), 3 (DHG), (DA), 2
 (DH2) 1 (DATA) 1 가
 (DATA) (DH1, DHG, DH2)),
 가 (2 6).

(DA) (GB) (DA)
 (LCD) 1, 2 (DH1, DH2, DHG) (DH1, 「ㄱ」
 (DA) (DB)

(DD) 가 가

2

2 가 2

1

2

2

2

.

2 (LCD) , 1 (DD), (GD)
 (CONT) (LCD) (, FCA(Flip Chip Attachment) , COG(Chip On Glass)),
 (DH) (LCD) 「ㄱ」 ... 「U」
 (LCD) (DH) (DA)

(DAN) , 1 가 (DAN) , (DAN)

, (DD), (GD) (LCD) FCA
 , .

, (DH) , (DATA) 2
 , (DATA) (DH) , (DATA) 2
 , (DATA), ,
 (DH) 가 ,
 , (DA)

3

3

3

.

3 , 1 (DH1) (DD)(
 IC) (DATA) (((ADDR)
 (DOUT)) , (CONT) (ADDR)
 .
 (ADDR) , (DOUT)
 (DATA)

3

2

(DOUT) , (DD) , (DATA)
 , (LCD) (ADDR) (GD)가 ((DHG))
 (GD)가 가 가 (DD) (DATA) ,
 , 3 (DD)
 (DATA) , (ADDR)
 (DATA) , (GD) 가 가

(DD) (DOUT) (DHG, DH2) .

, 1 가 (DAN)가 (DATA) (DAN)

, .

, (DOUT) IC , 1

(DH1) ,

(DOUT) (OLCD) (DHG) 3 가 가 , (DD)(IC) (DHG)

, 가 (DHG) 가 가 IC (DOUT) .

4

4 4 .

4 , 1 (DH1) , (DB) (DHD) (DHD) (DA) (GB)

(DHG) .

, (DHD) (DHG) (CONT)

, (CONT)

A) , (DA) (DB) 가 , (DAT

(DD) , (DA) (1),

가 .

, (DA) (CONT) .

5

5 5 .

5 , 4 , 1 (DH1) (DB) (DD) 1 (D

HD) .

, (DHD) (DHG) (CONT)

, (CONT)

, (DH1) (DD) 1 ,

(CN1) (DHD) ,

가 .

6 6 .

6 , 5 (CN3) (DB)
 , (DA) 1 (DH1) (CN3)
 , (DHD) (CN3) 1 .
 , (DHD) (DHG) (CONT)
 , (CONT) .
 , (CN3) (DB) ,
 (CN3) , .
 , (CN3) (DHD) 1 ,
 (CN3) (DATA) , (가
 DA) (CN1) ,

《 》

7 1 , 8A
 , 8B (7 VIII - VIII),
 8C 가 (DTM) .

7 ((GL)
 ((DL)
 (TFT1, TFT2), (ITO1) (Cadd) .
 (GL) (DL)

8A 8C (TFT1, TFT2) (ITO1) (LC)
 , (SUB1) (FIL)
 (BM) (LC) (SUB2) (SUB1, SUB2)
 (SIO) .

(SUB2) (LC)) , (BM), (FIL), (PSV
 2), (ITO2)(COM) (ORI2) .

《 가 》

9 .

TFT (TFT - LCD) (103)가 , , 800×3×600
 XGA (TFT - LCD) , (104), (101), (102)가
 (103) , , .

(101) (102) (PCB) . (101), (102)
(PCB) , (PNL) (MDL) 가 가
, () 가
. 9 (GL) , (TFT) , 2 (DL) 2
(TFT) , , (D), (G) .
(TFT) , (TFT) (CLC) 가 .
(TFT) , 가 ,
가 (TFT) (Cadd) .
, , ,
《 》
10 FCA (MDL) .
SHD (), WD , SPC1 4 , F
PC1, 2 (FPC1 , FPC2), PCB
, ASB , PNL 2
IC (), GC1 GC2 , PRS (,
2), SPS , GLB , RFS , MCA (,),
LP , LPC , LCT 가 , GBS (LP) ,
(MDL) .
《 (MDL) 》
11 (MDL) PC, (IV)
, (MDL) (MI) .
IC (PNL) COG
, ,
, 가 .
, 11 (PCB)
(TCON) 가 가
, FCA 가
, .

5, 598, 285 가 , 1997 1 28 (Kondo et al.)

가

가

가

가

(57)

1.

가

1

1

가

2

2

1

(iii)

(ii)

(iv)

가

(i)

(i) 가 , (ii) , (iii) 가 (iv)

2.

1 ,

3.

1 ,

4.

1 ,

5.

1 ,

6.

가 ,

2

,

1

1

가

2

1

(iii) (iv) (i)
(ii) 가

(i) (ii)
가 ,
(iii) (iv)
IC

7.

6 ,

,

가

,

가

가

.

8.

6 ,

가

.

9.

6 ,

IC

가

,

IC

IC

가 가

.

10.

6 ,

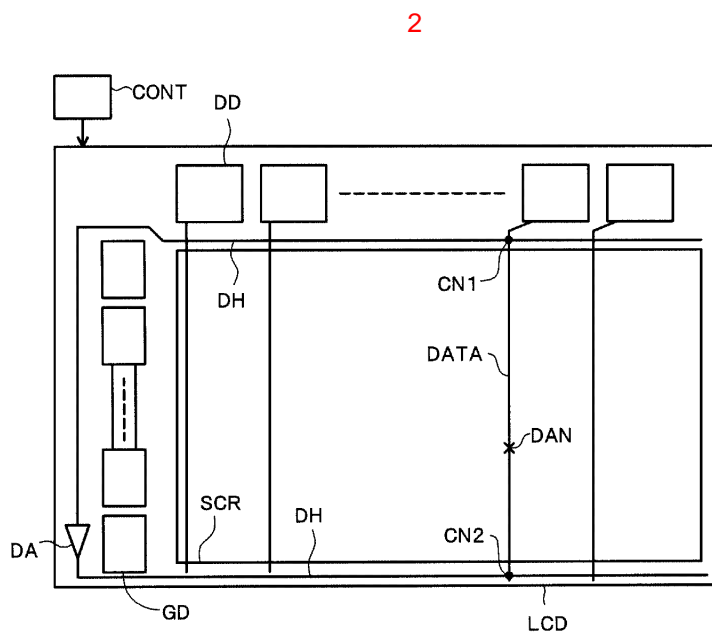
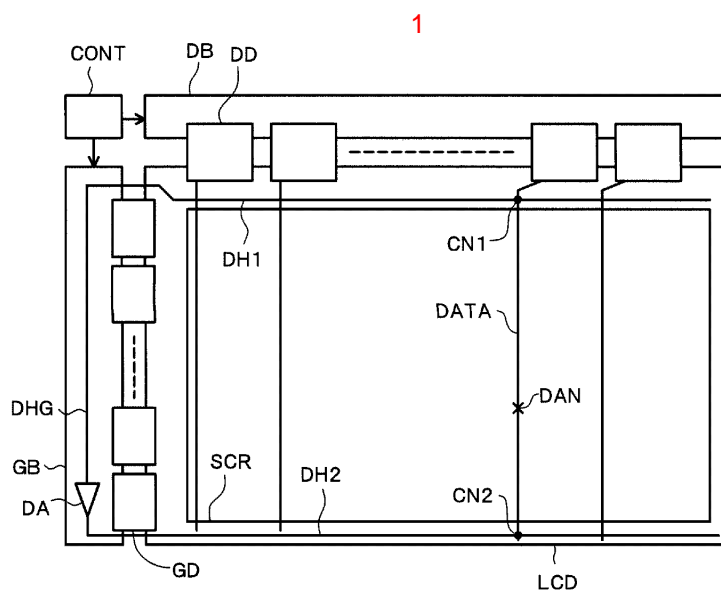
,

,

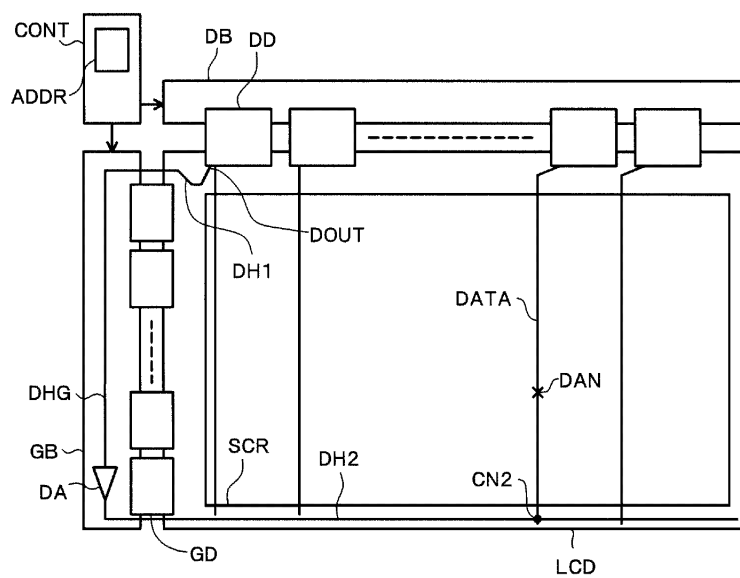
.

11.

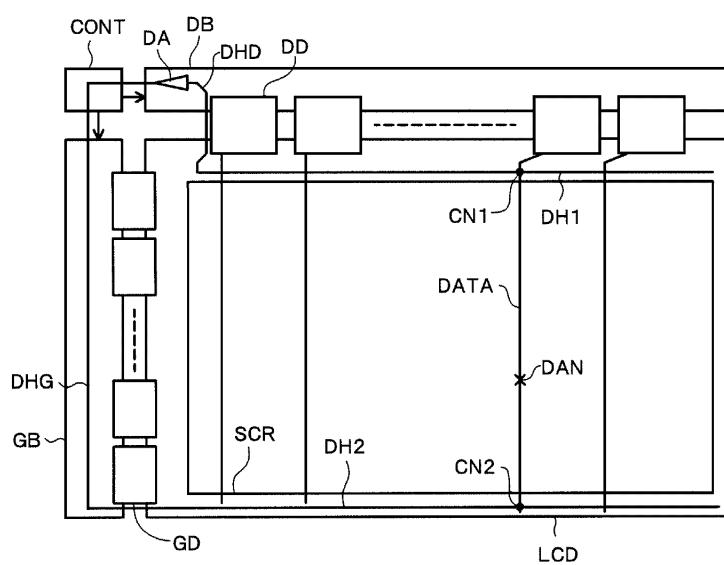
6



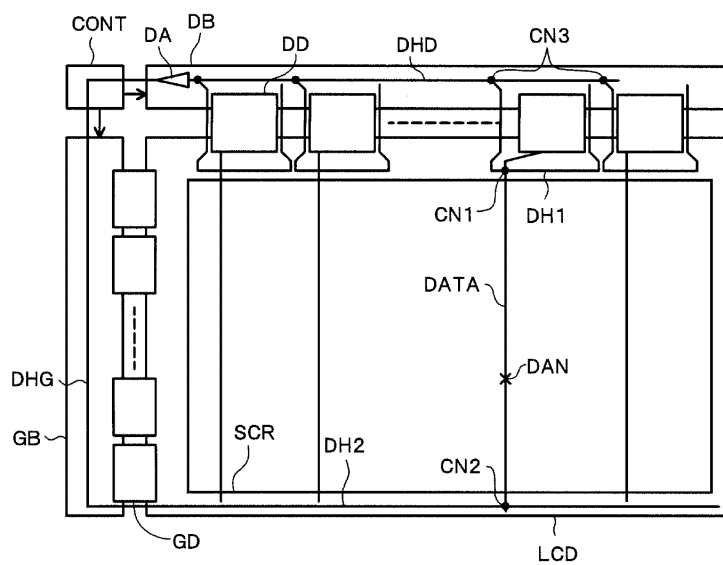
3



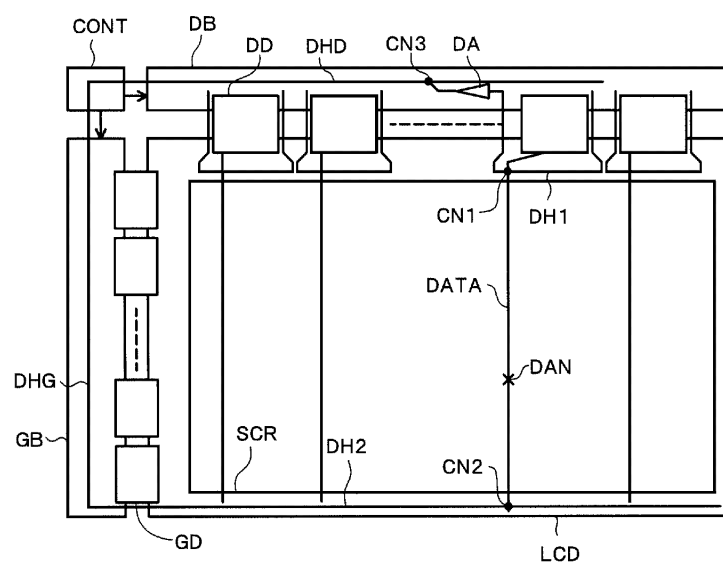
4



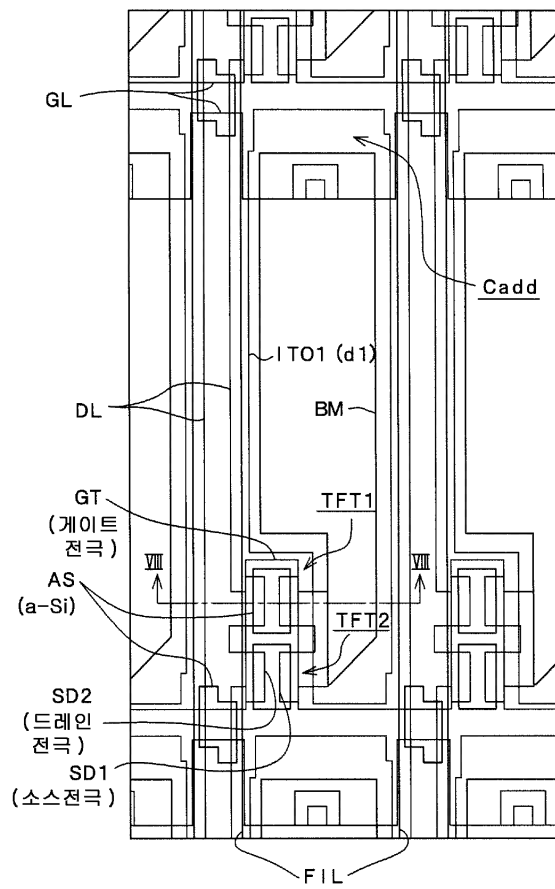
5



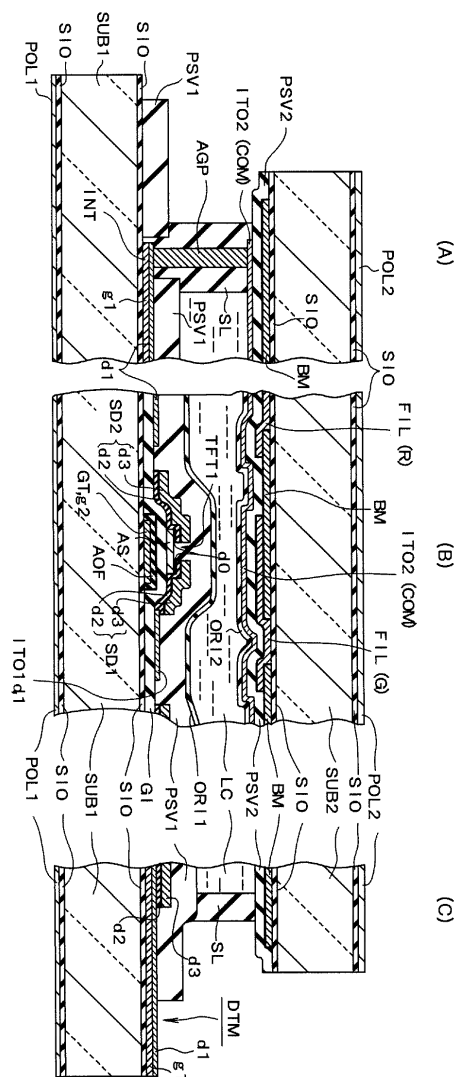
6



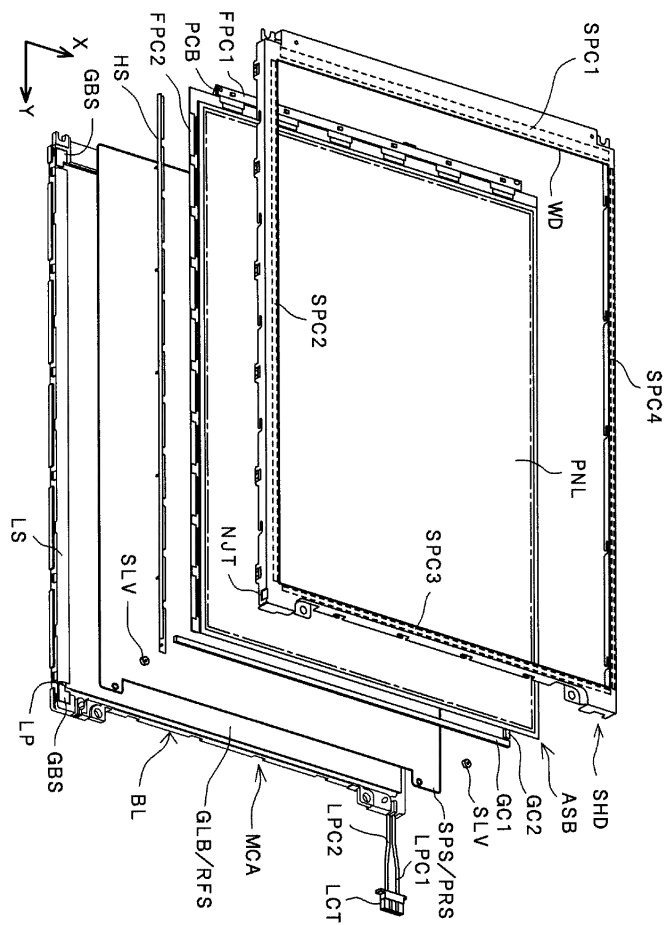
7



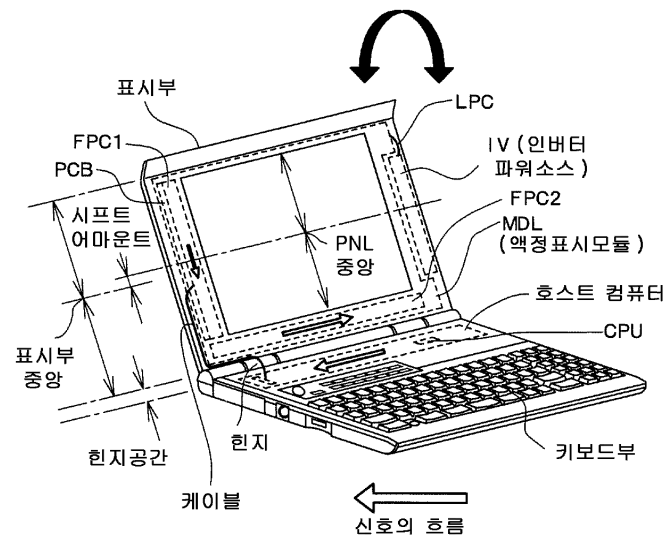
8



10



11



12

