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(72) 2 203 706

(74)

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(54)

6

1

2 1

3a 2 A

3b 2 B

4 1

5

6 5

7a 6 C

7b 6 D

8 30

< >

12, 112 : 14, 114 :

16, 116 : 20, 120 :

22, 122 : 18 :

103 : 105 :

106 :

, (Liquid Crystal Display; 'LCD')

(Back light Unit)

, , , (Light Emitting Diode : 'LED')가

1 (14) , , LED LCD LED (14)가 (Printed Circuit Board ; 'PCB') (12
) , LED (14) (14) (22) (20) , LED (22) (20) LED (22) (20) LED (22)

LED (22) (20) LED (22)

LED (22) (20) LED (22)

PCB(12) , PCB(12) LED (22) LED (22) PCB , PCB(12) LED (22) (22) (22)

(16) LED (14)
· , (16) LED (14) . , (16)

(14) LCD LED PCB(12) LED

, 3a 3b LED (14) (1, 2) 120 ° 가

(20) 2 , 3a LED 3b (14) 2 LED (14) (2) , A .
 (20) 2 , 4a (R) 4b LED (14) (16) .

$$1 \\ (R) = H \times \tan(\theta/2)$$

$$1 \quad H \quad LED \quad (22) \quad (16) \quad , \quad (20)$$

, LED (14) (16) (S)

$$(S) = \times R^2 = \times \{(H \times \tan(\theta/2))\}^2$$

$$(18) \quad () \quad 120^\circ \quad H가 30mm \quad LED \quad (14) \quad (16)$$

$$\times (30 \times \tan(120/2))^2 \quad 8482mm^2 가 .$$

, LCD LED LCD LED (14)가
, LCD LED LED (14)

가

가

가

120 ° 170 °

70 ° 130 °

, 5 8

5 6
 (Light Emitting Diode : 'LED') (106) (106)

(106) (105) (103) , (105) (103)
 (103) (103)

(Thin Film Transistor : 'TFT') 가 TFT ()

, , (103)
 TFT 가
 (Tape Carrier Package) 가

, (106) (105) , 가 , (103)

LED (114), LED (114) 가
 (Printed Circuit Board ; 'PCB')(112), LED (114) (114)
 (116) (116) (106) (106)
 (108)

LED (114) 6 LED (122), LED (122)
 LED (122) (120) LED (122) (120)
 (120)

LED (122) LED, LED , LED , LED , LED (

(120) LED (122)
 , (120) LED (122) LED (122) 가
 PCB(112) (116) PCB (112) LED (122) LED (122)
 가
 (116) LED (114) (116) LED (114) LED (122) LED (122)
 , (116) LED (114) (116)
 ,
 (108) (116) (106)
 , LED LCD PCB(112) LED (114) LED (114) LED
 (114) (1) 70° 7a 7b
 (2) 120° ~ 170° 120° ~ 170° 70° ~ 130° (1) 130°
 (2) 170° LED (114) 가
 ED (122) (120) (120) (120) (120) (120) (120) (120) C
 7a 7b (1) (2) 6 (1) LED (114) (114) (114) D
 (R) (S) (120) (120) (120) (120) (120) (120) (120) L
 7a 7b 1 LED (14) (14) (16) (116)
 (S) 2 LED , LED (114) (114) (116)
 (116) LED (114) (S) LED (114) (120)
 ,
 8 (120) 가 15:9 30 1 5 LCD
 (1, 2) LED (114) (S) (120) (120)

[1]

LED	30	27	25	22	19	17	14	12	10
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1 °, 145 °, 160 ° 가 (120) (120) (2) (R) 120 °, 125 °, 130 °, 135 °, 140 °
LED . (S) 가 ,

, 2 (1) 100 ° , LED (122) (116) (H)가 29mm , (R)가 34.5609mm , (S), L ED .

[2]

1 :										(H) : 29mm
2 :										30' : 136088mm
R :										2
R :										1 : 100 °
										R : 34.5609mm
2	120 °	125 °	130 °	135 °	140 °	145 °	150 °	155 °	160 °	
R	50.2295	55.7085	62.1907	70.0122	79.6768	91.9762	108.229	130.811	164.476	
(S)	5453.72	6048.61	6752.43	7601.65	8651	9986.42	11751.1	14202.9	17857.2	
	24.9533	22.4991	20.154	17.9025	15.7309	13.6273	11.5809	9.58173	7.62092	
LED	25	23	21	18	16	14	12	10	8	

, 3 (1) 110 ° , LED (122) (116) (H)가 29mm , (R)가 41.4163mm , (S), L ED .

[3]

1 : (H) : 29mm
2 : 30' : 136088mm
R : 2

R :									1 : 110 ° R : 41.4163mm
2	120 °	125 °	130 °	135 °	140 °	145 °	150 °	155 °	160 °
R	50.2295	55.7085	62.1907	70.0122	79.6768	91.9762	108.229	130.811	164.476
(S)	6535.51	7248.4	8091.83	9109.5	10367	11967.3	14082.1	17020.2	21399.3
	20.8229	18.775	16.818	14.9392	13.1271	11.3717	9.66395	7.99572	6.35947
LED	21	19	17	15	14	12	10	8	7

3 °, 145 °, 160 ° 가 (120) (120) (2) (R) 120 °, 125 °, 130 °, 135 °, 140
LED . (S) 가 ,
, (120) (120) (1) 120 ° LED (122) (116) (H) 가 29mm ,
, (120) (2) (120) (120) (R) 가 50.2295mm (R), (S),
LED .

[4]

1 :									(H) : 29mm
2 :									30' : 136,088mm
R :									2
R :									1 : 120 °
									R : 50.2295mm
2	120 °	125 °	130 °	135 °	140 °	145 °	150 °	155 °	160 °
R	50.2295	55.7085	62.1907	70.0122	79.6768	91.9762	108.229	130.811	164.476
(S)	7926.24	8790.83	9813.73	11048	12573	14513.9	17078.7	20642	25953
	17.1694	15.4807	13.8672	12.318	108238	9.37642	7.96833	6.5928	5.24365
LED	18	16	14	13	11	10	8	7	6

4 °, 145 °, 160 ° 가 (120) (120) (2) (R) 120 °, 125 °, 130 °, 135 °, 140
LED . (S) 가 ,
, (120) (1) (2)
, 5 LED .

[5]

	LED	XX	LED

	120 °	125 °	130 °	135 °	140 °	145 °	150 °	155 °	160 °
90 °	30	27	25	22	19	<u>17</u>	<u>14</u>	<u>12</u>	<u>10</u>
100 °	25	23	21	18	<u>16</u>	<u>14</u>	<u>12</u>	<u>10</u>	<u>8</u>
110 °	21	19	<u>17</u>	<u>15</u>	<u>14</u>	<u>12</u>	<u>10</u>	<u>8</u>	<u>7</u>
120 °	18	<u>16</u>	<u>14</u>	<u>13</u>	<u>11</u>	<u>10</u>	<u>8</u>	<u>7</u>	<u>6</u>

5
 (2) 가 LED , LCD 가 . , (120) (1) LCD
 LED , LED
 2) , LCD 120 ° 5 LED LCD (120)
 , LED (114) LED (114)
 LED (114)

, LED , 120 가 LED 가 .
 , LED
 , ,
 ,

(57)

1.

,

2.

,

3.

,

가

가

4.

,

3

5.

4

가

6.

5

7.

1

120° 170°

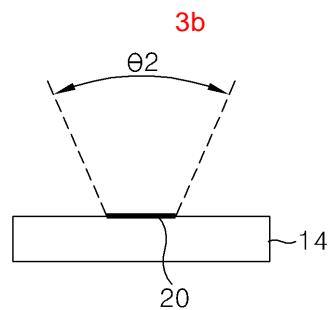
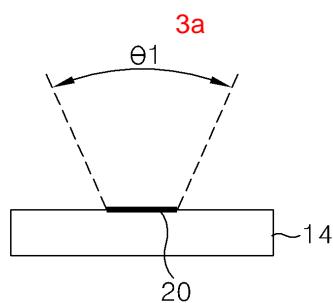
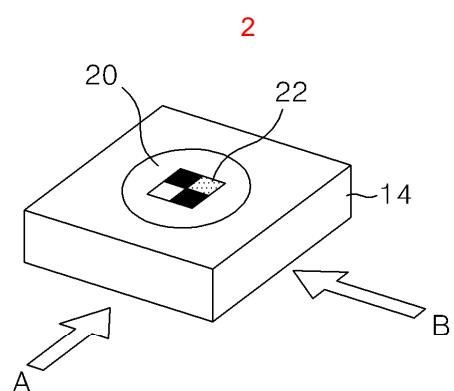
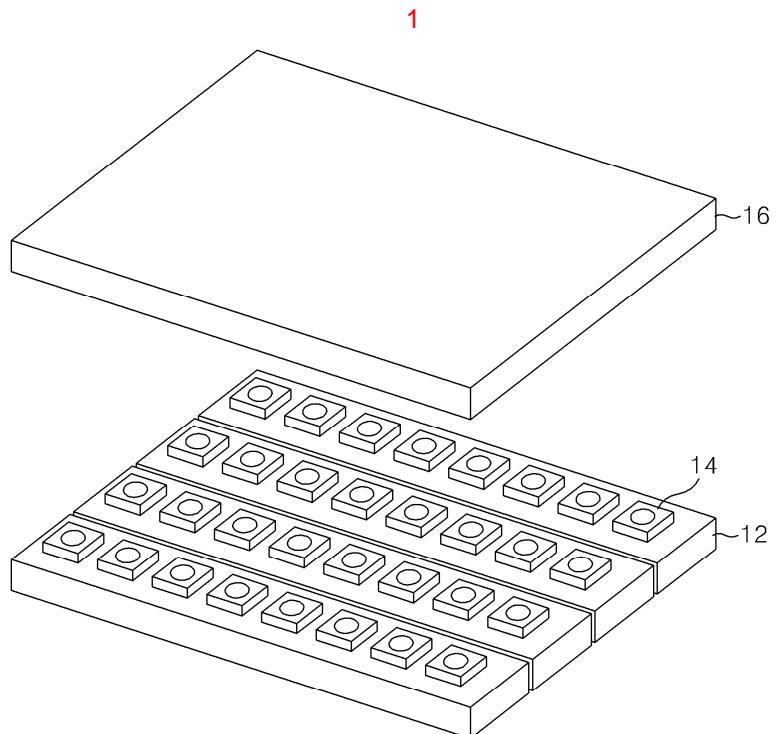
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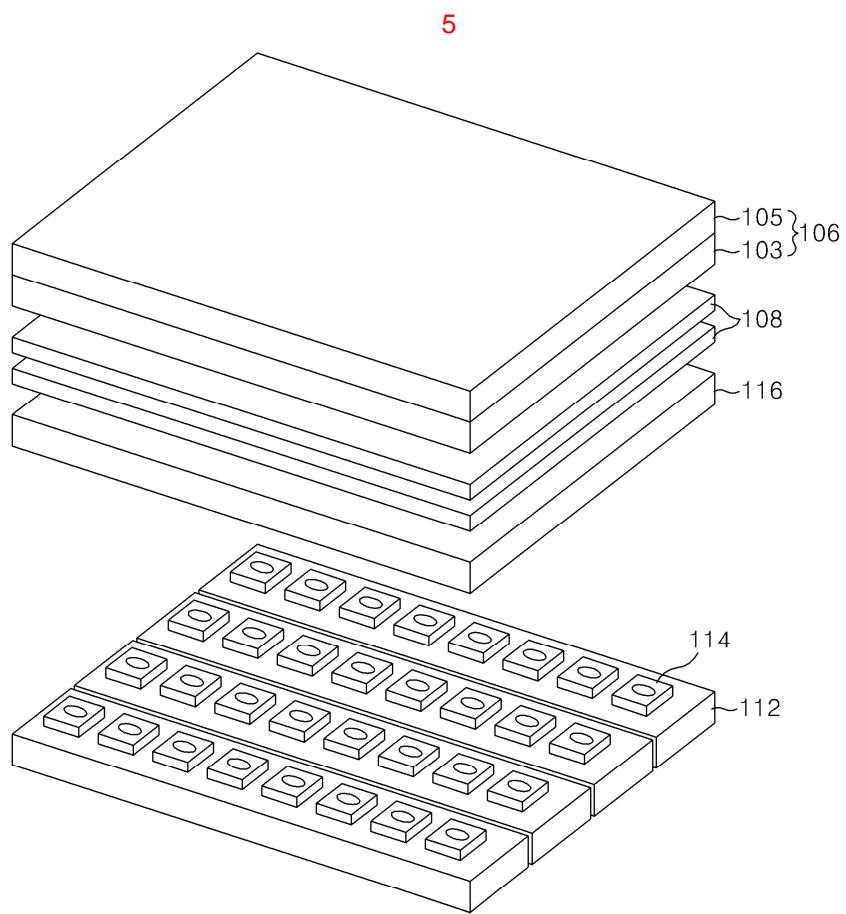
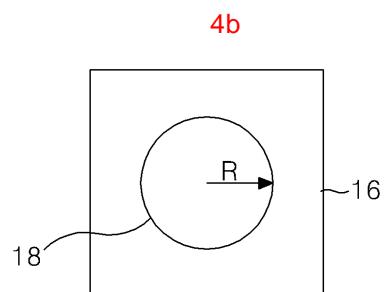
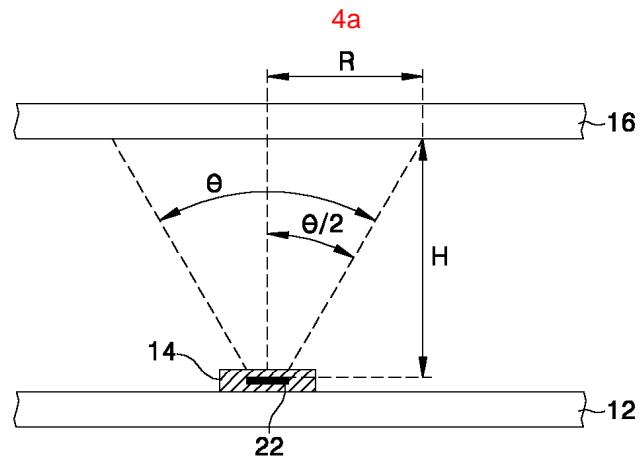
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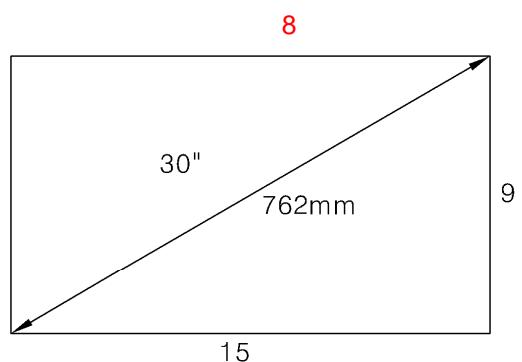
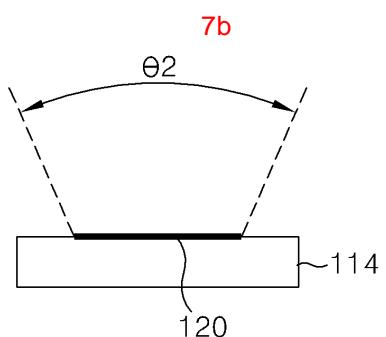
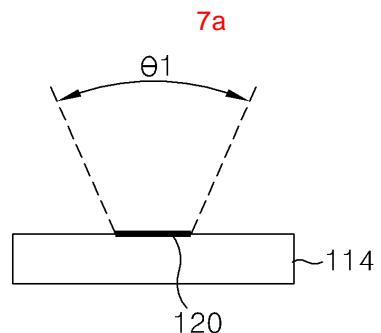
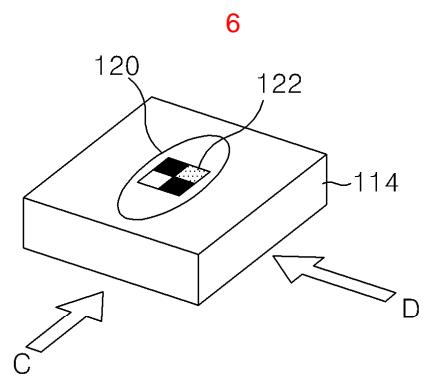
70° 130°

9.

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专利名称(译)	液晶显示器采用发光二极管		
公开(公告)号	KR1020050000647A	公开(公告)日	2005-01-06
申请号	KR1020030041115	申请日	2003-06-24
[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	YOU TAEHO		
发明人	YOU,TAEHO		
IPC分类号	G02F1/13357		
CPC分类号	G02F1/133603 G02F2001/133628 G02F2001/133607		
代理人(译)	金勇 年轻的小公园		
其他公开文献	KR100954330B1		
外部链接	Espacenet		

摘要(译)

本发明涉及使用液晶显示器中减少的发光二极管的液晶显示器，其中发光二极管用作光源的发光二极管的数量。本发明包括不对称构造的辐射板，使得发光二极管的出射角和从发光二极管出来的光根据方向而不同。

