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| (21) | 10-1997-0007812 | (65) | 10-1997-0066637 |
| (22) | 1997 03 08 | (43) | 1997 10 13 |

(30) 96-080811 1996 03 08 (JP)

(73) 가 가 가 6 7 35

(72), 가 가 6 7-35 가 가

가 , 가 가 6 7-35 가 가

(74)

:

(54)

, 가 ,
 , ,
 (1) , , (2, 3),
 / 가 , ,
 , ,

1

1 C-V
 2 C-V
 3 가
 4 가
 5 가
 6 가

| | |
|----|---|
| 7 | |
| 8 | 7 |
| 9 | |
| 10 | 9 |

ITO

< _____ >

1 : RED ()
2, 2a, 2b, 2c, 2d, 2e, 3, 3a, 3b, 3c, 3d, 3e : ITO

4, 5 :

6,

7 :
24 25 26 27 27 27

8A,
12

X-Y 가 (400
700 nm), λ_1

, () EC () (,
() ECD ()

, , 59-24879 , ECD 가
., .

EC
 , 가 ND
 , ECD

EC
(response speed)
ECD
ECD
/ /
가

, (ITO) / 가

, ; 가
(400 ~ 700 nm) , , ,

(銀膜)

(Cu 가)

, ITO
10 40 ITO

0.1 100 mmol/ 가

(plating bath)

가 . RED (Reversible Electro Deposition)

RED

RED ()

(DMSO)

RED (Reversible Electro Deposition)

, 가

가

1

가



)가

(

가

가

가

2
가



-N-N-N'-N'-

1

-12-

가 (400 nm, 700 nm) 가 (0.03 mol/l, 2.0 mol/l), X-Y 가



). , (가 , 가)
 가
 9 10 (10) , (2, 3)
 , (4 5) ITO , , (2a 3a)
 3e) , (6A 6B) 가 (2b 2e 3b 3e), (2a 3a, 2b 3b, 2c 3c, 2d 3d, 2e 3e), (6A 6B) (細線)
 가, (9A 9F) (8A 8F)
 (4 5) (7) (8 , (6))
 RED (1) , - (,) 가 (2a 3a, 2b 3b, 2c 3c, 2d 3d, 2e 3e), RED
 (V1 V5) (V6) (6A 6B) 가
 , V1=V2=V3=V4=V5 , 가
 , (, V1<V2<V3<V4<V5), CCD ()
 (optical diaphragm) , CCD

가
가

1

[1]
 ()

| | |
|------|-------|
| | () |
| DMF | -60.4 |
| DEF | -78.0 |
| DMAA | -20.0 |
| MPA | -30.9 |
| N-MP | -24.4 |
| MEOH | -85.1 |
| EEOH | -60.4 |
| PC | -49.0 |
| AN | -45.7 |
| DMSO | 18.0 |

2

[2]
 (-40 24)

| | |
|------|--|
| | |
| DMF | |
| DEF | |
| DMAA | |
| MPA | |
| N-MP | |
| MEOH | |
| EEOH | |
| PC | |
| AN | |
| DMSO | |

AGBr: 500 mM, TBAB: 1000 mM, SC(NH₂)₂: 1 g, CuBr₂: 2.2 mM

, DMSO -40 가
 < 4>

7 8

(DMSO)가
 가 4 500 mmol/
 가 -n- , (TBAB)가 750 mmol/
 가 3 (CuBr₂) 0.1 mmol/
 가 3 , 1' , 400 nm
 80 % 가 2' 80 24

2.400

, 80 24

[3]

| Cu | 1 | 2 |
|--|---|---|
| -1,2- | | |
| N,N,N',N'-(2-) - | | |
| -N,N,N',N'- | | |
| 1--2- | | |
| AgBr: 500 mM, TBAB: 750 mM, CuBr ₂ : 0.1 mM | | |

(57)

1.

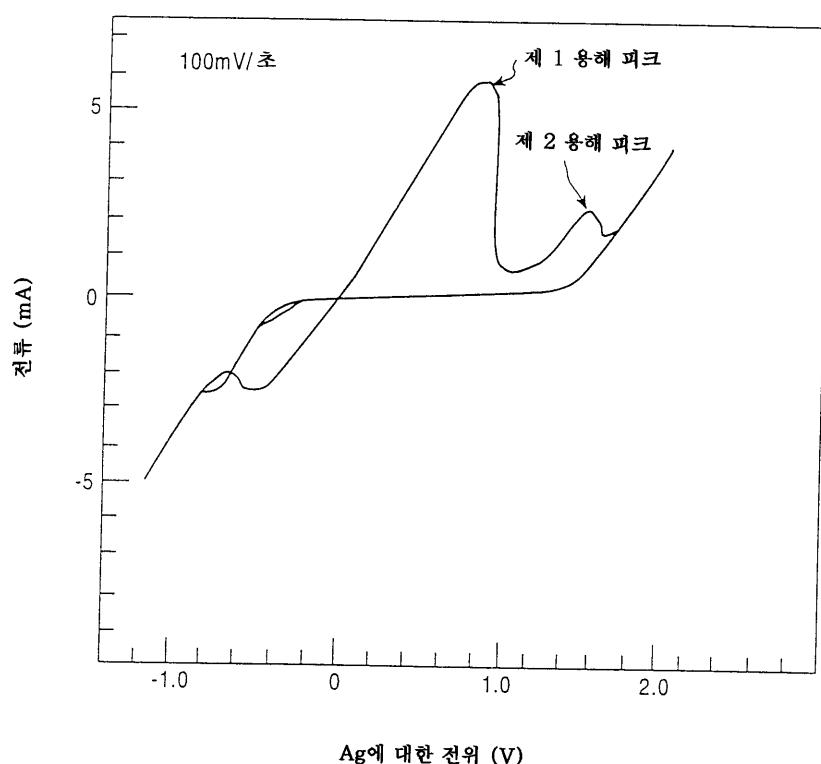
, N,N-
2-, 2-, N-, N- 1 ,

14. 11 , 가 , , , , ,

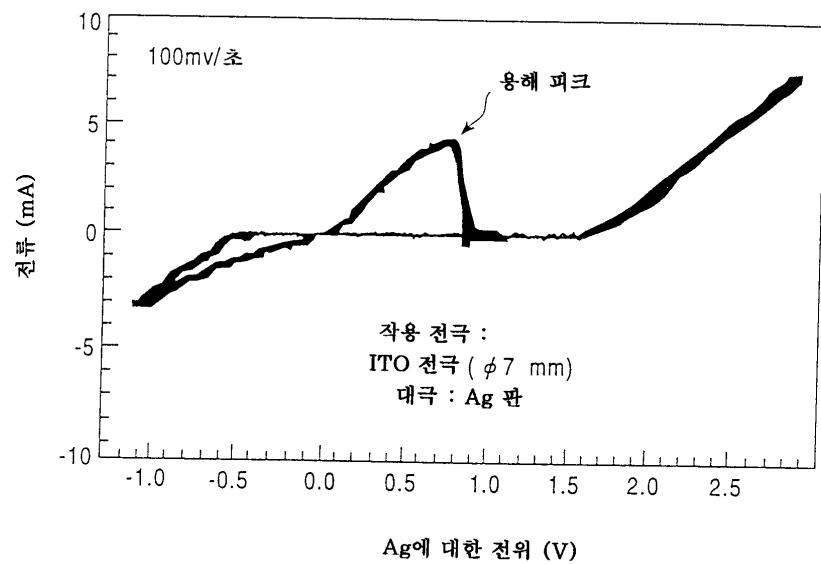
15. 10 14 , 가

16.
15 , 1/2 5

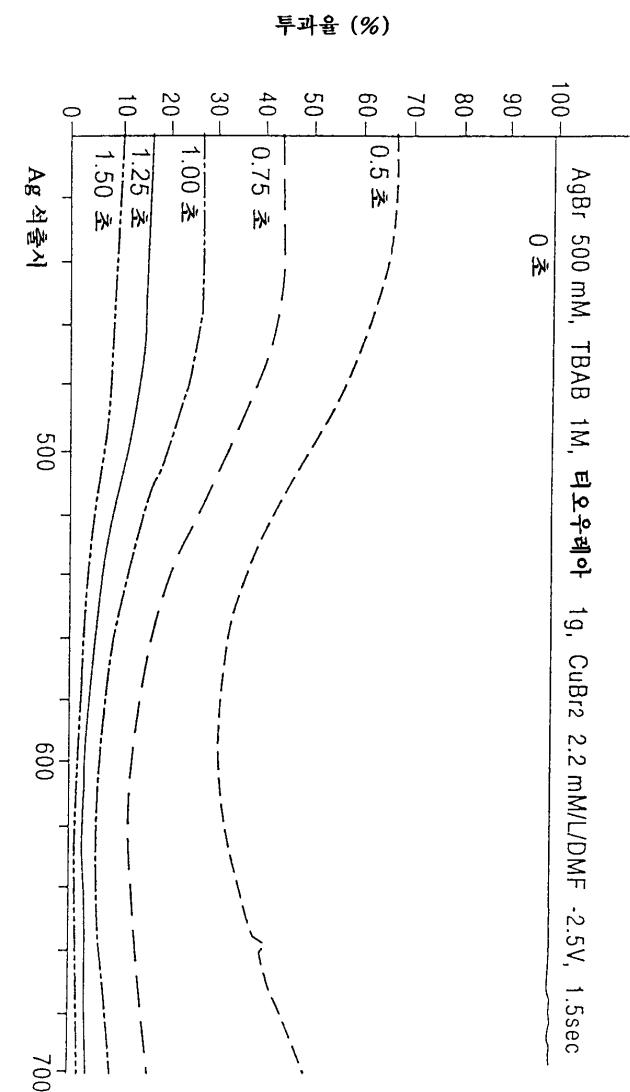
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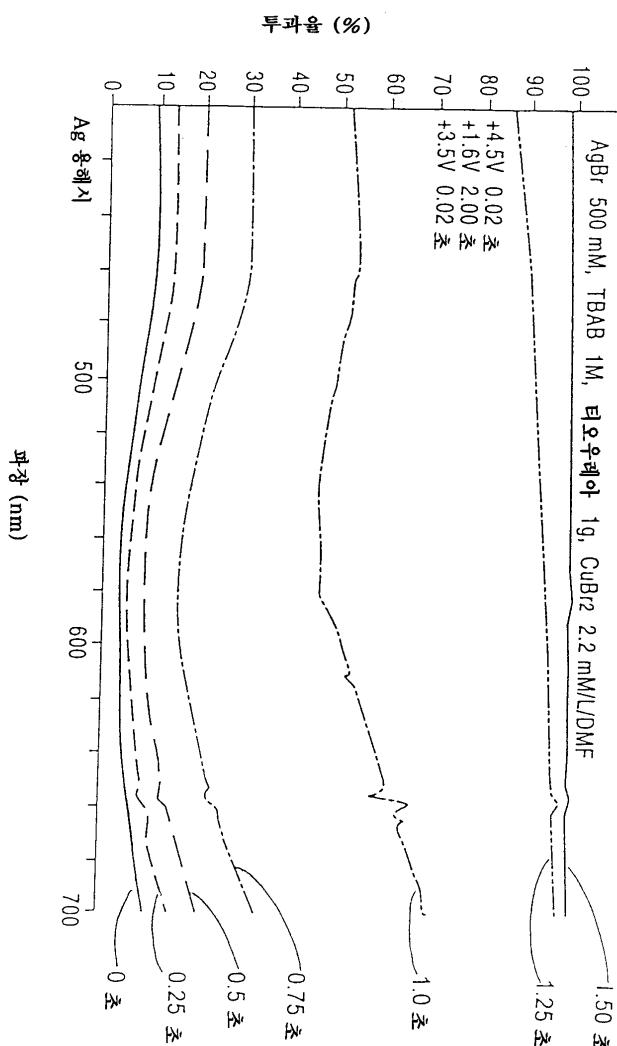
2

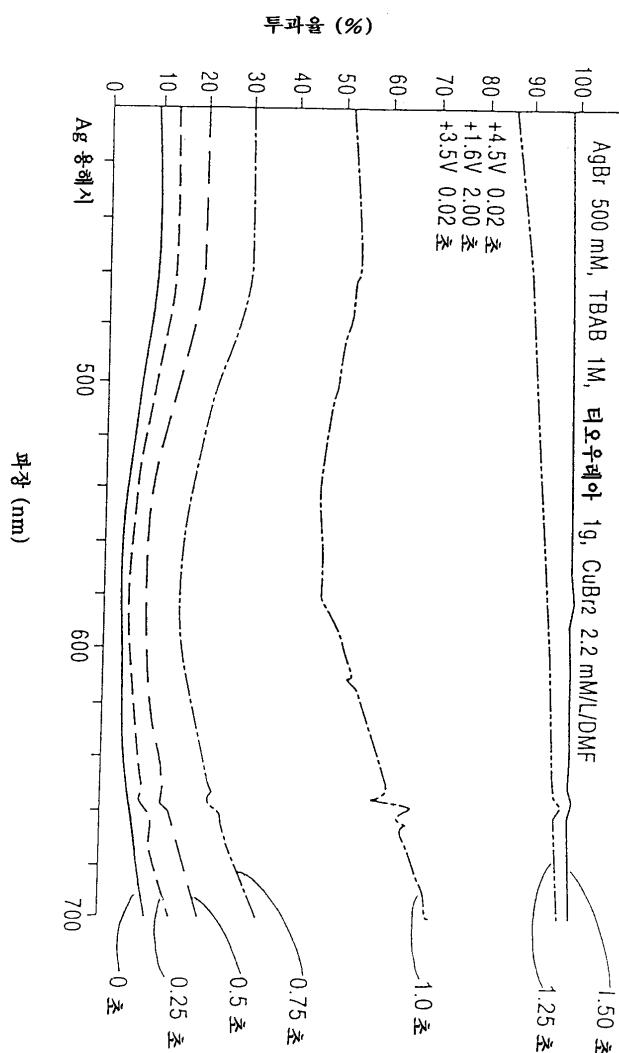


3

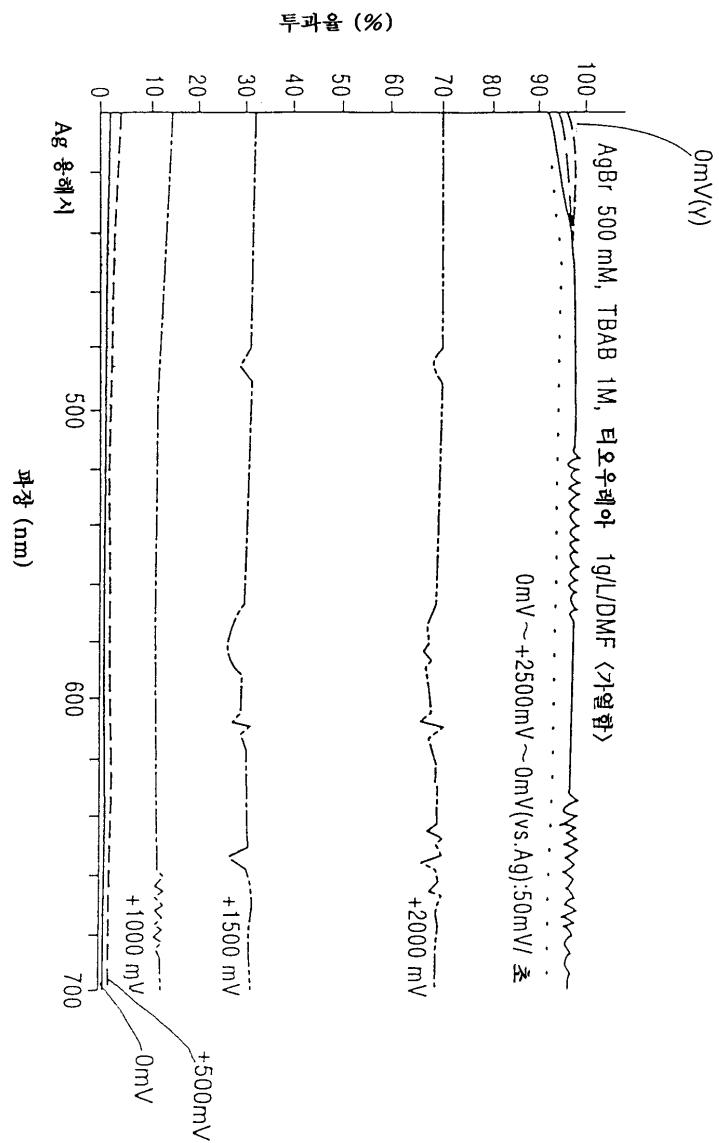


4

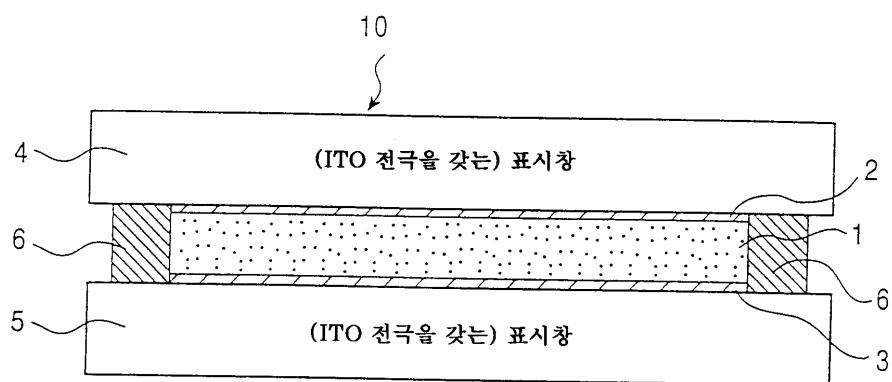


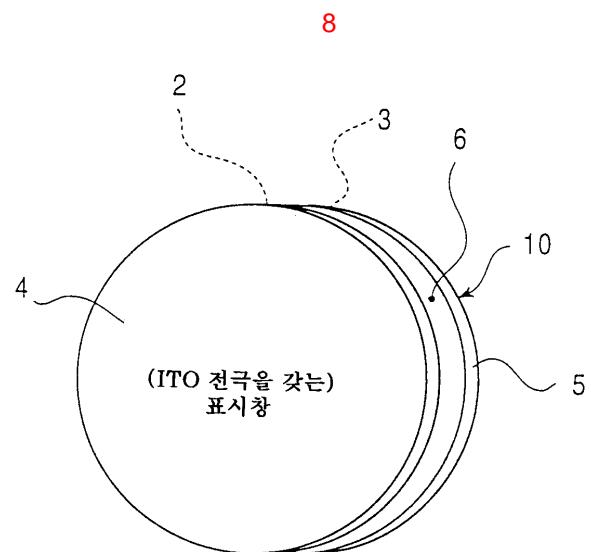


6

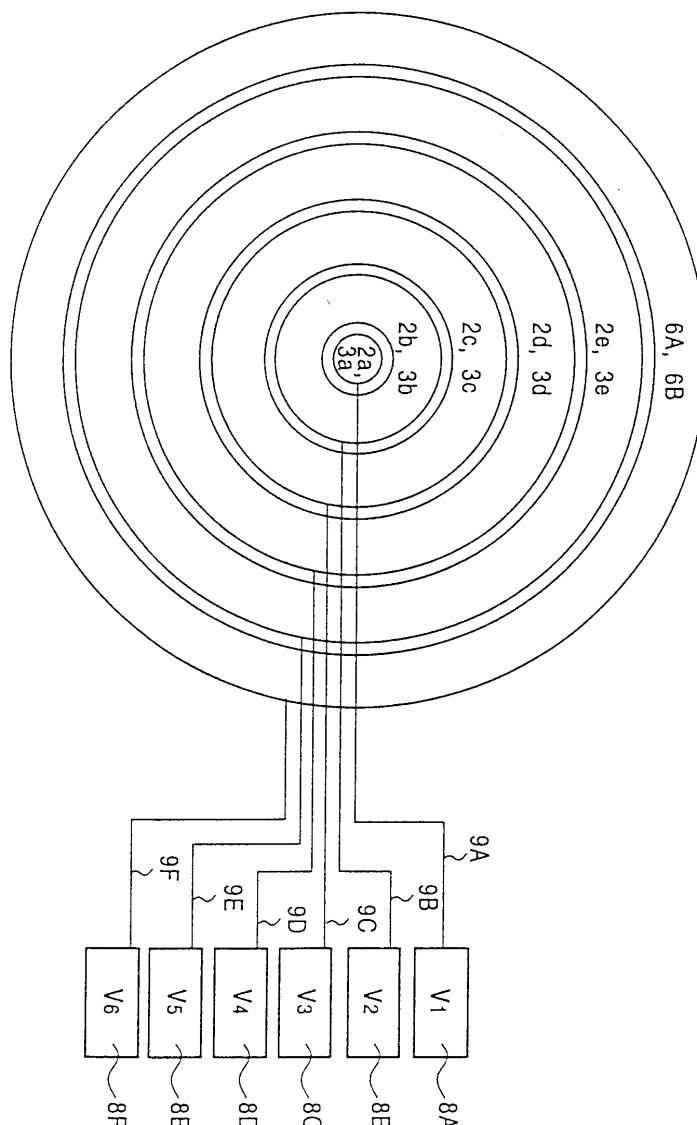


7





9



10

