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 2921 2001 10 30 (JP)

(71) 가 가
 2 4 - 1

(72) 가 3 3 - 5 가 가

(74)

(54), ,

(13) ROM(12)	Dref	,	D
R' 가 .	DHr	,	(14R)
(17R) , X, Y	Dx, Dy	,	(14R)
DHr	4	DR'	DHr1 DHR4
.			
(15R)	(14R)		
Cmp - R	.	,	DR'
Cmp - R 가 ,			

, (flicker) .

1 1 ,
2 , ,
3 , ,
4 , ,
5 , ,
6 , ,
7 , ,
8 3 ,
9 ROM ,
10 , ,
11 , ,
12 , ,
13 (a) 가 , , 13 (b)
 , 13 (c) ,
14 2 ,
15 , ,
16 ROM , ,
17 R , ,
18 3 , ,
19 W - LUT , ,
20 B - LUT , ,
21 , ,
22 , ,

23

10 : X 11 : Y

12 : ROM() 13 :

14R, 14G, 14B : 15R, 15G, 15B :

322 : 324 :

326 : 가 328 : D/A

17R, 17G, 17B : 100a :

300 : 310 :

320 : 3222 : W - LUT()

3242 : B - LUT() 3224, 3244 :

M11 M14, M21 M24 : DR, DG, DB :

Drefr, Drefg, Drefb :

DHr, DHg, DHb : (1)

Cmp - R, Cmp - G, Cmp - B : (2)

DCLK : (1)

HCLK : (2)

Dx : X Dy : Y

(flicker)

, , , , 1 TN(Twisted Nematic),
 , , , , 1 (Thin Film Transistor :
 , ,

「TFT」)

, (), 90°, 가

, TFT, 가 ()가
(ON), , 가, 가, , 가, 가 . , (OFF)
, 가, 가

0° (旋光), 가 0° (白), (黑)

, 가 가

, , 가 , , 가 , $\forall c$

13 (a) , TFT
가 , () 가 Vdd
Vss , .

, 가 . ,
Vgp, Vgn / , PD, ND

, 가 TFT , 가 Vss ()

, 가 , 13 (a)

가 . , 가 (flicker) 가

, / , 가

/

/

,

,

, 1 , X Y

가

가

가

1

1

1

1

2

2

가

, 1

가

가

1

가

2

가

가

가

, , 2 , X Y

가

가

, R B G 가 , G . , G R
B R B 가 .
,

, 가 ()

가 , , , 4 , X Y
가
1 , , 1
1 , 1 , 2
2 , 2 , 2

D/A

1 2

가 , 가

가 .

가 , ,

(1 : 1)

1

(像)

(1 - 1 :)

1
 02) (1100)
 (1108) (1102) R(), G(), B() 3
 G, 100B) (1106) 2 (100R, 100

(100R, 100B, 100G) (300) R, G, B
 (100R, 100G, 100B) RGB 가

(100R, 100B, 100G) (1112) 3 (1112) 3
 (1112) R B 90° , G
 (100B, 100G) (1114) (1120) (100R, 1
 (1108) R, G, B am ,

(1 - 2 :)

(1100)

2

(1100) 3 (100R, 100G, 100B), (200)
 (300) (200) Vs,
 Hs DCLK

, (300) (310), (320), S/P(-) (330R, 330G, 330B)
 (340R, 340G, 340B)

, (310) R, G, B DR, DG, DB
 (100R, 100G, 100B) DR', DG', DB'

, (320) DR', DG', DB'
 , D/A VIDR, VIDG, VIDB
 (320) .

, R (340R) VIDr1 VIDr6
(100R) .

(320)	G	VIDG	가	S/P	(330G)	6
	(340G)			VIDg1	VIDg6	(100G)
가	B	VIDB	S/P	(330B)	6	
(340B)			VIDb1	VIDb6	(100B)	

, (340R, 340G, 340B), ∇c 가

(1 - 2 - 1 :)

, (100R, 100G, 100B) . , (100R, 100G, 100B)
(100R) R (100R) . 3

, (100) (100a) (112) (X)
 , (114) (Y) .
 (112) (114) TFT(116) 가 (112)
 , TFT(116) 가 (114) , TFT(116)
 (118) .

$$, \quad \quad \quad (118) \quad \quad \quad (108) \quad \quad \quad (105)$$

,	(100a)		(130)		(140),		(151)
	(120)가	.		(130)	, 4	()	,
1	1H	DY	CLY		G1, G2, G3, ..., Gy		(112)
,							
,	(140)				S1, S2, ..., Sx	1	
	,		(140)	, 4		,	
	DX		CLX				
,			S1, S2, S3, ..., Sx				
,	VIDr1	VIDr6	6		(171)	,	S1, S2, S3, ..., S
x			(114)			,	
,	(114) 6			, 3		i(i 1, 2, ..., n)	
	(114) 6	가			(114) (一端)		(
151)	Si가		,		VIDr1)
	(114)						
,	가 i		(114) 6 2		(114)		
	(151)	Si가	,	VIDr2		(114)	
		가 i			(114) 6 3, 4, 5, 6		
			(151)		Si가	,	VIDr3,
	(114)				(114)		
	VIDr4, VIDr5, VIDr6						
,	(100a)						
	.	,	(109)		(109)		
m	(175)	Vdd,	Vss)		(118)(TFT(116))	
					(175)	(),	LCco
(1 - 2 - 2 :							
,	2		(320)		5		
,							
,	(322)			DR', DG', DB'			Cmp - R,
Cmp - G, Cmp - B	(100a)						(3
22))
,	PS		VIDR, VIDG, VIDB				H
,				L			
,	RGB		(324) , PS가 H		A		
L	B		,	(324) B 0(zero)	가		
mp - G, Cmp - B가					A		PS가
							Cmp - R, C

, RGB 가 (326) (324)
DR', DG', DB' 가 .

, RGB D/A (328) 가 (326) 가
VIDR, VIDG, VIDB .

가 , PS가 H , , (324) A
DR', DG', DB'
PS가 L , , (324) 가
DR', DG', DB' 0 가 가 ,
.

, (322) (100)
a) ()

(1 - 2 - 2 - 1 :)

, 5 (322) 6 (322) X (10), Y (322) (11), ROM
(Read Only Memory)(12), (13) UR, UG, UB .

, X (10) 1 () DCLK ,
X X Dx , Y , Y (11) DCLK
HCLK , Y , Dy , ()
X Dx Y Dy .

, HCLK 1/2 CLY . , DCLK 1/12
CLX .

, ROM(12) , (1100) Drefr, Drefg, Drefb
RGB . Drefr, Drefg, Drefb

, , 7 (100a) (100a)
68 , 8 x 6 1024 x 7
63 () (頂点)

, RGB , 가 1 , ()

$$r = (DR_{wi}, j) \cdot (Va - V1) / (V2 - V1) + (DR_{ci}, j) \cdot (V2 - Va) / (V2 - V1)$$

, (13) 63 V1() V3()
) DHr, DHg, DHb가 .

, R	UR	(13)	DHr
	DR'		Cmp - R
가 , G	UG	DHg	
DG'		Cmp - G	, B
DHb		DB'	
Cmp - B	.		

UR, UG, UB , R UR

UR (14R), (15R) (17R)

(14R) (13) Dhr

DHr1 DHr4

, (14R) 11 , 「m」
V1 , 「n」 V3
, (14R) DHr ,
DHr 1 2 「i, j」 , 3
, DHr1,128(m+2) (1, 128),
(m+2)

, (17R) X Dx, Y Dy DR'

, X (10), Y (11), ROM(12) (13) UR, UG, UB
 , , ,
 , , (310) (320)가
 DR, DG, DB (320)

(2 : 2)

, 2 . 1 (320)
(322) 14 (322') ,
1 1 ,

(2 - 1 :)

, 14 (322') Drefr, Drefg, Drefb ,
 (13) DHr, DHg, DHb ,
 Cmp - R, Cmp - G, Cmp - B 1 (322)(
 6) .

, 2 (322') ROM(12) ROM(12')
 (14R, 14B) (14R', 14B') 1
 (322) .

, R(), B() G() 가 . . , R
G가 , R B R B G , R

Drefr, Drefg, Drefb

,	ROM(12')	ROM(12')
(322')	(14R', 14B')	

, 15 2 , (100a) 1024 x 768 , G
 RB . , G 63 (1 (100a) 8 x 6 , ,
 B G 63) 20 . , R, B , R, G

, R Drefr B Drefb 20
 , 63 G Drefg 20
 /63(1/3) .

, ROM(12') , Drefr, Drefg, Drefb가
16 . , ROM(12') G

DGwi,j , DGci,j , DGBi,j 가 63 . , ROM(12') , R
 DRwi,j , DRci,j , DRBi,j 가 20 , 가 B
 DBwi,j , DBci,j , DBBi,j 가 20 .

, Drefr, Drefb , 16 1 (1, 1), (128, 1), ... ,
 (1024, 1) (1, 1), (256, 1), (512, 1), (768, 1), (1024, 1) 2 ,
 . , 3 1 2 가 2 (thinning) . ,
 ROM(12') (1 ROM(12)) (20+63+20)
 /(63+63+63), 54% . , ROM(12')

, Drefr 17 DHr (14R')
 DHr 20 1 V1 n (14R')
 V3 .

, 1 RGB 63 Drefr, Drefb
 , , 20 DHr, DHb . ,
 2 , R, B DHr, DHb 1/3 Drefr, Drefb 2 ,
 DHr, DHb 1/3 . (14R',
 14B') .

(2 - 2 : ,)

, 2 (322') ROM(12')
 G 63 Drefg 가 , R B
 20 Drefr, Drefb 가 .

, (13) Drefr, Drefg, Drefb
 DHr, DHg, DHb , (14R', 14G', 14B')

, X (10) DCLK , Y (11) HCLK , , 15
 X 가 Dx=64 Y 가 Dy=64
 , (64, 64) DR', DG', DB'

, Dx Y , R 4 DHr1 DHr4 가 X
 4 DHg1 DHg4 가 (14G) , 가 B 4
 DHb1 DHb4 가 (14B')

, G (1, 1), (128, 1), (1, 128), (128, 128) 가
 , R B (1, 1), (256, 1), (1, 256), (256, 256) 가

, (15R, 15G, 15B) X Dx Y Dy 4
 , , , , 가 , 가 .
 , Cmp - R, Cmp - B G , RGB Cmp - G
 , R B G , , .

, 2 Drefr, Drefg, Drefb 10 , Dref
 , Drefb 5 Drefr, Drefg, Drefb , Drefg .
 r Drefb , , , , .

(3 : 3)

1 2 (V1) (V3) (14
 R, 14G, 14B) DHR, DHG, DHB V1 V1 V1
 Dref , V3 V3 V3 Dref
 Dref , V1 V1 V1 V3 V3

, V1 V1 Dref V1 V1
 , , , , 가 , 가 .
 V3 , , , , .

, 3 , V1 V3 V1 V1 V3
 , , , , , , .

, V1 V1 Dref V1 V1 V1
 , , , , , , .

가 , V3 V3 Dref V3
 , , , , , , .

Dref V1 V3 「 1 」 V3 , , ,

, 1 2 , (17R)(17G, 17B) (14R)(14G, 14B)
 DR' (DG', DB') 가 V1 1
 4 V1 , DR' (DG', DB') 가
 V3 n .
 V3

6 R , 3 V1, V3
 (14G) (15G) (14R) (15R) , B , 가 G
 .
 (3 - 1 :)

, 3 (320) 18
 가 , 6 (14R) 가 (15R)
 . , G B .
 18 , W - LUT((3222) (3224) DR'
 V1() kw .

, W - LUT(3222) , 19 V1
 「 1 」 V0, Vw1, Vw2, V1 4 k
 wmax, kw1, kw2, kwmin , V0 V1()
 DR' Vw1 Vw2 , Vw1 ,
 Vw2 kw2 2 , kw1 ,

, (3224) W - LUT(3222) 2 V1
 DR' kw M11 M14

가 , B - LUT(3242) (3244) DR' V3()
 , kb .

, B - LUT(3242) , 20 V3
 「 1 」 V3, Vb1, Vb2, V4 4 kbm
 in, kb1, kb2, kbmax , V3()
 DR' , Vb2 V4 kb2 , V4
 , kbmax 2 .

, (3244) B - LUT(3242) 2 V3
 DR' kb M21 M24
 . , W - LUT(3222) B - LUT(3242) 8
 , 19 20 .
 가 .

,

, , (14R) 4 DHr1 1 M11 DHr1 3

, 2 (3270) b , 3 DHr2, DHr3, DHr4 M21 가 ,

1 , M12, M13, M14 , 2

, (3270) b , 3 M22, M23, M24 (3270) a

, M21 M24 (3270) c

, 4 (3270) sel a, b, c 1

, (3260) DR' 4 (3270) DR' V1

sel . , V1 b (15R) 4 V3 (3270)

a , c sel X Dx Y Dy (

DR') Cmp - R 1

2 .

, (15R) DR' V1 M11 M14

, DR' V3 M21 M24

(3 - 2 :)

, 3 (320) R , ,

DR' 4 DHr1 DHr4 가 X Dx Y Dy

1 가 (14R) (12 S5)

, (15R) 가 4 X Dx Y Dy 1 가

Cmp - R

, (14R) 4 DHr1 DHr4 가 (15R)

(3 - 2 - 1 : V1)

, DR' V1

, W - LUT(3222) DR' 2 , kw

(3224) 2 DR'

, DHr1 DHr4 DR' V1 (14R) 4

4 X Dx Y Dy

, M11 M14 DR' V1
 4 V1
 , 4 (3270) a가 (3260) , (15R)
 M11 M14 4
 DR' Cmp - R .

 , R DR' Cmp - R Cmp - B G
 DG' Cmp - G B DB' .
 가 .
 (3 - 2 - 2 : V1 V3)

 , DR' V1 ,
 V3 .

 Dx , (14R) 4 DHr1 DHr4 X
 Y Dy 4 , 4 (3270) , (15R) (14) DR' 4
 b가 (3260) , , ,
 DHr1 DHr4 DR' Cm
 p - R .

 , 1 DR' 1 가
 V1 V3 .

 (3 - 2 - 3 : V3)

 , DR' V3 ,
 , B - LUT(3242) DR' 2 DR'
 (3244) 2 .
 kb .

 , DR' V3 , (14R) 4
 DHr1 DHr4 X Dx Y Dy
 4 .

 , M21 M24 DR' V3
 4 V3
 , 4 (3270) c가 (3260) , (15R)
 M21 M24 4
 DR' Cmp - R .

, R DR' Cmp - R G
 , DG' Cmp - G B DB' Cmp - B
 가 .

, 3 DR' DR' V1
 , DR' V3

, Cmp - R V1
 V3 가 .

, 3 1 (322)(6)
 2 (322')(14) 가 .

, 3 V1 W - LUT(3222) V3 V1
 B - LUT(3242) V3

, 3 W - LUT(3222) B - LUT(3224) 4
 2 , 5
 3

(4 : ,)
 , n , 가 .

, ROM(12) () Dref

, (108) LCcom (13 (c)), V

, , (108) LCcom

, , DR', DG', DB' Cmp - R,
 Cmp - G, Cmp - B 가 . DR', DG', DB' 가 .

, () () (homogeneous)).

(5 :)

(5 - 1 :)

. 22

,	(2100)	(2102)	(2104)	(100)
(100)			()	

, (1100) RGB (100R, 100G, 100B) 3
, (100) 1 RGB (100)
, VIDr1 VIDr6, VIDg1 VIDg6, VIDb1 VIDb6
, (320) 가

(5 - 2 :)

23
(2200) (2202) (2204), (2206)
(100) (100) 1 RGB

(6 :)

2

(57)

1.

X Y

가

가

1

1

1

,

1

2

2

(正)

가

(負)

,

2.

X Y

,

가

가

1

가

1

,

1

,

1

2

,

2

가

가

3.

2

,

가

,

2

0

가

,

2

가

4.

3

가 ,
가 ,
가 , 가

5.

2

,
X X 1 X ,
Y Y 2 Y ,
X Y ,
1 , , , , 1

6.

5

, , X Y RGB ,
, , 가 RGB

7.

2

,
가 , 1 2 가
2 1 1 2 , 1

8.

7

,

,

1

2

1

,

1

1

1

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2

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2

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1

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1

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1

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1

2

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2

2

9.

8

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1

2

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1

2

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1

2

1

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1

10.

9

,

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가

1

2

2

,

.

11.

5

,

RGB

,

RGB

1

,

,

가

RGB

.

12.

11

,

G

R

B

.

13.

12

,

R

B

G

.

14.

X

Y

,

,

(白)

,

(黑)

,

1

,

1

1

,

2

,

2

2

가

가

15.

14

,

1

,

1

16.

14

,

1

,

1

17.

14

,

1

18.

,

X

Y

가

가

,

가

1

,

1

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1

,

1

2

,

2

가

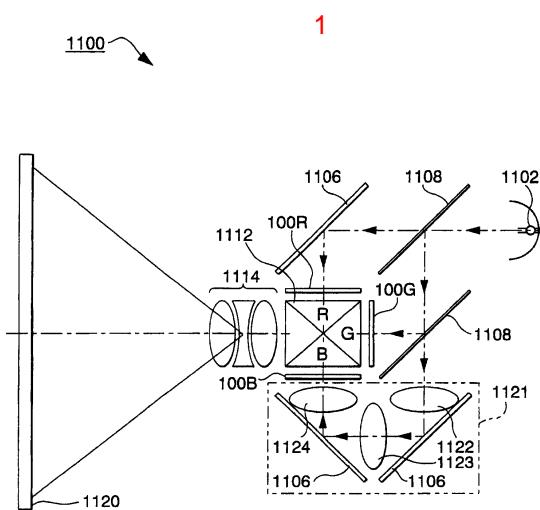
가

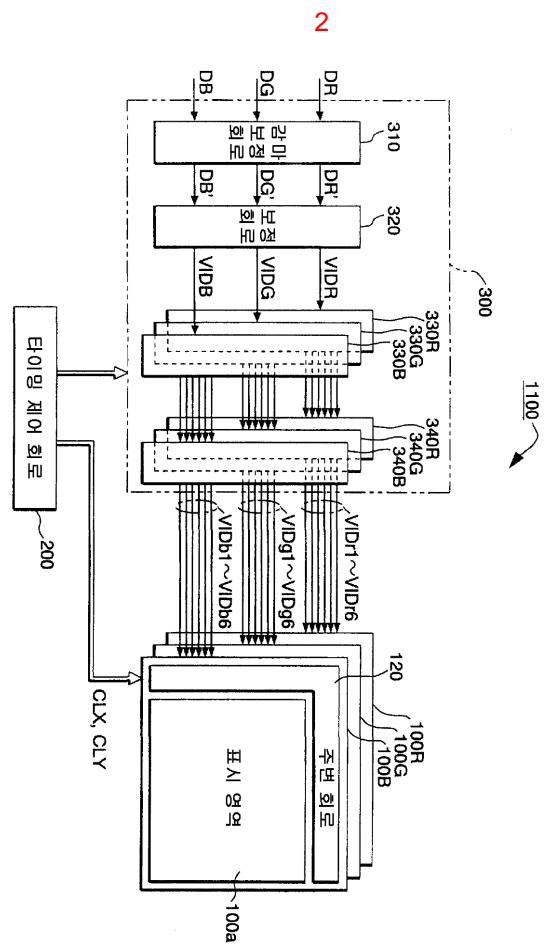
,

D/A

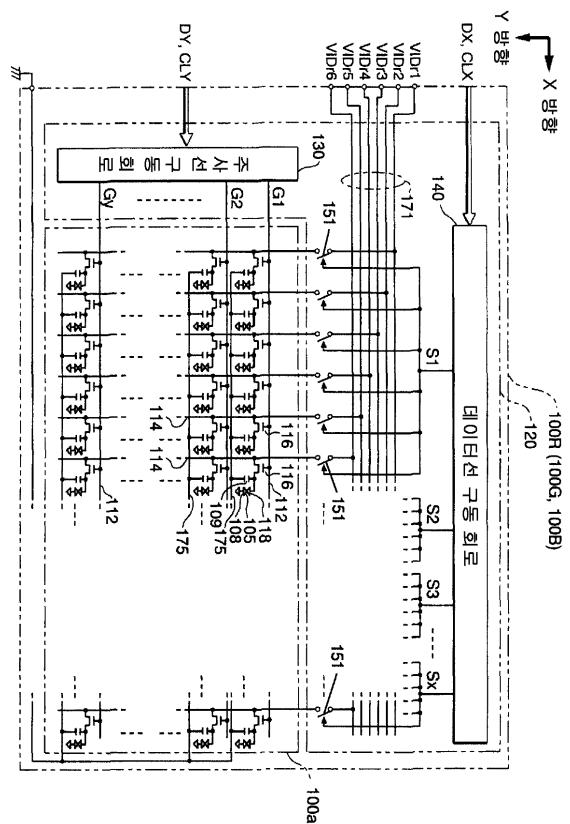
19.

18

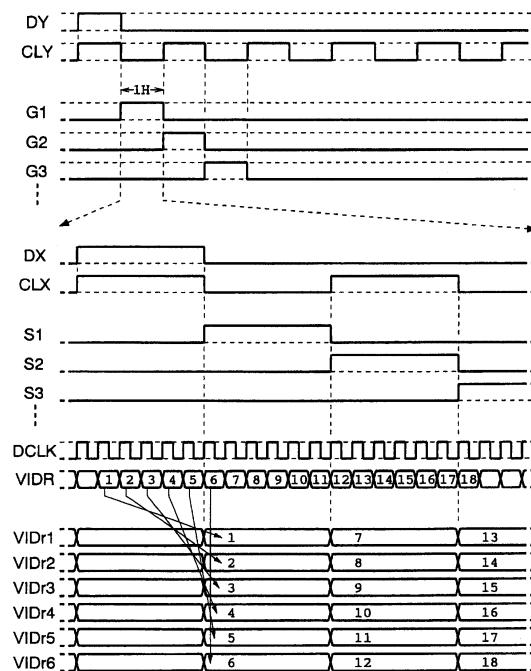




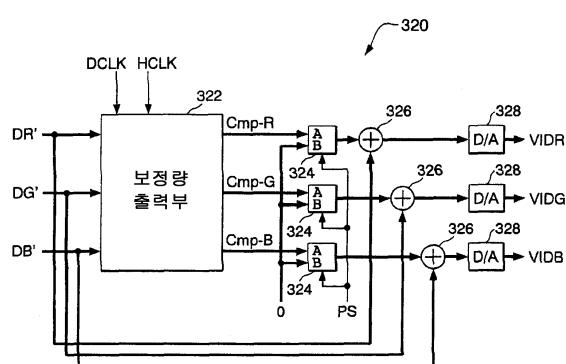
3



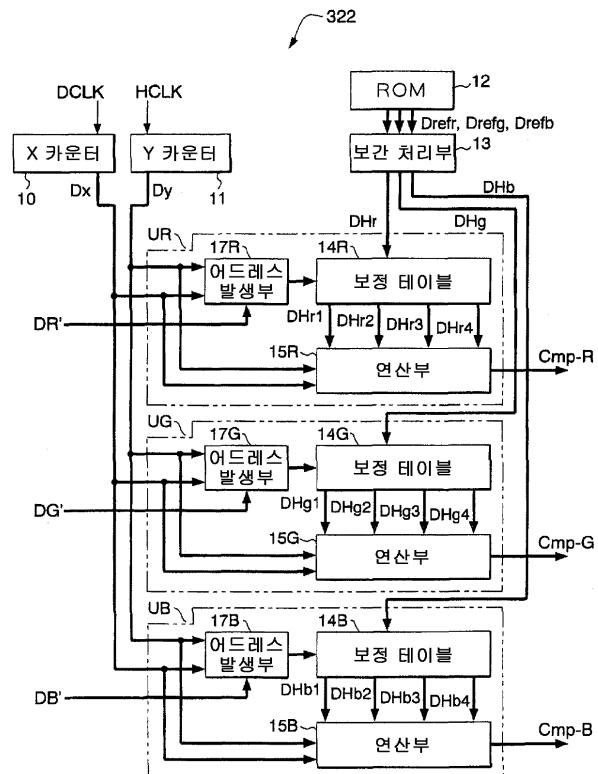
4



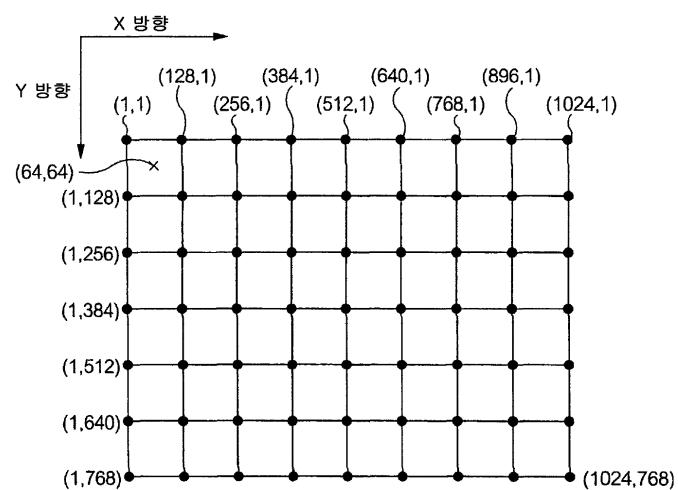
5



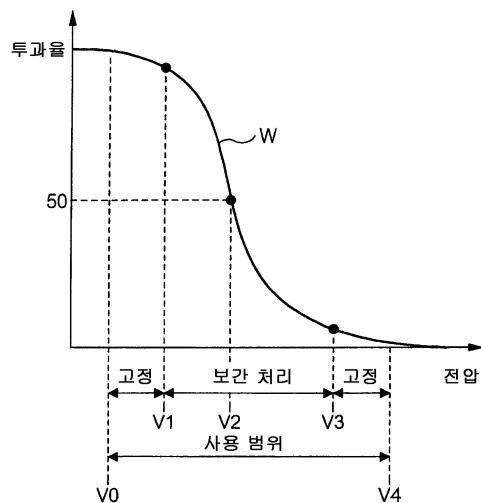
6



7



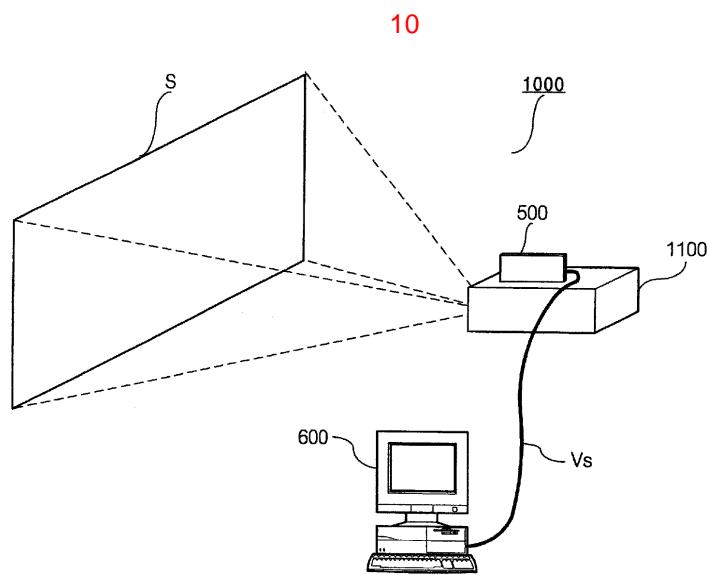
8



9

12

(X,Y)	R-Dref	G-Dref	B-Dref
(1,1)	DRw1,1	DRc1,1	DRb1,1
(128,1)	DRw128,1	DRc128,1	DRb128,1
(256,1)	DRw256,1	DRc256,1	DRb256,1
\vdots	\vdots	\vdots	\vdots
(1,j)	DRwij	DRcij	DRbij
\vdots	\vdots	\vdots	\vdots
(1024,768)	DRw1024, 768	DRc1024, 768	DRb1024, 768

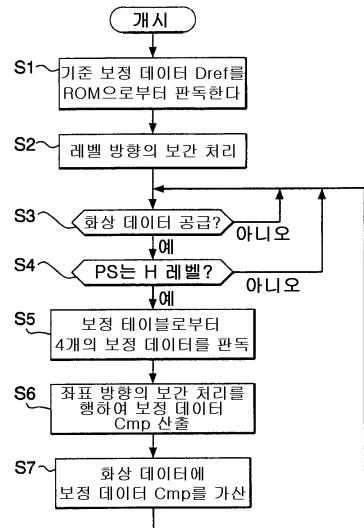


11

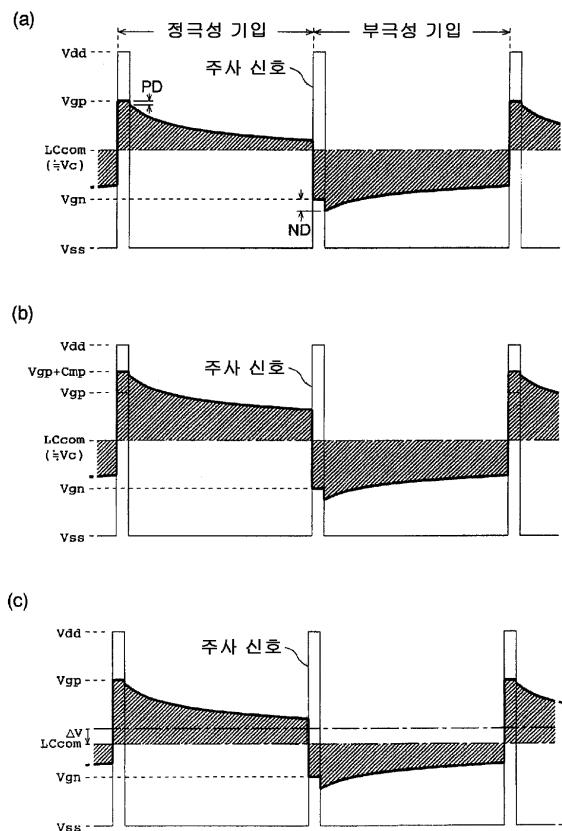
(X,Y)	제 1 월	제 2 월	제 3 월	...	제 n-1 월	제 n 월
m	m+1	m+2	...	n-1	n	
제 1 월 (1,1)	DHr ¹ , 1(m)	DHr ¹ , 1(m+1)	DHr ¹ , 1(m+2)	...	DHr ¹ , 1(n-1)	DHr ¹ , 1(n)
제 2 월 (128,1)	DHr128, 1(m)	DHr128, 1(m+1)	DHr128, 1(m+2)	...	DHr128, 1(n-1)	DHr128, 1(n)
⋮	⋮	⋮	⋮	⋮	⋮	⋮
제 10 월 (1,128)	DHr ¹ , 128(m)	DHr ¹ , 128(m+1)	DHr ¹ , 128(m+2)	...	DHr ¹ , 128(n-1)	DHr ¹ , 128(n)
제 11 월 (128,128)	DHr128, 128(m)	DHr128, 128(m+1)	DHr128, 128(m+2)	...	DHr128, 128(n-1)	DHr128, 128(n)
⋮	⋮	⋮	⋮	⋮	⋮	⋮
제 63 월 (1024,768)	DHr1024, 768(m)	DHr1024, 768(m+1)	DHr1024, 768(m+2)	...	DHr1024, 768(n-1)	DHr1024, 768(n)

143

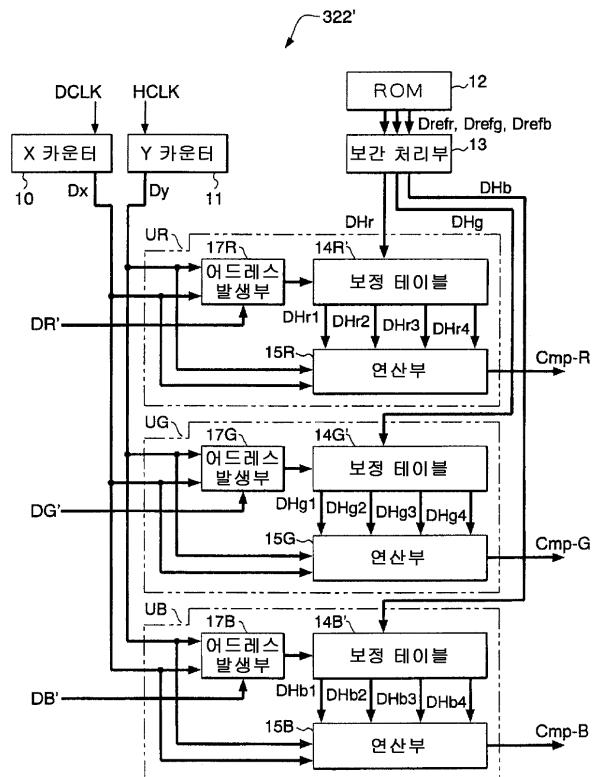
12



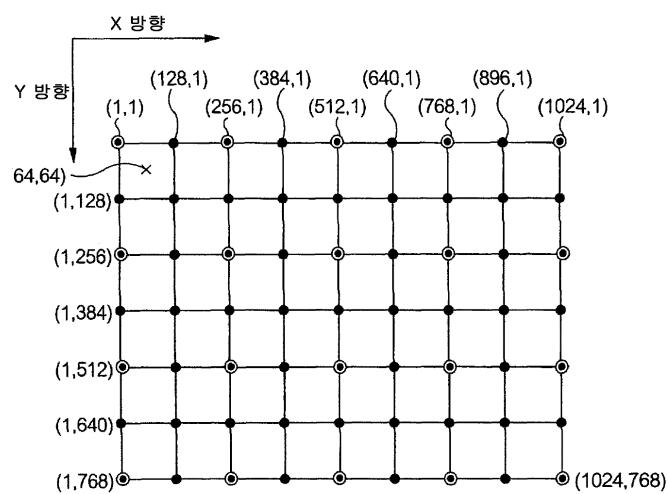
13



14



15



16

12'

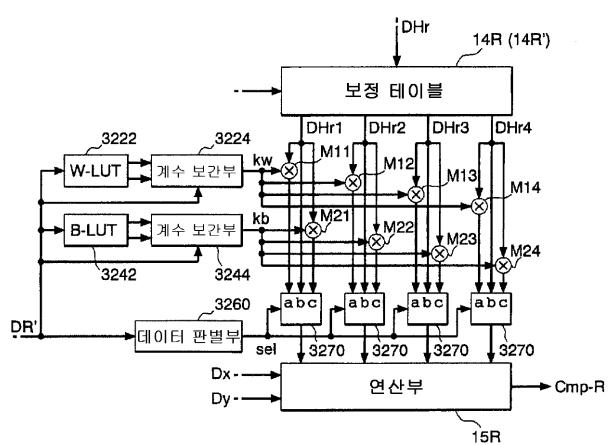
63

(X,Y)	R:Drefr		G:Drefg		B:Drefb	
(1,1)	DRW1,1	DRC1,1	DRB1,1	DGW1,1	DGC1,1	DBW1,1
(128,1)	-	-	-	DGW128,1	DGC128,1	DBW128,1
(256,1)	DRW256,1	DRC256,1	DRB256,1	DGW256,1	DGC256,1	DBW256,1
⋮	⋮	⋮	⋮	⋮	⋮	⋮
(1,128)	-	-	-	DGW1,128	DGC1,128	DBW1,128
(128,128)	-	-	-	DGW128	DGC128	DBW128
(256,128)	-	-	-	DGW256	DGC256	DBW256
⋮	⋮	⋮	⋮	⋮	⋮	⋮
(1024,128)	-	-	-	DGW1024	DGC1024	DBW1024
⋮	⋮	⋮	⋮	⋮	⋮	⋮
(1024,768)	DRW1024, 768	DRC1024, 768	DRB1024, 768	DGW1024, 768	DGC1024, 768	DBW1024, 768

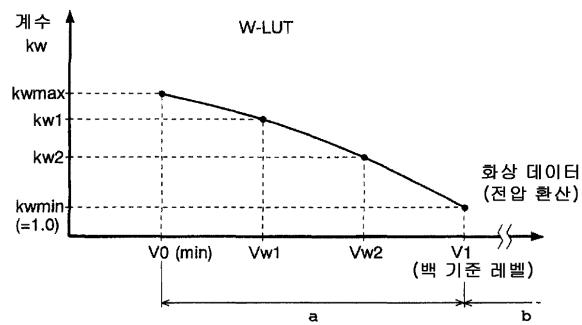
17

	제 1 월	제 2 월	제 3 월	...	제 n-1 월	제 n 월
(X,Y)	m	m+1	m+2	...	n-1	n
제 1 월	(1,1)	DHr1, 1(m)	DHr1, 1(m+1)	DHr1, 1(m+2)	...	DHr1, 1(n-1)
제 2 월	(256,1)	DHr256, 1(m)	DHr256, 1(m+1)	DHr256, 1(m+2)	...	DHr256, 1(n-1)
...
제 5 월	(1024,1)	DHr1024, 1(m)	DHr1024, (m+1)	DHr1024, (m+2)	...	DHr1024, (n-1)
제 6 월	(1,256)	DHr1, 256(m)	DHr1, 256(m+1)	DHr1, 256(m+2)	...	DHr1, 256(n-1)
...
제 20 월	(1024,768)	DHr1024, 768(m)	DHr1024, 768(m+1)	DHr1024, 768(m+2)	...	DHr1024, 768(n-1)
						DHr (14R')

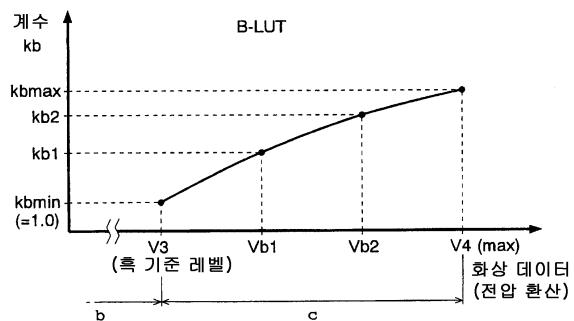
18



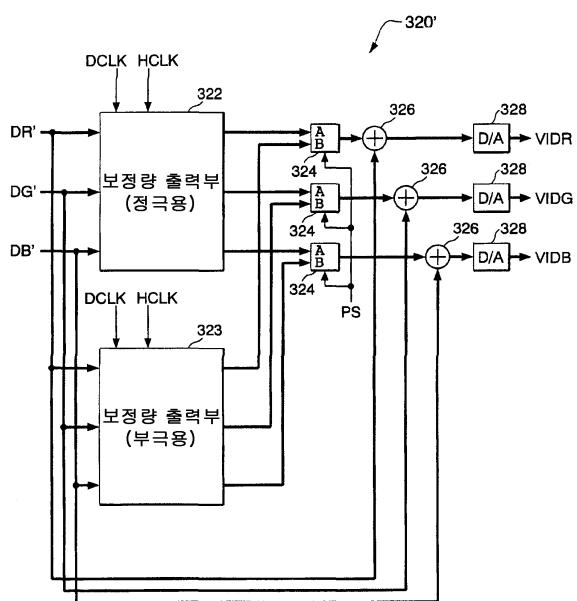
19



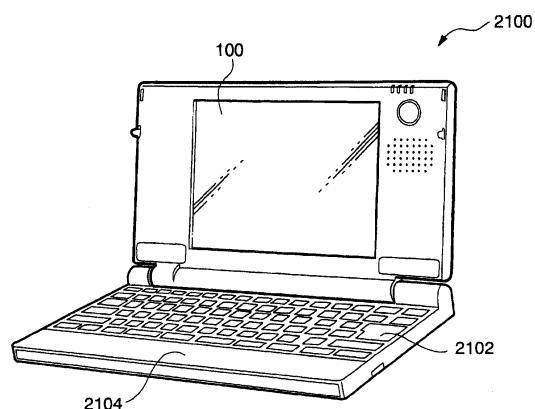
20



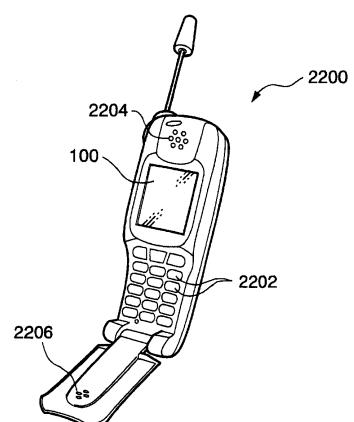
21



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专利名称(译)	液晶显示器，图像数据校正电路，图像数据校正方法和电子设备		
公开(公告)号	KR1020020043177A	公开(公告)日	2002-06-08
申请号	KR1020010075272	申请日	2001-11-30
[标]申请(专利权)人(译)	精工爱普生株式会社		
申请(专利权)人(译)	精工爱普生株式会社		
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IPC分类号	G02F1/133 G09G3/20 G09G3/36 H04N5/66		
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摘要(译)

内插处理单元13对存储在ROM 12中的基准校正数据Dref执行水平方向上的内插处理，以产生与由图像数据DR'获取的水平相对应的校正数据DHr。并将其存储在校正表14R中。地址生成器17R根据相应坐标附近的四个参考坐标，基于X，Y坐标数据Dx和Dy以及图像数据DR'生成存储在校正表14R中的校正数据DHr。并指定校正数据DHr1至DHr4的各个存储区域。计算单元15R对从校正表14R读取的校正数据DHr1至DHr4执行坐标方向上的插值处理，以产生校正数据Cmp-R。在正极性写入的情况下，校正数据Cmp-R被添加到图像数据DR'；但是在负极性写入的情况下不执行校正。利用这种配置，在整个显示屏幕上适当减少闪烁等。 6 - 1 -

