

(19)  
(12)

(KR)  
(A)

(51) 。 Int. Cl.<sup>7</sup>  
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10-2004-0010309  
2004 01 31

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(22)

2003 07 22

(30)

JP-P-2002-00213717 2002 07 23

(JP)

(71)

가 가

3300

(72)

3550

가 가 445-2

1568-3

2-12-7

1236-6

(74)

:

(54)

$1 \times 10^{13}$

• cm

|    |  |  |
|----|--|--|
| 1  |  | ,  |
| 2  | 1    2 - 2'                                      | ,  |
| 3  | 1    3 - 3'                                      | ,  |
| 4  | 1    4 - 4'                                      | ,  |
| 5  | 1    5 - 5'                                      | ,  |
| 6  | (PX),                 (CT)                 (CPT) | ,  |
| 7  | (PXM)  | ,  |
| 8  |  | ,  |
| 9  |  | ,  |
| 10 | (diamine)  | ,  |
| 11 |  | ,  |
| 12 | (a)                      (phenylene diamine)     | ,  |
| 12 | (b)  | ,  |
| 13 |  | 가                      (imide)           |
|    |  | ,  |
| 14 | (主鎖)   | ,  |
| 15 | 13                      가 2                      | ,  |
| 16 |  | 가                      ,                 |
| 17 |  | (DC)    가                      (flicker) |
|    |  | ,  |
| 18 |  | ,  |
| 19 | (殘像)   |  |
|    |  |  |
| 20 |  | ,  |
| 21 |  | ,  |
| 22 | 21   | ,  |
| 23 | 20   | ,  |
| 24 |  | ,  |

25 ,

26 20 ,

27 21 ,

28 가 2

29 ,

30 .

[ ]

SUB1, SUB2 , GL ,

DL , CL ,

PSI , CT ,

PX , PXM ,

GI 1 , ILI 2 ,

PAS 1 , FPAS 2 ,

AL1 ( ) LC .

,

,

(面) ,

,

, x y

y x

.

가 , 가 ,

가

,

(舉動) .

가 ,

(短殘像) , (DC) (DC)

( ) (%) , 29 (DC) 1V 2 가 , 가

(DC) 가 가 ,

(DC) 가 ( ) ,

(DC) 가 , 가 가 (%)

30 , 가

가

가 가

10V (DC) 가

50%가 가

1V (DC) (2 ).

1.

1×10<sup>13</sup>

• cm

2.

가 1

3.

가 , , 2 ,

4.

, , 1 3 가 ,  
(dismine) 가 .

5.

, 4 ,  
(phenylene diamine) 가 .

6.

, 4 ,  
(二無水物) .

7.

, , 2 ,

8.

, , , ,

가 40% 가 120 (flicker) 가 .

9.

, , , ,

가 가 가 가 40% 가 120 가 .

10.

, , , ,

2 가 120 가 , 5% 가 ,

11.

, , , ,

2 가 120 가 , 5% 가 ,

12.

, , 8 11 가 ,

13.

$1 \times 10^{-13} \cdot \text{cm}$  , , 8 11 가 ,

14.

, , 12 , 가

15.

, , 14 ,

16.

가 , , 15 ,

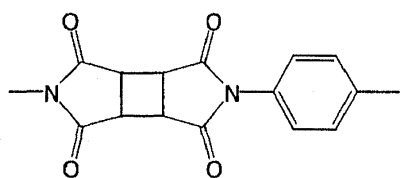
17.

, , 15 ,

18.

, , 2 , 1

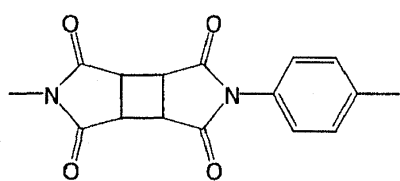
( 1)



19.

$2$  , , 8 13 가 ,

( 2)



20.

가 , , 1 19 가 , , 가 가 , . , , 《 》 1 , , x y , y x , , 1 2 - 2' 5 2 , 3 - 3' 3 , 4 - 4' 4 , 5 - 5' ) , (SUB1) SiO<sub>2</sub> SiN (ULS (TFT) (PSI) (TFT) (PSI) (GL) 2 (DL) 'ㄱ' 2 (PSI) (GI) (ULS) 1 (GI) (PSI) (TFT) SiO<sub>2</sub> 2 SiN 1 (GL) (PSI) (GL) , x (GL) (PSI) y 2 (GL) (PSI) , (PSI) , (GL) , 3 (GL) (CL) (GL) (CL) (GL) (GL) (CL) , 2 (PX) (PX)( ) (CL) (CL) (邊) (CTM)가 , (CTM) (GL) (CL) 2 (PX) (CL) 1 (GI) 2 (ILI) (GL) (CL) SiO<sub>2</sub> SiN 2 (ILI) (DL) , y (PSI) x (DL) (CN T1) .

(DL) (PSI) (TFT) .

, 2 (ILI) , (PSI) (CNT2) (TFT)  
(PXM) (PXM) (PSI)

, (PX), (CT) (CPT) 6 ,  
(PX)

, (PAD) 2 (CL) (ILI) (PXM) (PAD)가 ,  
(CNT) (CL)

(PAD) , (PXM) ,  
(CT)

(PXM) , (PX) 1 ,  
(CL) (CTM)

, (PXM) , (CL) (TFT) (GL)  
(CTM) (GL)  
'ㄱ'

, (PXM) (CL) , (Cstg) (CL)  
가 가 ,

(PXM), (PAD) , 7 (PX)

SiN , 2 (ILI) (DL) (PXM) SiO<sub>2</sub>  
1 (PAS) 2 (FPAS) 가

2 (FPAS) (PX), (CT) (CPT) , ITO(  
Indium Tin Oxide), ITZO(Indium Tin Zinc Oxide), IZO(Indium Zinc Oxide), SnO<sub>2</sub> ( ), In<sub>2</sub>O<sub>3</sub> ( )

, (PX) y x 2 ,  
(CL)

(PX) (PX)( ) , (PXM)

, (PX) (CL) 2 (FPAS) 1 (PAS)  
(CNT5) (PXM) (TFT) , (PX)  
(PXM)

(CT) (PX) 3 , y

(CT) 1 , 2 (DL)

(DL) (DL) (CT) , (DL) (DL)  
(DL) (DL) (D



L) (PXM) (PX) (終端)

L) , (DL) (CT) (CT) , (C  
가 , 2 (FPAS) 1 (PAS) (CNT4)  
(PAD) , (CT) (PAD)  
(CL)

, (CT) , (CL)  
, (CL) (CTM)

(CPT) , (GL)  
(GL)

, (GL) (GL)  
(CPT) (PX) , (GL) (PXM)

, (CPT) (CT) , (CT)  
(CL) (CL) , (CPT) (CT)

, 2 (PX), (CT) (CPT) 1 (FPAS)  
, (AL1) (LC) (PX), (CT) (CPT) (CPT) (AL1)  
, (AL1) (LC)

, (AL1) , (LC)  $1 \times 10^{-12}$  cm , 가  
(AL1)

, 2 (SUB2) , (SUB1) (LC)  
(AL2) (FIL), (OC), (AL2)  
(AL1)

《 》

, 8 가 (AL1) (CT) (PX)  
(AL1)

, (LC) (AL1) (AL1)  
(LC) 가 가 (AL1) (AL1) (CT)  
(AL1) (LC)

T) , , 1 , 60Hz , ms , (C  
(PX) 2 가  
, (AL1) ms (CT) (PX)

, (CT) (PX)  
CT) , (PX) 9 가 , (

《 》

, (AL1), .

1) (LC) .

(LC), .

2) (基)가 .

, .

, , 10 .

, 10 , x 11 (a) 11 (g)  
o), (nitro) 가 (基), (alkyl), (halogen), (cyan  
x

, 가 , (hopping) 가  
가 , 가 , 가

, 가 , ms ,  
가 .

, , .

12 (a) , x , (phenylene diamine)

, , NH<sub>2</sub> , 가 ,

, 12 (b) ,  
가 .

, , 13 , 13 가  
, 15 .

, , : , :

, (主鎖)가 , , 14 (a)  
, 14 (b), 14 (c) .

《 1》

, 13 A C 16 (a) (B) 16  
(b)

, , A, B C (AL1) B , C C  
A A B

B, C :  
 :  
 B C, A (基),  
 .  
 17 (PX) (CT) (DC) 가  
 .  
 가 50% 가, 0 120 1V (DC) 가, 120  
 (DC) 가  
 .  
 17 (a)  $1 \times 10^{13} \cdot \text{cm}$ , 17 (b)  $1 \times 10^{12} \cdot \text{cm}$   
 17 (c)  $5 \times 10^{10} \cdot \text{cm}$ .  
 17 (a), 17 (b), 17 (c) A, B, C A, B, C  
 (AL1).  
 17 (a) A, B, C  
 가, 17 (b), 17 (c) ,  
 B, C 가 (DC) 가,  
 ,  
 $1 \times 10^{12} \cdot \text{cm}$ ,  
 .  
 《 2》  
 A (AL1) 가, ,  
 (代償), (AL1).  
 (AL1),  
 (硬度)( ) (表裏) 가,  
 가 ,  
 (AL1), (光) (配向)  
 .  
 UV,  
 18 (a) A가, 18 (b)  
 , 가  
 .  
 ,  
 2 , 가  
 .  
 A 가 ,  
 가 ,  
 .  
 A ,  
 가 ,  
 IPS (TN),  
 가 .

《 3》

, 19 (b) , 19 (a)

.

, 가 , .

, , .

1) 50% .

2) 50% , 1V ( , 120 ).

3) 50% .

, 120 1V 가 , .

가 , 20 21 , .

0<sup>12</sup> · cm, 5×10<sup>10</sup> · cm 20 , (a), (b), (c) , 1×10<sup>13</sup> · cm, 1×10<sup>13</sup> ( ), (縱軸)

, C C A A , B B ,

, , B 1×10<sup>13</sup> · cm 가 ,

, A .

1×10<sup>12</sup> · cm, 5×10<sup>10</sup> · cm 21 , (a), (b), (c) , 1×10<sup>13</sup> · cm, ( ),

, C C A A , B B ,

, , B 1×10<sup>13</sup> · cm 가 ,

A .

, 4가 가 .

1) 가

, (DC) 가 , (DC) 가 .

).

( 1)

$$= A + B \exp(-t/C) + D \exp(-t/E)$$

, A~E , t (DC) 1V 가 .

, t = 0 (= A + B + D) , 100%

.

- , (DC) 0% .  $t = 120$  .
- 2) 가
- , (DC) 2 가 , (DC) 가 .  
( 2)
- $$= A + B \exp(-t/C) + D \exp(-t/E)$$
- , A~E , t (DC) 1V 가 .  
,  $t = 0$  ( $= A + B + D$ ) , 100% .
- , (DC) 0% .  $t = 120$  .
- 3) 가
- , . 3 (
- ( 3)
- $$= A + B \exp(-t/C) + D \exp(-t/E)$$
- , A~E , t (DC) 1V 가 .  
,  $t = 0$  ( $= A + B + D$ ) , 100% .
- , (DC) 0% .  $t = 122$  .
- 4) 가
- , . 4 (
- ( 4)
- $$= A + B \exp(-t/C) + D \exp(-t/E)$$
- , A~E , t (DC) 1V 가 .  
,  $t = 0$  ( $= A + B + D$ ) , 100% .
- , (DC) 0% .  $t = 122$  .
- 가 , , 1) 가 가 40% , , (DC) 가 120 , (
- 目視) 가
- 22 (a), (b), (c) , 21 (a), (b), (c) (DC) 가  
( 0~120 ) .

22 (a), (b), (c)

(DC) 가 A 가 40% (DC) 가 120 가

, B  $1 \times 10^{12} \cdot \text{cm}$  C  $1 \times 10^{12} \cdot \text{cm}$  ,  
 , 가 ,  
 A가 .

2) 가 , (DC) 가 120  
가 (DC) 가 40% ,  
가 .

23 (a), (b), (c) , 20 (a), (b), (c) (DC) 가  
( 0~120 ).

23 (a), (b), (c)

(DC) 가 A (DC) 가 120 가  
40%

, B  $1 \times 10^{12} \cdot \text{cm}$  ,  
, C  $1 \times 10^{12} \cdot \text{cm}$  .  
 , 가 ,  
 A가 .

24 , A, B, C  
(  $\cdot \text{cm}$  ) , (%) .

, B, C , A  
 ,  
가 , A 가 , 가  
가 .

, 25 , A, B, C  
(  $\cdot \text{cm}$  ) , (%) .

, B, C , A  
 ,  
가 , A 가 , 가  
가 .

3) 가 , (DC) 120 가 , (DC) 가  
, 2 가 (DC) 가 5% ,  
 , 가 .

26 (a), (b), (c) , 20 (a), (b), (c) (DC) 가  
( DC 가 0~10 ).

, A 2 5% .

2 , , 가 , .

, , 5% .

, B, C ,  $1 \times 10^{12} \cdot \text{cm}$  , .

B C , 26 (b) (c) , 가 , (DC) 가

2 5% .

4) 가 (DC) 120 가 , (DC) 가

, 2 가 (DC) 가 5% ,

, 가 .

27 (a), (b), (c) , 21 (a), (b), (c) (DC) 가

( DC 가 0~10 ).

, A 2 5% .

2 , , 가 , .

, , 5% .

, B, C ,  $1 \times 10^{12} \cdot \text{cm}$  , .

B C , 27 (b) (c) , 가 , (DC) 가

2 5% .

, 28 A, B, C , (DC) 가 OFF 2

.

, (  $\cdot \text{cm}$  ), (%) .

, A가 , C

B .

, A가 .

, 1 7 ,

.

, (殘像)

.

(57)

1.

$1 \times 10^{-13}$ 

• cm

2.

1

가

3.

2

가

4.

1

3

(disimine) 가

5.

4

(phenylene diamine) 가

6.

4

(二無水物)

7.

2

8.

가

40%

가

120

(flicker)

가

9.

가

가

가

40%

가

120

가

10.

2

가

120  
가

가 ,

5%

가

,



11.

2

가

120

가  
가

5%

가

12.

8

11

13.

8

11

 $1 \times 10^{-13} \cdot \text{cm}$ 

14.

12

가

15.

14

16.

15

가

17.

15

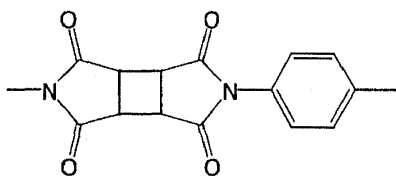
가

18.

2

1

( 1)



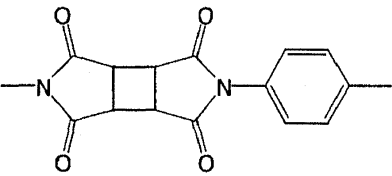
19.

8

13

2

( 2)

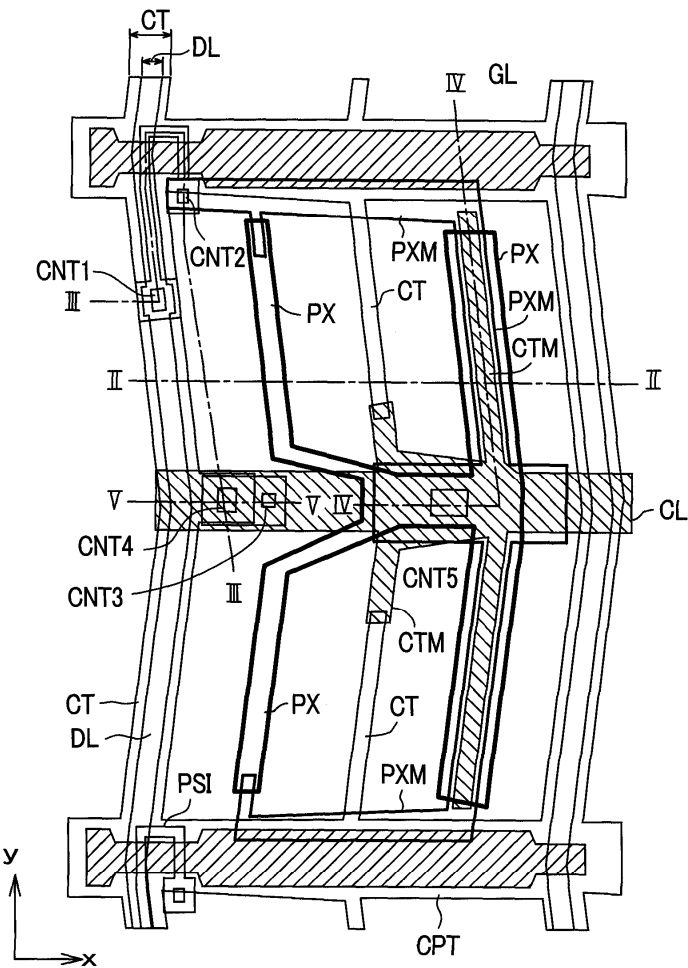


20.

1 19

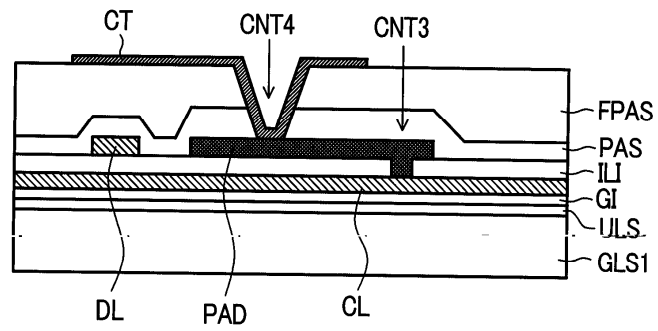
가

1

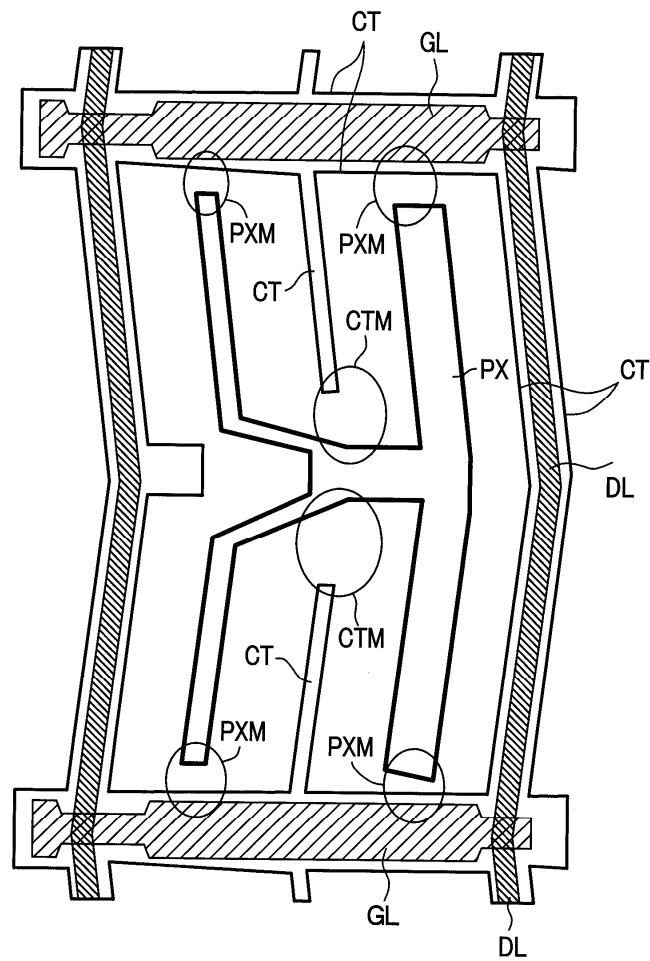




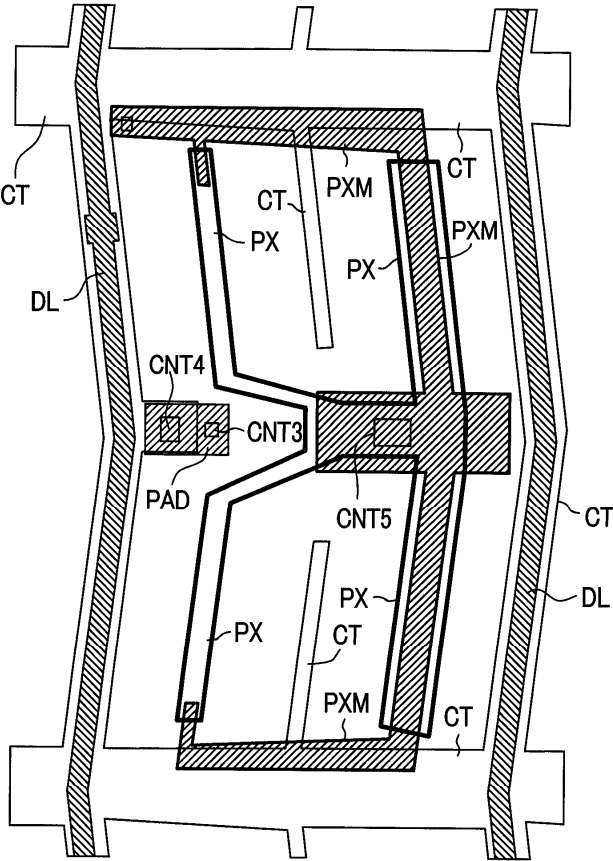
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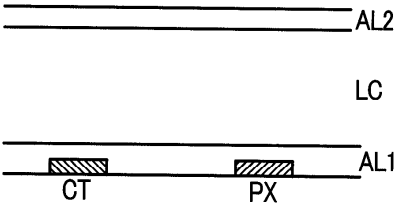
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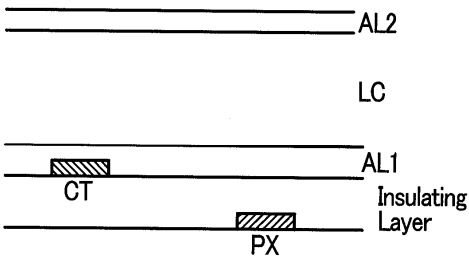
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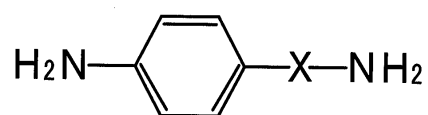
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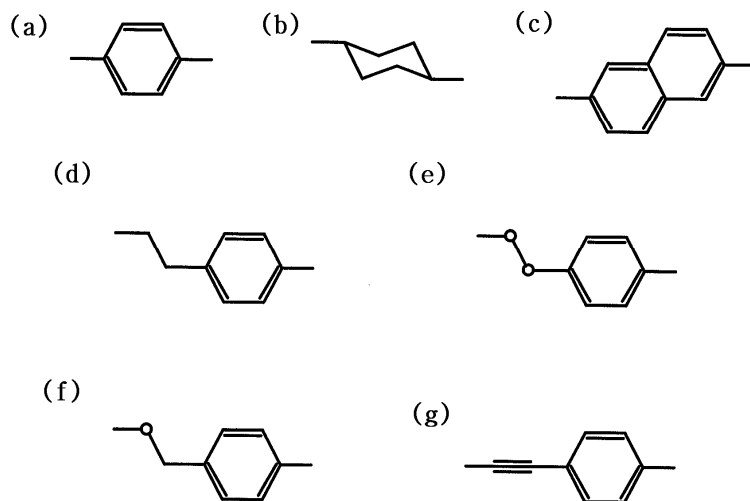
9



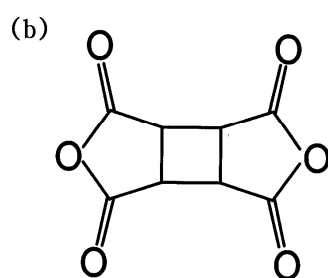
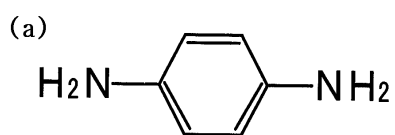
10



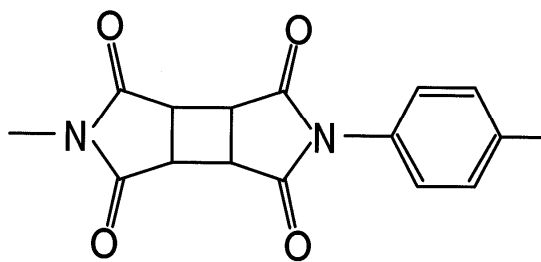
11



12



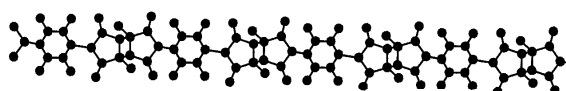
13



14

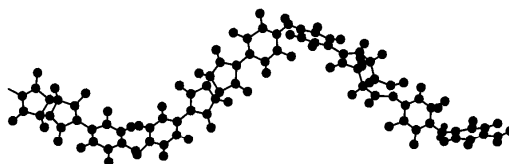
(a)

배향막 A



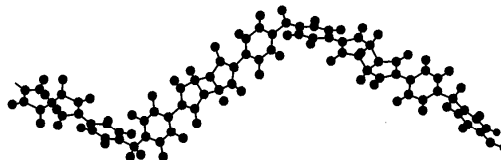
(b)

배향막 B

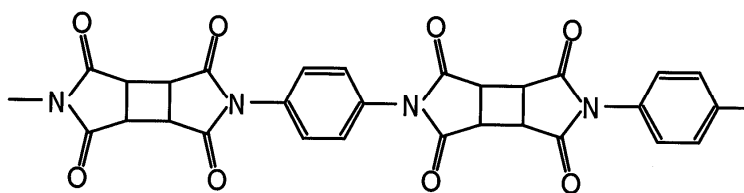


(c)

배향막 C

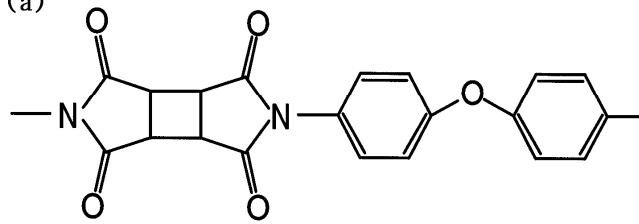


15

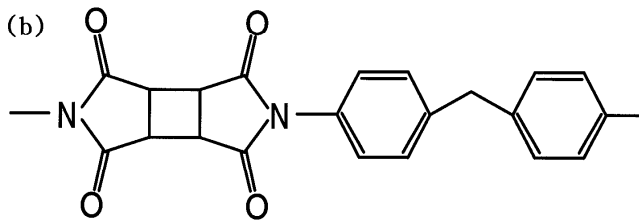


16

(a)

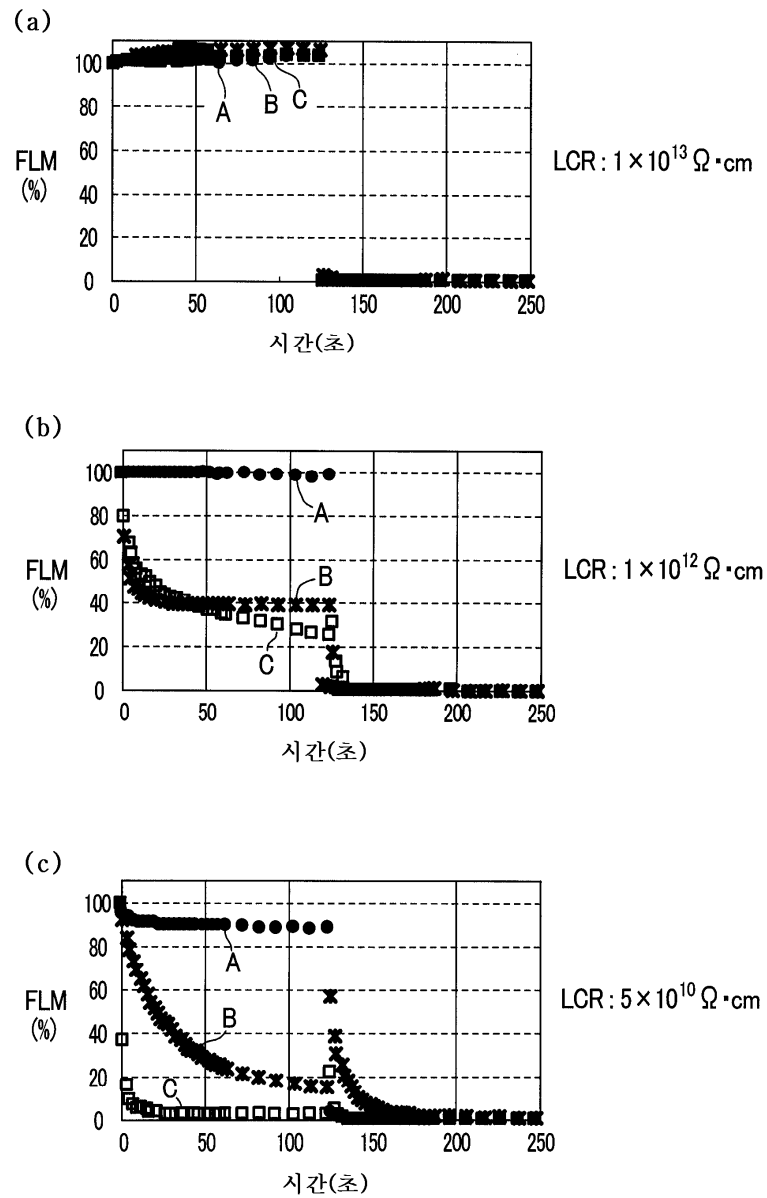


(b)

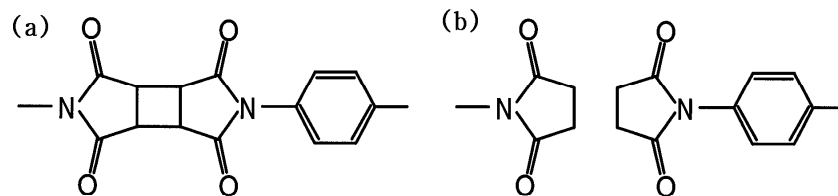




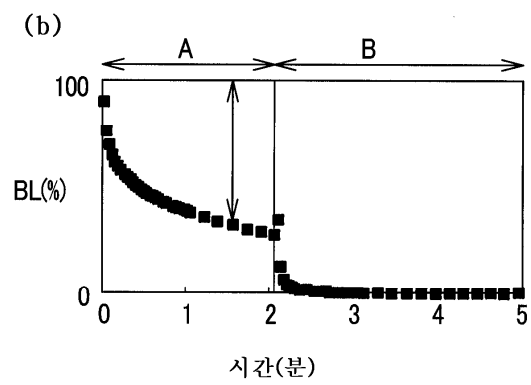
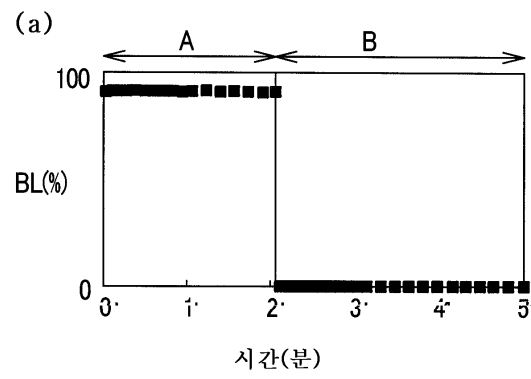
17



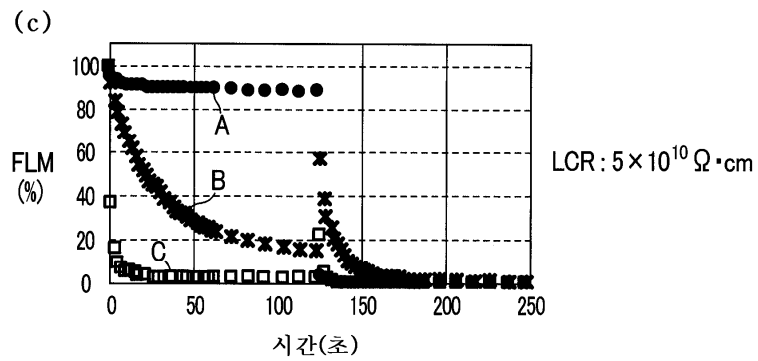
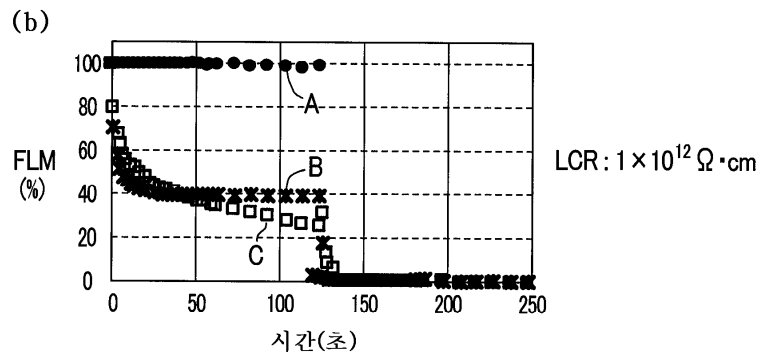
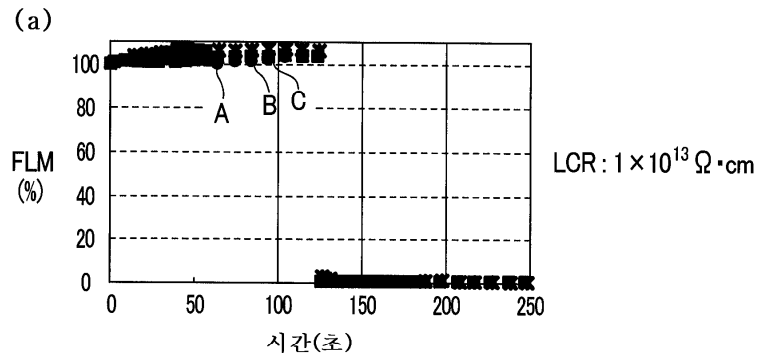
18

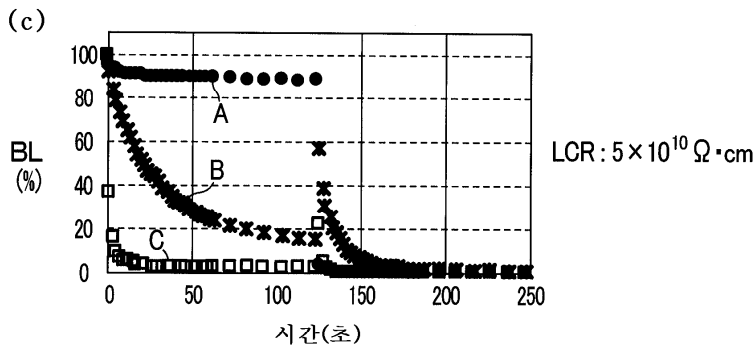
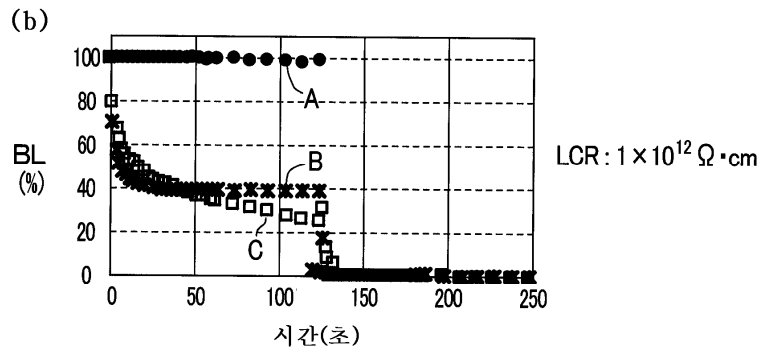
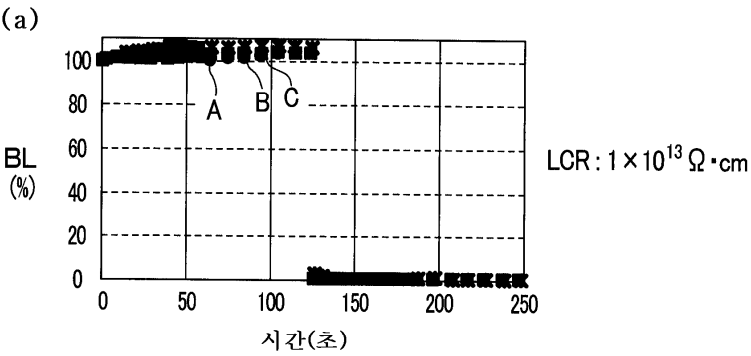


19

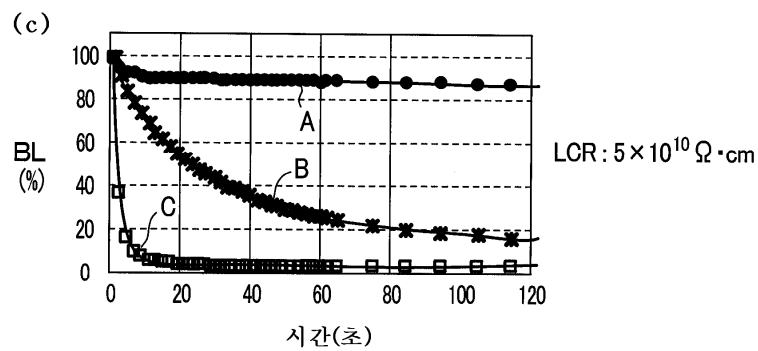
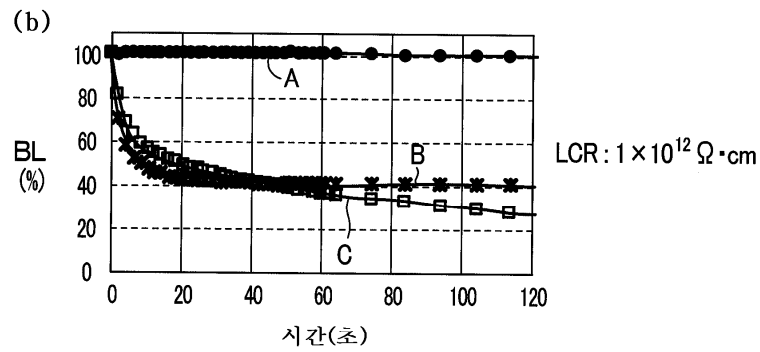
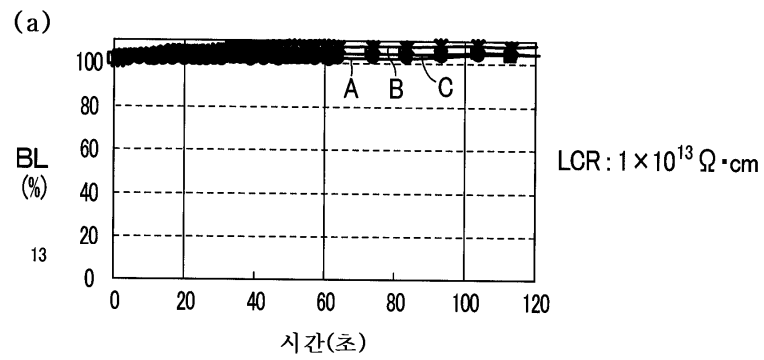


20

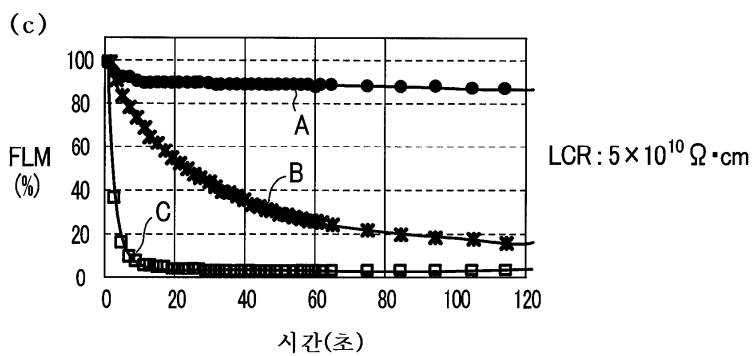
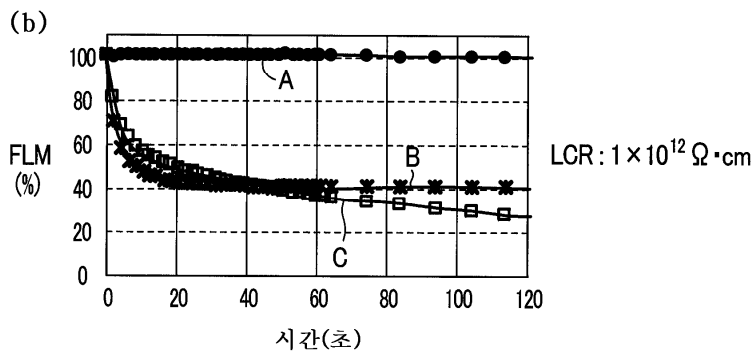
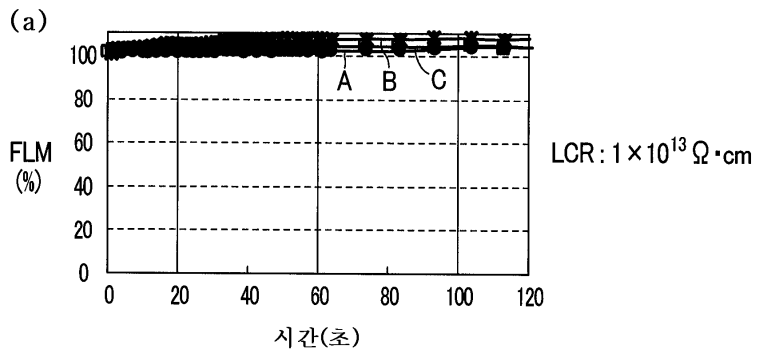




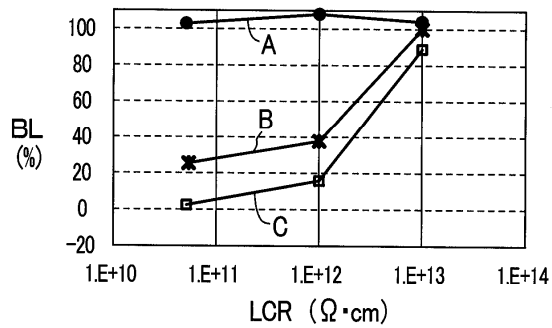
22



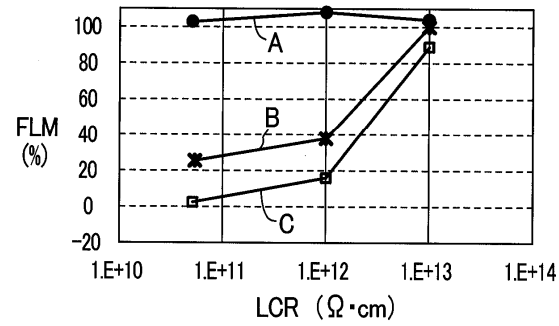
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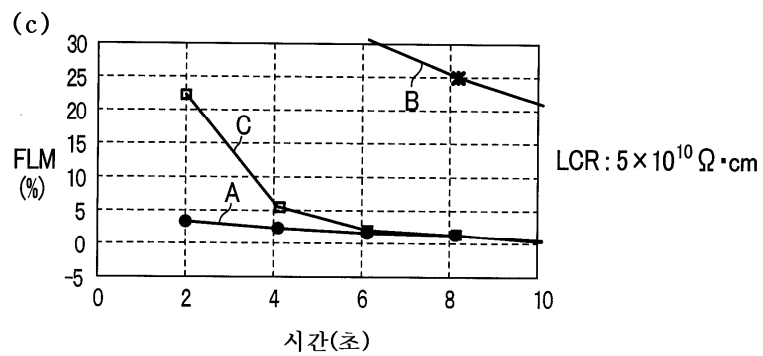
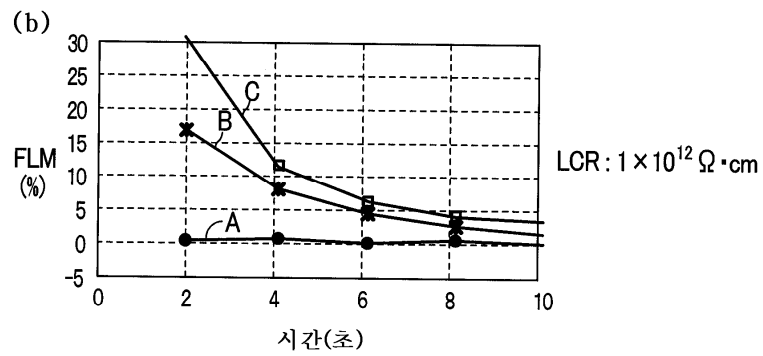
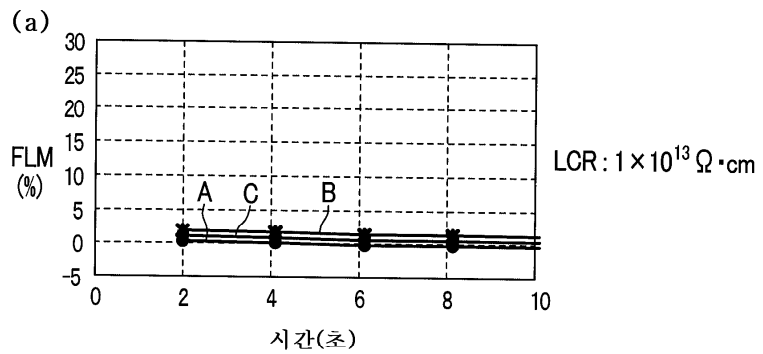
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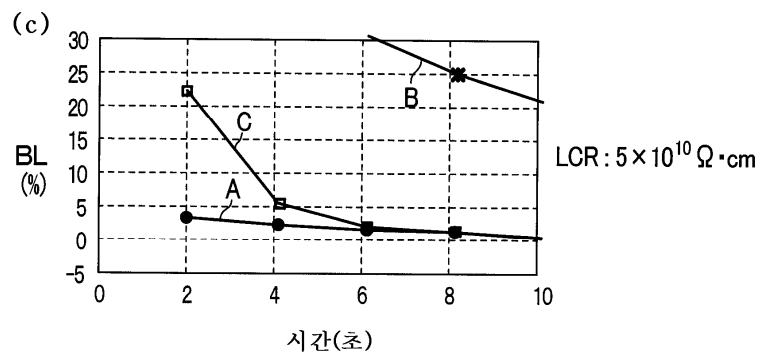
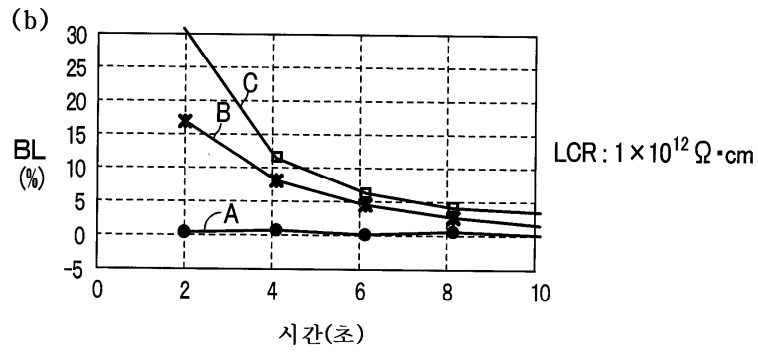
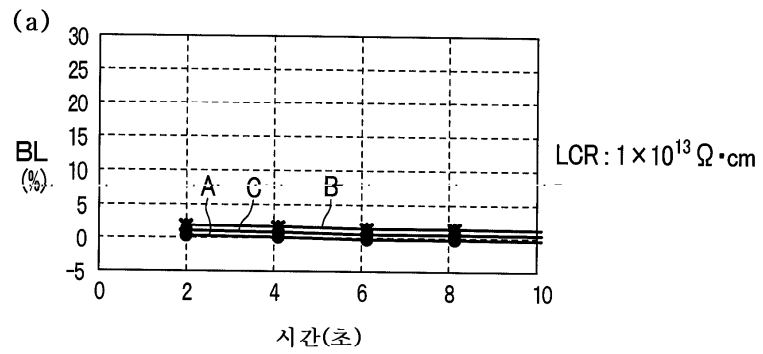
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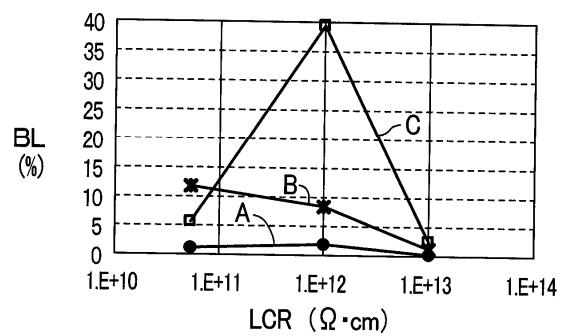
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27

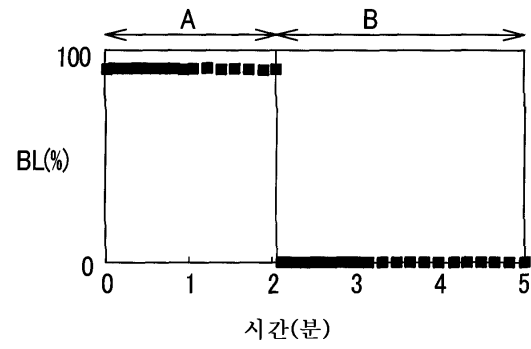


28





29



30

