

(19)
(12)

(KR)
(A)

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2002 06 24

(21) 10 - 2000 - 0077946
(22) 2000 12 18

(71)

136 - 1

(72)

1207

(74)

:

(54)

loading diffusion) (f
(grind) ,
silicate glass) , 가 USG(undoped

3

1 CMOS

2 ,
 3 ,
 4a 4c .

* *
 R, G, B: 39: OCM
 40: 41:
 42: USG

(image sensor) 1 2 .
 semiconductor) CCD(charge coupled device) 2 가 . MOS(metal - oxide -
 CMOS MOS CMOS . CMOS
 가 , 가 , 가 가 , CMOS
 1 4 2 CMOS
 (PD) 4 NMOS (Tx) CMOS
 (FD) NMOS (Rx) (PD)
 (Sx) (Dx) (Source Follower) (V_{DD})
 (pixel data enable) 가
 (Tx) (Sx) (on) (Rx),
 (carrier changing) (Tx) (SO) (Sx) V1 (V_{DD}) (PD)
 (Rx)

(Tx)
(Out)

V2
가

V1 - V2

Cp

Cf

2
(epitaxial layer, 21),
1) n
al) (26), OCM

(21)
p
(23)
(26)

, p
(22)
(R, G, B),
(R, G, B)

(20) p
(
),
OCM(over coating materi
(microlens, 25)

(20)

loading diffusion)
(grind)
silicate glass)

가 USG(undoped

3
(31),
(34),
p (

(32),
(34)

(31)
(31)

, p
(30) p
(33)
(
(36), (34)

(31) (37) ()
 (38) (R, G, B), OCM(over coating material) (39), OCM
 (39) (R, G, B) (microlens, 40), (30)
 (41), (41) USG (42) .

(36) (30) (41)

4a 4c

4a , (31), (32), () ,
 (32) (30) (30)

4b , (30) (41) ,
 (41) USG (42)

4c , (B), (R) (G) ,
 OCM (39) (40)

가 가 , 가 ,
 가

1 -
 2 -
 가 가 가 ,
 가 가

(57)

1.

2.

1 ;

;

3.

1 2 ,

4.

3 ,

5.

,

1 ;

2

6.

5 ,

1 ,

3

7.

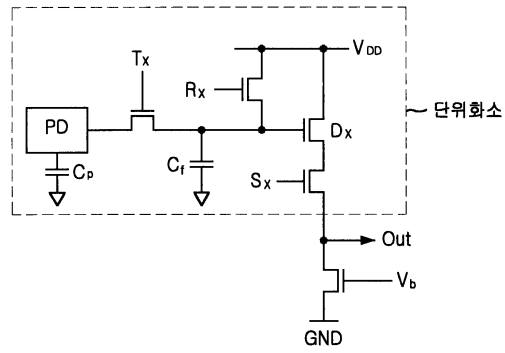
5 6 ,

2 ,

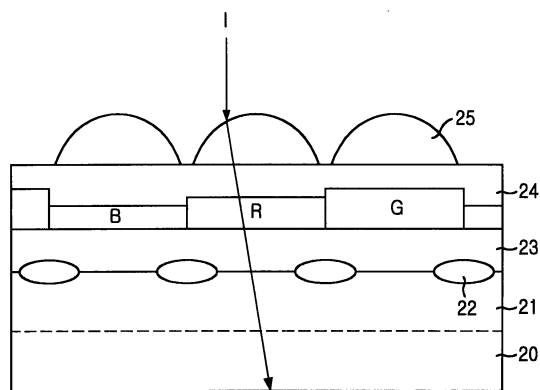
USG

4

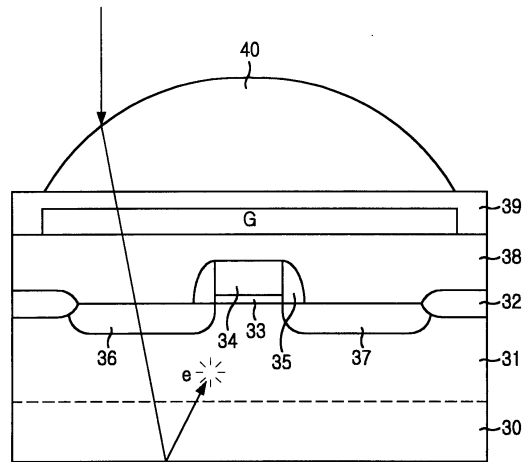
1



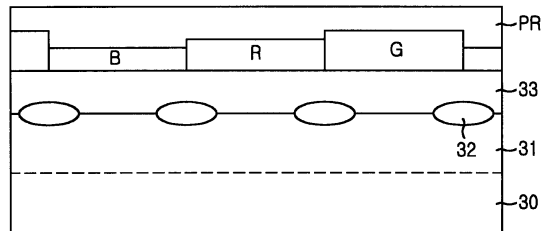
2



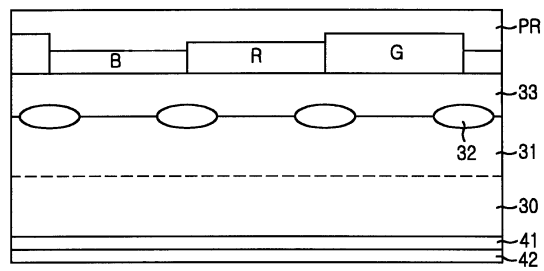
3



4a



4b



4c

