



가

, (holiday), (pin hole)

가

, pH, ,



o

가

가

가

가

o

4 (Four Pin Method)

(soil box method)

가

, 가

4

4 (Four Pin Method)

< 1 >

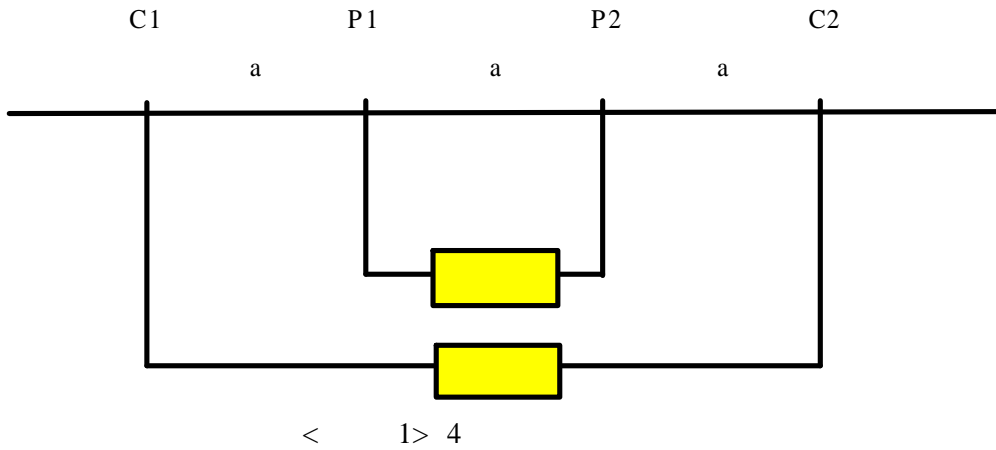
,

$$\rho = 2 aR$$

$\rho$  : (ohm-cm)

R : P1 P2 (ohm)

a : Pin (cm)



◦

< 1> Pin(C1, P1, P2, C2) (a)

	Pin C1	C2	(I)		Pin
P1	P2		(V)		(R)
			(R)		.

◦

- Pin ( ) : 200cm
- (R) : 12(ohm)
- :  $2 \times 3.14 \times 200 \times 12 = 15,072(\text{ohm} - \text{cm})$

◦ 가

가 가

< 1>

가

( · cm)	
> 20,000	
8,000 20,000	
3,000 8,000	
1,000 3,000	
< 1,000	



< 1 > 4

▷ pH

◦

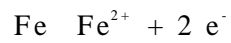
pH (H<sup>+</sup>) 가 . pH가 ( )

pH 가 .

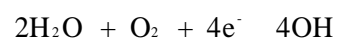
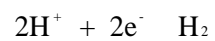
◦

-  $\text{pH} = \log_{10}(1/\text{H}^+)$

- ( ) :



- :



-

. pH

.

◦

pH

-

-

-

pH

pH

pH

(pH Meter)

가

pH

◦ 가

pH	
> 5	
4 ~ 5	
< 4	

▷

◦

가

◦

가

◦ 가

20%		10%	
20%		10%	

▷

◦

가 .

가 가 , 가 .

◦

가 . 가

-

-

-

$$0.318V \cdot ( - 0.318V = 1)$$

-

pH

-

1 pH가 7 . pH가 1

-

59mV

◦

-

: 500mV

-

pH : 4

-

$$: 500mV - 318mV + 3 \times 59mV = 359m$$

◦ 가

(mV)	
> 100	
50 100	
0 50	
< 0	