

, , , (impedance matching)

- 1 ,
- 2 가 ,
- 3 가 가 ,
- 4 EI ,
- 5 ,
- 6 ,
- 7 / /
- 8 ,
- 9 .

* *

10 : 12 : 1

14 : 2 16 :

18 : 20 :

22 : 30 :

40 : 50, 50a :

(transformer)

가 가 가 1, 2
 2
 ,가
 KHz MHz 가
 (60Hz)
 가 가
 가
 MHz (450KHz) 100KHz 30
 가

가 , 1 2 , 1 2 가
 , 1 2 , 1 2 가
 가 1 2 ; 가 ;
 가
 1 가 , 4 , EI 2 가 , 3 가
 1 () 2
 1 (1)

, V_1 , I_1 , n , M , (N_2/N_1) , R_1 , L_1 , L_2 , R_2 , N_1 , N_2 , I_2

$$\left. \begin{aligned} V_1 &= Z_1 I_1 - Z_m I_2 \\ 0 &= -Z_m I_1 + Z_2 I_2 \end{aligned} \right\} \dots\dots\dots(1)$$

$$\left. \begin{aligned} \text{1차임피던스 } Z_1 &= R_1 + j\omega L_1 \\ \text{2차임피던스 } Z_2 &= R_2 + j\omega L_2 \\ \text{상호임피던스 } Z_m &= j\omega M \end{aligned} \right\} \dots\dots\dots(2)$$

$$\left. \begin{aligned} \text{결합계수 : } K &= \frac{M}{\sqrt{L_1 L_2}} < 1 \\ M &= K\sqrt{L_1 L_2} \end{aligned} \right\} \dots\dots\dots(3)$$

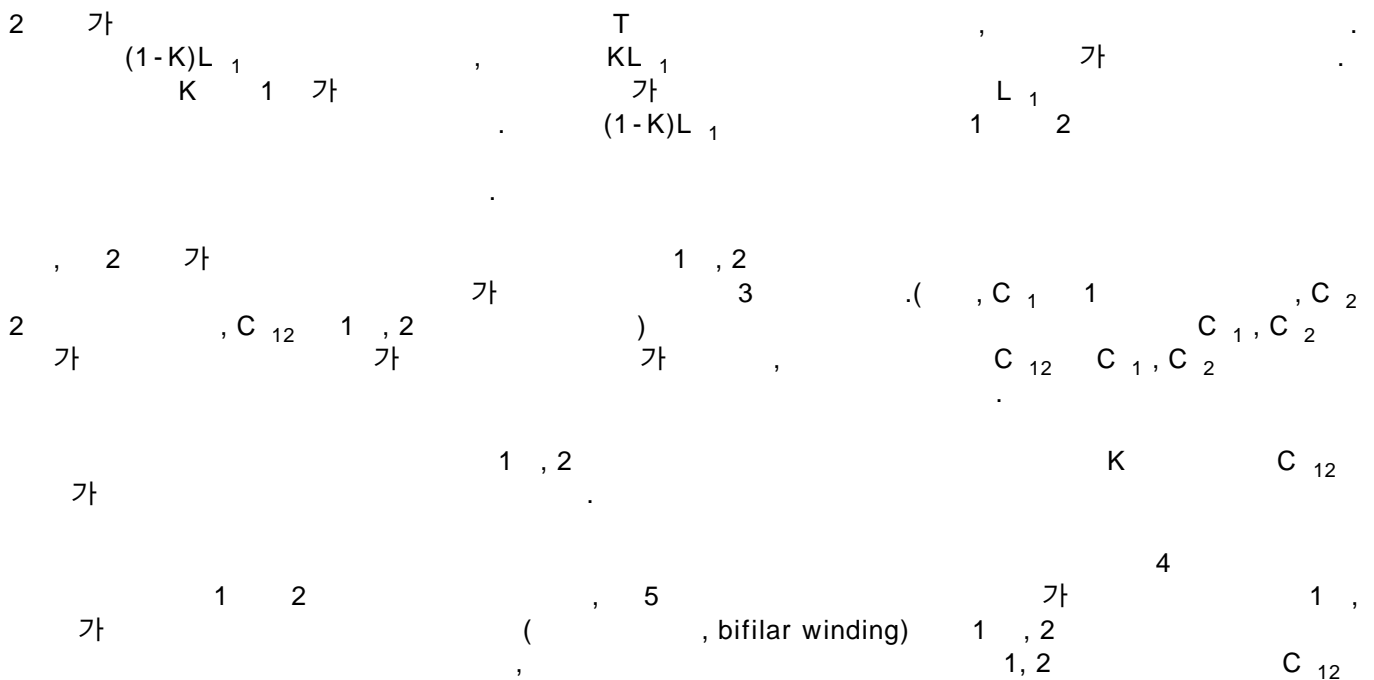
$$\begin{aligned} L_2 &= n^2 L_1 \dots\dots\dots(4) \\ M &= K n L_1 \end{aligned}$$

$$\begin{aligned} I_2' &= n I_2 \dots\dots\dots(5) \end{aligned}$$

(2), (4), (5) (1)

$$\left. \begin{aligned} V_1 &= (R_1 + j\omega L_1(1-K))I_1 + j\omega K L_1(I_1 - I_2') \\ 0 &= j\omega K L_1(I_2' - I_1) + (R_2/n^2 + j\omega L_1(1-K)I_2') \end{aligned} \right\} \dots\dots\dots(6)$$

(6) 가 2



가 1:1
 5가 , 1, 3, 5 2, 4 가 3:2(9:4) 5
 5 () 4 가 (가) 1, 3 2, 4 1:
 2(1:4) 1:1 , 1, 3 , 2, 4

2

가

가 1 2
 1 2

6 8 / / , 7
 , 9

1 2
 , 1 (12), 2 (14) (16)
 1 (12), 2 (14) C₁₂ 가

, 1 (12), 2 (14) 1 (12), 2 (14) (18) (18) (10)

가 가 가
 (μs) 가 (磁路) Shell ()
 (EI 가)

(50)(50a) (18) 7, 8 (20) (20) (10)가 (30)
 (22)

9 , 6 (10) 8 (50)(50a) 2

가

가

(57)

1.

가

가

1 2

1 2

1 2 1 2

2.

가

가

1 2

1 2

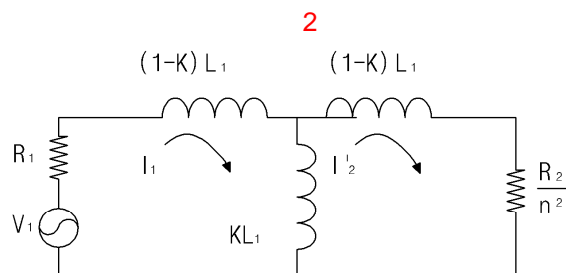
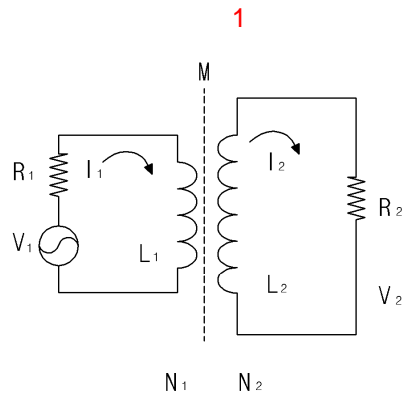
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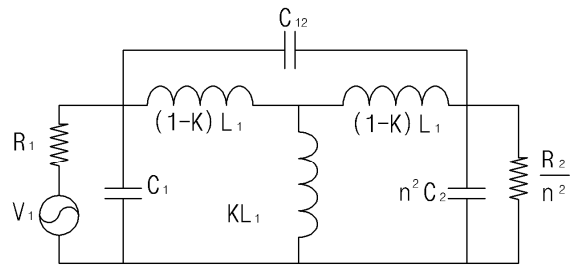
가 ;

3.

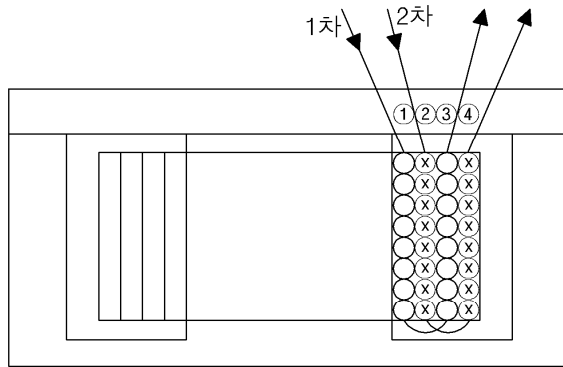
2



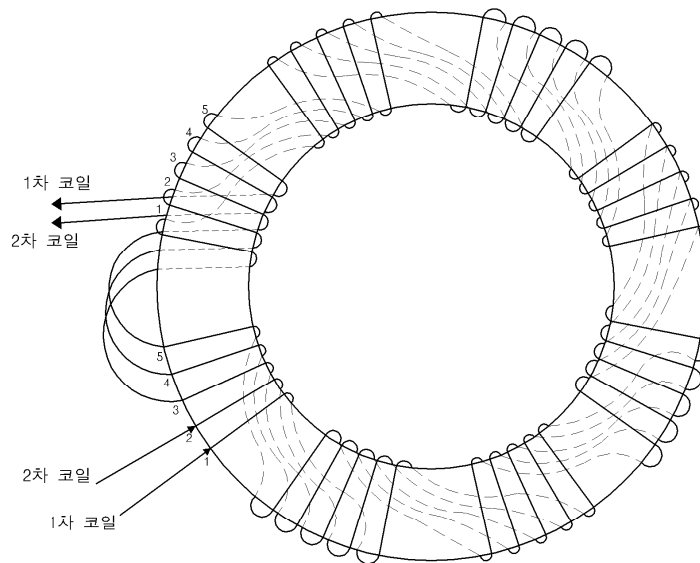
3



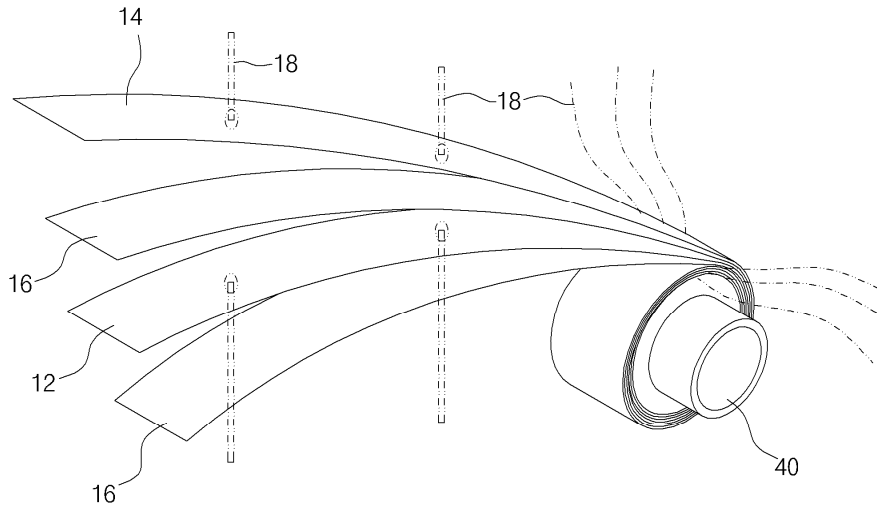
4



5



6



7

