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2002 12 11  
10 - 0363885  
2002 11 25

(21) 10 - 2000 - 0077643  
(22) 2000 12 18

(65) 2002 - 0048230  
(43) 2002 06 22

(73) 206

가 161

(72) 21/6226 - 36

1103 - 4 302 - 1301

(74)  
:

(54)

ATM - PON, CATV(cable TV)  
, NRZ R  
Z (11); RZ  
NRZ (12)  
, CDR ,  
, 가 .

1b

1a

1b 1a

1 ,

1c 1a

2 ,

2 1

,

3 1

,

4 1

NRZ - RZ

5 1

,

\*

11 : 110 :

111 : /

112a,112b : NRZ(nonreturn - to - zero) - RZ(return - to - zero)

113a,113b : 12 :

116 : 117 : 가

122a,122b :

, ATM - PON, CATV(cable TV)  
CDR  
가

가

가

(point - to - point) 가 ATM - PON

ATM

dle time) , "1", "0" , (1) (i)

, (2) 가 가 , (3)

(1) , 가 ,

, (2) , (preamble)

, (3) , (payload)

, 249816 , 가 1.5dB

0.5dB

, 가 가

, 가 1Gbps 155Mbps/622Mbps

가 Tbps Gbps

CDR(clock and data recovery) (chip)

CDR(clock data recover

y)

1 NRZ (11); R  
RZ NRZ (12)  
가 .

2 NRZ ;  
RZ NRZ

1a (11) (12) 가 (11) / (111), NRZ - RZ  
(112a,112b) (110) .

RZ (110) , NRZ - RZ (112a,112b) NRZ  
(110) NRZ - RZ

(110) 가 1b 1c (113a,113b) , , 1b ,  
(110) 가 (114)

1b (11) 2 .  
(1) NRZ / (111) , '0100101  
0011 가 가 .  
(22). (21).

(2) / (111) NRZ - RZ (112a,112b) , RZ , 2 "  
22" NRZ "21" NRZ "23" RZ , 2 "  
AND NRZ "24" RZ (41) NRZ - RZ 4 , 2 "  
(43). (42) AND

(3) RZ , RZ

(4) , RZ 가 (25).

1c (11) (110) 1b  
(110)

RZ (115) 가 (117)  
, RZ (116) 가 (117)  
, RZ (112a) 가 "1" (112b) 가 "1"  
(117) 가 "1" , RZ (117) "2" (112b) 가 "1"  
가 (117) "2" 가

RZ (12) NRZ

(12) (121), (122a,122b), (123), (124),  
(125) (121) , (122a,122b)  
(124) (123) , (123) , (125) (123)

(12) 3

(1) RZ 가 (31) ,

(2) "32" 가 2 (122a,122b) , (32,33) , 3  
2 "24" "23" 3 "33"

(3) (122a,122b) (123)  
가 "34" 가 ,  
(123) (123) "0" "1" (125) (124)  
(123) "0" "1" 0

(4) (124) , "35" , 가  
(124)

(5) (125) (123) (124)  
NRZ (36).  
(125) 5 D - (flip - flop)  
NRZ , '01001010011'

CDR

CDR

CDR

(57)

1.

NRZ

RZ

(11);

RZ

NRZ

(12)

2.

1

(11) :

/ (111);

/

NRZ

RZ

NRZ - RZ

(112a,112b);

NRZ - RZ

RZ

(110)

3.

2 ,

(110):

NRZ - RZ (112a,112b)  
(113a,113b);

(114)

4.

2 ,

(110):

NRZ - RZ (112a,112b)

(115);

NRZ - RZ (112a,112b)  
(116);

(117)

(115)  
가

(117)

(116)

5.

1 ,

(125) :

(121);

(122a,122b);

(123);

(123)  
(124);

2

(124)

(123)

(125)

6.

3 ,

7.

4 ,

가 (117) , NRZ 가 "1" "0"  
RZ

8.

3 4 ,

NRZ - RZ (112a,112b) 가 f NRZ (41) 가  
2f (42) RZ (43) 2 - AND

9.

5 ,

(112a,112b)

10.

5 ,

(125) D -

11.

NRZ

RZ

;

RZ

NRZ

12.

11 ,

:

NRZ 1 ; 1 2

1 2 RZ 2 ;

2 3 ;

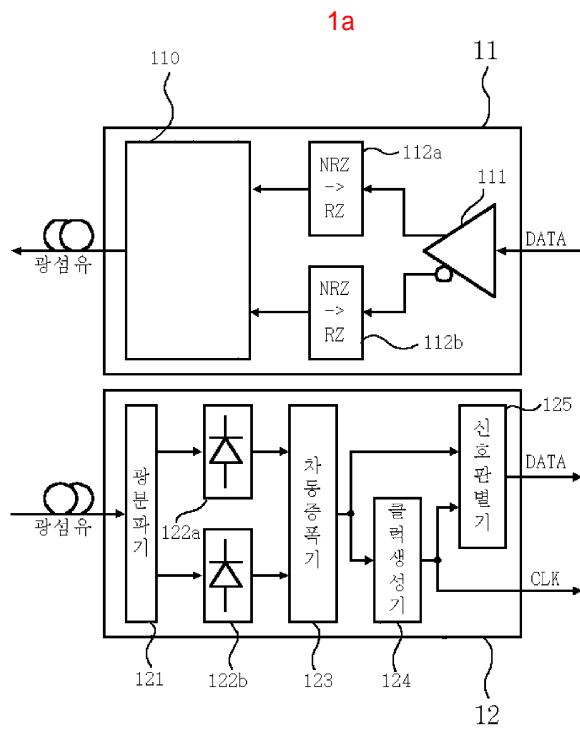
3 4



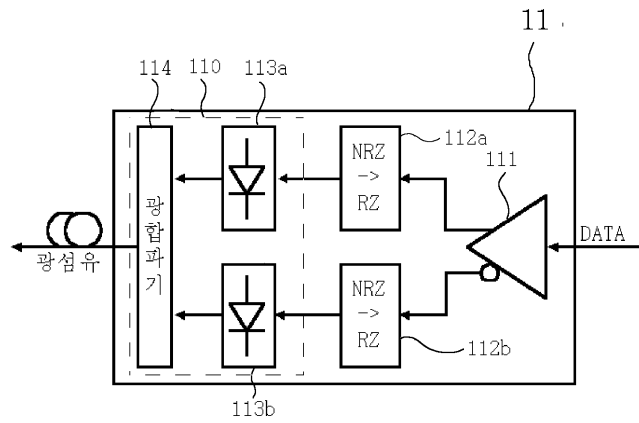
13.

11

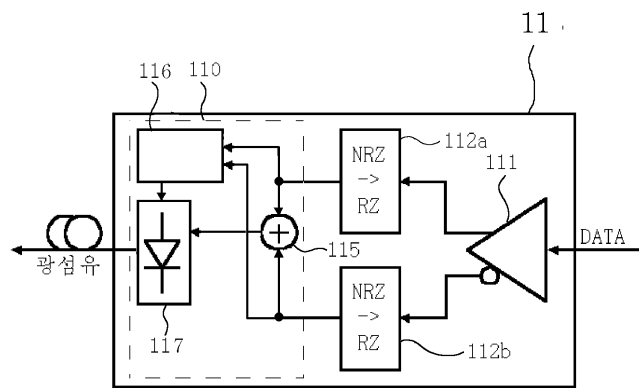
,  
:  
3 4 5 ;  
3 4 6 ;  
6 7 ;  
7 8 ;  
7 8 9



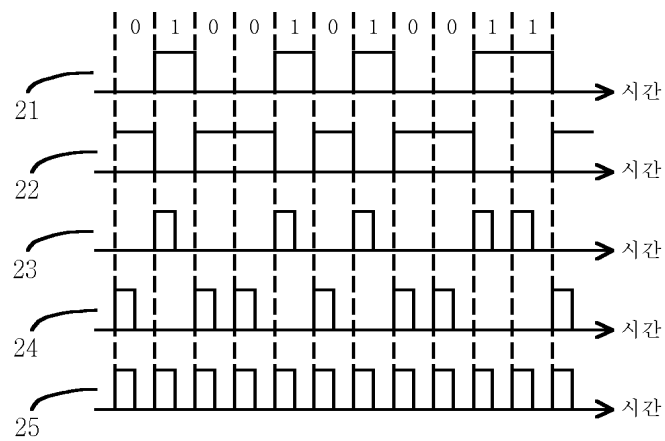
1b



1c



2





5

