

(74)

:

(54) 가

350 550nm 가 , " T" 0.4 , .

1

, , , , .

(ridge laser) , 가

가 .

가 ,

가 .

p - n

가 가 . (가 ,

(, " ") ,

가 ,

" "

p n
가 ,

" " . ,

가

가

가

" 가 "

가

4,251,780
가

가

가

가

2

4,942,585

가

가

가

4,349,905

가

가

가

4,689,797

가

가

10%

가

90%

97%

가

GB 2317744A

가

가

가

가

가 가

가

가

가

, 가

1

(L) 가

W1)

(L1) 가
(W1)

(W3)

(L2)

(L1) 0.4L

20 μ m

(L3)

(W3) 가

(W3) 5

20 μ m

가

가

980nm

, W3

5

11 μ m

, W1

3

5 μ m

, L3

0.04L

, L3

0.1L

, L1

0.8L

, L2

100 μ m

2.5°

가

1480nm

가

(n) 가 ;

T

(W1)

(W3)

(W1) 가

2

(L) 가

(W1)

(L1) 가

(W1)

(W3)

(L2)

(MFD) 가

(L1) 0.4L

20 μ m

(L3)

(W3) 가

(W3)

0.6MFD

1.4MFD

(W3)

0.85MFD

1.15MFD

3

가

1

2

3 1

T

4 1

5 1

6a 6b

가 200 μ m

가 350mA

가 400 μ m

가 750 μ m

6c 6d 가 200 μm , 6a 6b

7a 7b 가 900 μm , 가 1500 μm ,
 가 200 μm , 가 650mA

7c 7d 가 400 μm , 7a 7b

8a 8b 가 1250 μm 3

9a 9b 가 1500 μm 3

10a 10b 8a 8b, 9a 9b 3

11

12

가

1 (100) (100) (100) () 가 2
 (100) (100) 2 Al_xGa_{1-x}As (202)(202')
 (GRIN)(200) , x 0.27 (202)(202') 1 2 μm .

GRIN (200) 2 Al_xGa_{1-x}As (200b)(200b') (200b) GRIN (200)
 (202b)(202b') (200b') (200b)(200b') , Al (x)
 (n) 0.1 2 (202b)(202b') (200a) (E_g)
 가 가 가

GRIN (200) In_yGa_{1-y}As (quantum well) (200a) (200b)(200b')
 0.2 2 μm , (200a) y 0.22 .
 6 7nm

100 μm GaAs (204) p GaAs (206)
 (204) 가 150 μm (206) 가 100nm . 2 GaAs (204)(206) p
 - n (206) p

1 2 , , (202')(206) 201 , 203

2 (100) 가 , 가 ,
 / 가 , 가 ,
 1 (100) (102) (102) 2
 가 (100) (201) .
 RES GRIN (200) (104) , RES 35
 0 550nm .

(102) (100) . 1 (102) 3 ,
 1 (106), 2 (108) 3 (110) . 1 (106)
 (L1) (W1) , " "
 0.1° . 2 (108) (L2) 가 , 1 (106) , (W1)
 (W3) 가 . 3 (110) (L3)
 (W3) . 1 , W3 W1 .

(102) (100) p
 (100) , (W1)(W3) 가 " T" (11) ,
 (102) . 3 (102) " T" (302)
 , (106) (110) 가 , (108)
 , (108) (110) (106)
 가

(102) (106) (112) (102) ,
 , 85% (110) (114) (102) ,
 , (112)(" ") , 20% , (114)(" ") , 15% , 9%
 , GRIN (200)(2
) , (200)
 a) .

(가) , (102) ,
 , (102) (102) , (102)
 , RES 가
 (110) (114) . 980nm
 , , 1480nm .

(100) (1) 가 가
 (MFD) , W3 5 20 μ m , W3 MFD \pm 15%MFD , W3 MFD \pm 40%MFD 가
 980nm , 8 8.5 μ m MFD 가 가 , W3
 5 11 μ m , 7 9 μ m
 4 (Z) (X) , (102) . 3 (1
 06)(108)(110) 가 , 100mW
 1 (106) , 1 (106) " "
 가 (102) ,
 (106) ,
 (06)
 , (106) (W1) 3 5 μ m
 (L1) , L=L1+L2+L3
 (106) (L1) 0.4L
 L1
 (108) ,
 (108) " () 가 가
 () 1.5 $^{\circ}$, () 1 $^{\circ}$ 가가
 (108) (108) 100 μ m
 (110) , (108)
 , W3 7 9 μ m , W3 5 11 μ m
 5 , 2 , 2 가 (500)(502)
 , 2 (500) 2

가 , (500) 2
 , (1) 가 , (2)
 , (502) , (3)(4)
 , (502)

6a 6d, 7a 7d
 . 6a 6d (L)가 750 μ m , (108) (L2)가 200 μ m ,
 0.003 , 가 350mW (W1) 4.
 6 μ m , (W3) 9 μ m . 6a 6c 400 μ m 200 μ m (L1)
 GRIN , 200 μ m
 . 6b 6d ,
 L1=400 μ m L1=200 μ m . 6b
 , 6d

7a 7d (L)가 1500 μ m , (L2)가 200 μ m ,
 0.003 , 가 650mW (W1) 4.6 μ m ,
 (W3) 9 μ m . 7a 7b GRIN 900 μ m ,
 (L1) , 7c
 7d 400 μ m (L1)
 (L1) 0.8L , (21)

, (108) (110) ,
 (110) (W1)(W3) (L)
 , (, 5 (1))
 , (102) (, 5 (3)(4)) ,
 (108) (110) 가 ,
 1 .

1

$$R_{TH} = \frac{\Delta T}{P_{dissip}}$$

, T (204) (200) 가 , P_{dissip} .
 가 ,
 , (110) 가 (114)

8 9 가 3 , (a) , (b) 가 , (c) 가 , (b) (c) 3 (W1)((a)) 4.6 μ m (b) (c) (W3) 9 μ m (c) (114) (110) 1

[1]

	L1(μ m)	L2(μ m)	L3(μ m)
(a)	1250		
(b)	650	600	
(c)	650	200	400

(L1)가 (b) (c)

8a 8b (L)가 1250 μ m 8a (X) (4) ((204)) 3 8b (Z)(4)

8a , (b) (c) (a) , (c) , (b) (a) 25% 가

8b , (b) (c) (a) , (c) . Z

가 1500 μ m 가 9a 9b , 8a 8b 2

[2]

	L1(μ m)	L2(μ m)	L3(μ m)
(a)	1500		
(b)	650	850	
(c)	650	200	650

1 2 , (c) (110) (L3)가 400 μ m가 650 μ m 9a 9b , 10a 10b 9a 9b (110) 가 (L3) (c)

[3]

L (μm)	L1 (μm)	L2 (μm)	L3 (μm)
2000	900	1000	100
1500	800	600	100

가

가
(AR)

가

(57)

1.

(L) 가

(W1)

(L1) 가
(W1)

(W3)

(L2)

(L1) 0.4L

20μm

(W3)

5

(L3) 20μm

(W3) 가

2.

1

3.

1 , .

4.

1 , 980nm .

5.

4 , W3 5 11 μ m .

6.

4 , W1 3 5 μ m .

7.

1 , L3 0.04L .

8.

7 , L3 0.1L .

9.

1 , L1 0.8L .

10.

1 10 , L2 100 μ m .

11.

1 , 2.5° 가 가 .

12.

1 , 1480nm .

13.

1 , .

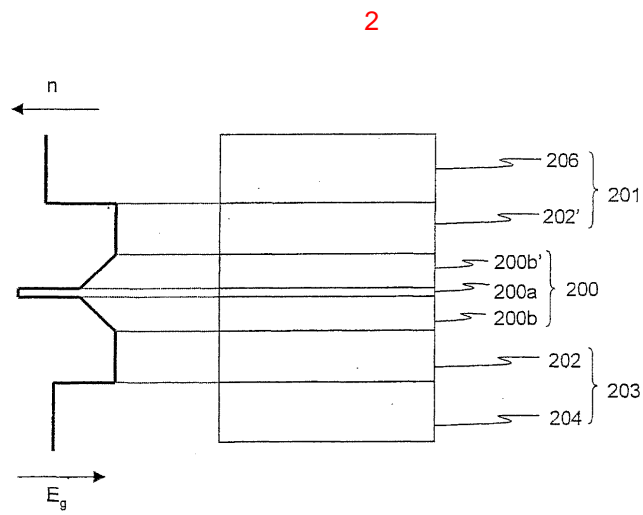
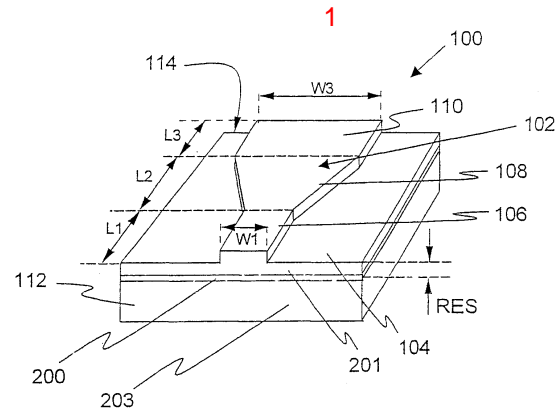
14.

13 , 가 , .

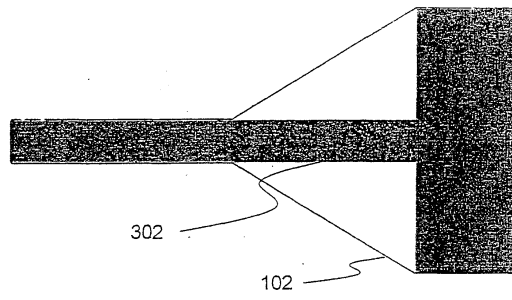
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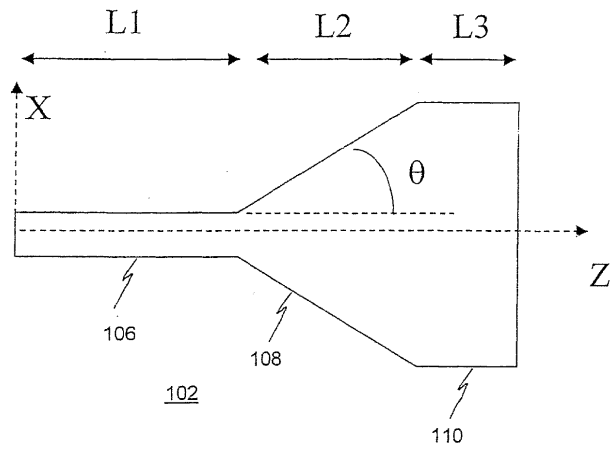
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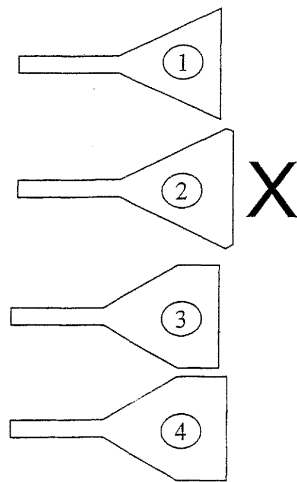
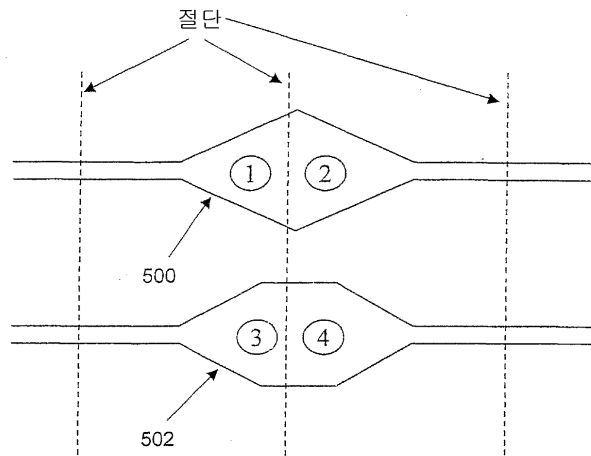
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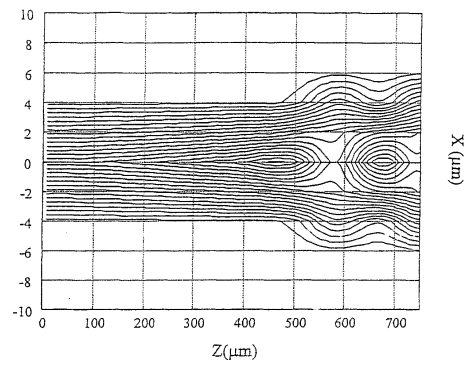
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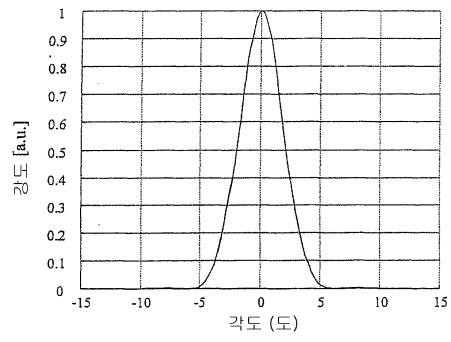
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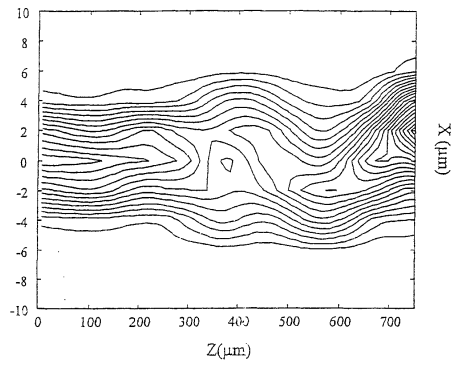
6a



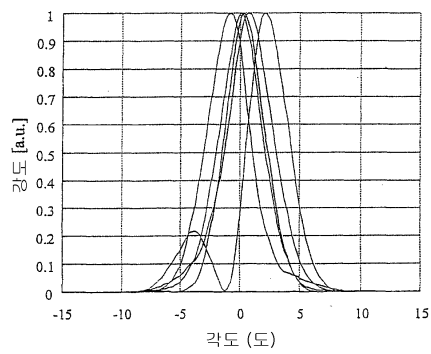
6b



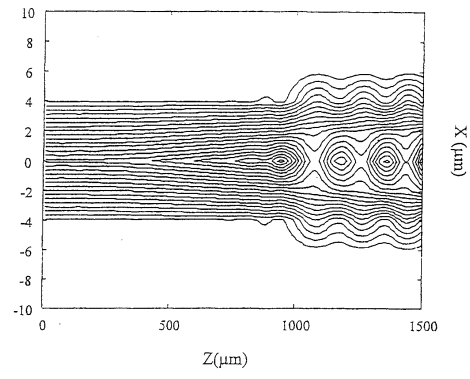
6c



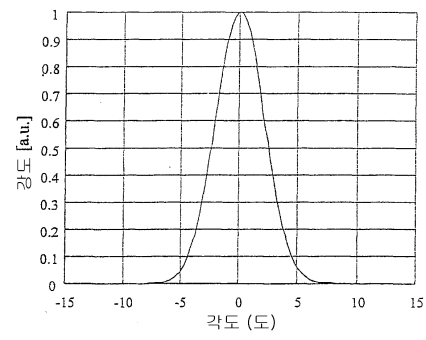
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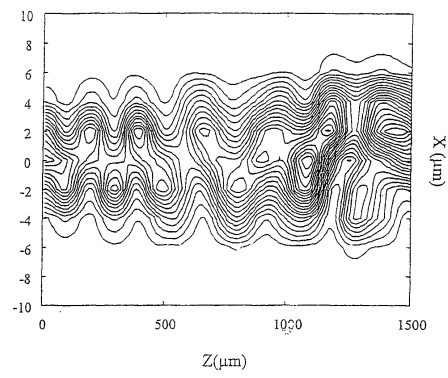
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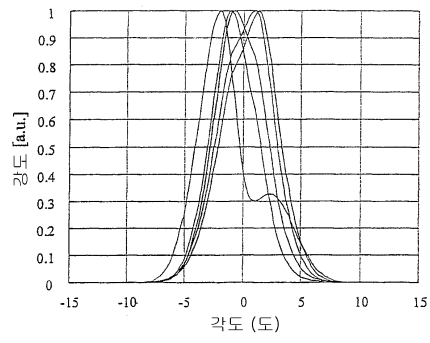
7b



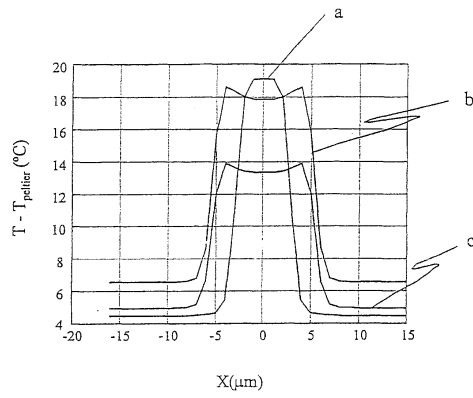
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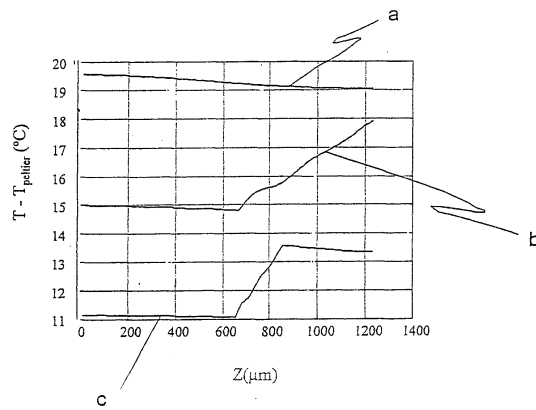
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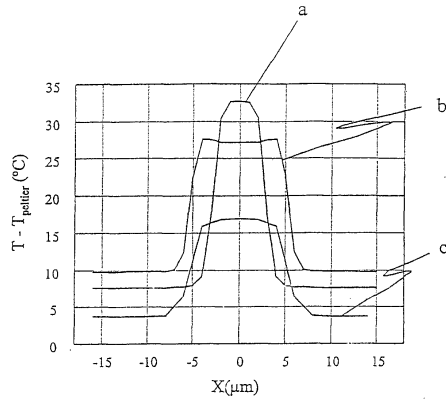
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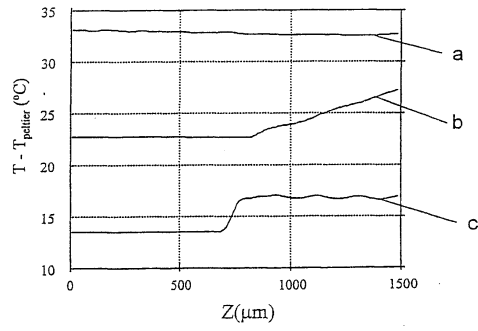
8b



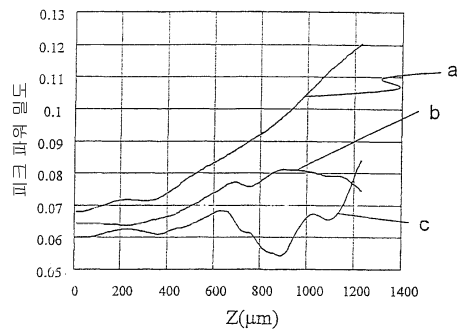
9a



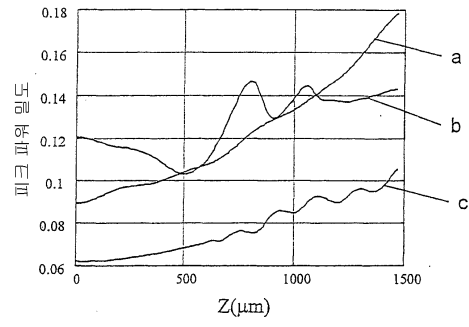
9b



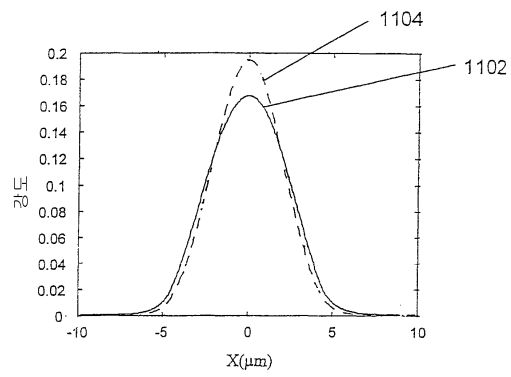
10a



10b



11



12

