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(12)

(KR)  
(B1)

(51) 。 Int. Cl. <sup>7</sup>  
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(21) 10 - 2000 - 0046205  
(22) 2000 08 09

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(43) 2002 02 20

(73) 736 - 1

(72) 148 - 1

(74) :

(54) 3 /

(Z1) , 3 / (Z1) 가 (Z0) , 3 (Z0) (Z2) , (Z2) (R1) , (Z2) (Z3,Z4) , (Z3,Z4) (R2) , (Z3) (Z5,Z0) , (Z4) (Z0) 가 1 3 가 (Z6) , (Z6) 가 2 (Z0) .

5

, , , , , , , , ,

- 1                    3                    /                    ,
- 2    1   3                    /                    ,
- 3    1   3                    /                    ,
- 4    1   3                    /                    VSWR                    ,
- 5                    3                    /                    ,
- 6    5   3                    /                    ,
- 7                    1                    3                    가                    ,
- 8    11                    3                    /                    .

<

- 10: 1                    20: 2
- 30: 3                    40:
- 50: 1                    60: 2
- 70: 3                    80:

Z0,Z1,Z2,Z2,Z4,Z5,Z6 :

,                    ,                    /                    ,

3                    /                    .

/

/                    (divider/combiner)                    .                    /

가                    /                    3

3-                    /                    가                    .                    n-                    3

/                    .

3- / 가 1 , 2 1 (la  
 y out) , , 3- / (80) 2-  
 (2 - way equal) (Z) , 2 (2 - way unequal)  
 ion) (R1,R2) 1 (R1,R2) (isolat

3- / , VSWS(Voltage Standing Wave Ratio)  
 1 (mismatch) , 3 4 . VSWS

3 3- / (insert loss) , 4  
 VSWS , VSWS (band width)  
 (Z2) 100 (Z3) 가 (60) VSWS(VSWS2) 1.3 : 1 , 2 , 50  
 (Coupling)

(Coupling) 가

4 , 2 (60) VSWS2 1.5 : 1 33%( /  
 ) ,

3- / , ,  
 3 / ,  
 , / 가 가 3

(Z0) , / (Z0) ,  
 (Z2) (Z1) , (Z1) (Z2) ,  
 (R1) , (Z3,Z4) , (Z3,Z  
 4) (R2) , (Z3) (Z5,Z0) , (Z0) ,  
 Z4) (Z0) 가 1 3 (Z6) , (Z6)  
 가 2 가 가 (Z0)

3

/

, 3

(3 - way Chebyshev matching transformer)

/

가 가

5 6

3

/

2 -

(Compensated 2 - way unequal divider)

6

/

(lay out)

2

가

VSWR

Z2=Z3=

Z5, Z2\*2=Z6

VSWR 1.17: 1

. 3

1

1

$$T(x) = 4x - 3x^3$$

x

2

(R1)

100

Z<sub>L</sub> (

(Z0)

(Z1)

)가 47.1

5 , VSWR 1.17: 1

2

$$\textcircled{1} x = \sec \theta_m \cos \theta$$

$$\textcircled{2} T_3(\sec \theta_m \cos \theta) = \sec^3 \theta_m (\cos 3\theta + 3 \cos \theta) - 3 \sec \theta_m \cos \theta$$

$$\textcircled{3} \sec \theta_m = \cosh \left[ \frac{1}{3} * \cosh^{-1} \left( \frac{1}{\Gamma_m} \left| \frac{Z_L - Z_0}{Z_L + Z_0} \right| \right) \right]$$

$$\textcircled{4} \Gamma(\theta) = 2 * e^{-\beta d} [\Gamma_0 \cos 3\theta + \Gamma_1 \cos \theta] = A e^{-\beta d} T_3(\sec \theta_m \cos \theta)$$

$$\textcircled{5} \Gamma_0 = \Gamma_3 = \frac{A}{2} \sec^3 \theta_m$$

$$\textcircled{6} \Gamma_1 = \Gamma_2 = \frac{3A}{2} (\sec^3 \theta_m - \sec \theta_m)$$

$$\textcircled{7} Z_1 = Z_0 \frac{1 - \Gamma_0}{1 + \Gamma_0}$$

$$\textcircled{8} Z_2 = Z_1 \frac{1 - \Gamma_1}{1 + \Gamma_1}$$

$$\textcircled{9} Z_3 = Z_L \frac{1 + \Gamma_3}{1 - \Gamma_3}$$

7 가 (40) 1 (10) 가 , 3 가 3 (Z<sub>L</sub>)가 47.15 , (Z<sub>1</sub>), (Z<sub>2</sub>/2), (Z<sub>3</sub>/3), (Z<sub>0</sub>)가 (32/3) 가 (Z<sub>4</sub>) (Z<sub>3</sub>) (Z<sub>0</sub>)\*2 (Z<sub>5</sub>) , (Z<sub>6</sub>) ( /4)

(Z1,Z2,Z3,Z4,Z5,Z6)

[ 1 ]

	VSWR	$\Gamma_m$	A	Z <sub>0</sub>	Z <sub>L</sub>	sec $\theta_m$	$\Gamma_0$	$\Gamma_1$	$\Gamma_2$	$\Gamma_3$
Value	1.17	0.078	0.078	32/3	47.15	1.4594	0.12	0.19	0.19	0.12
	Z <sub>0</sub>	Z <sub>1</sub>	Z <sub>2</sub>	Z <sub>3</sub>	Z <sub>4</sub>	Z <sub>5</sub>	Z <sub>6</sub>			
Value	50	36	40	40	80	40	80			

$$Z_2 = Z_3 = Z_5 = 40, Z_2 * 2 = Z_6 = 80$$

(b) 가 8 , 11 , VSWR, ISOLATION, PHASE 가 (a) /

imulator) HP Eesof Simulator , (field) (Momentum) Simulator (Eesof S

3- ) / 3- / . 3- / 가 1 33%( / )

VSWR 1.3 : 1 , 3- / VSWR 1.5 : 1 , 3- /

가 가

(57)

1.

/ ,

가 (Z0) , (Z0) (Z1) , (Z1)  
 (R1) , (Z2) , (Z2)  
 (Z3,Z4) , (Z3,Z4) (R2) ,  
 (Z3) (Z0) 가 1 3  
 (Z5,Z0) , (Z4) 가 가  
 (Z6) , (Z6) 가 2 (Z0)  
 3 / .

2.

1 , (Z0,Z1,Z2,Z3,Z4,Z5,Z6) 3  
 / .

3.

1 , (Z1:Z2:Z3),(Z1:Z2/2:Z4)가 3  
 / .

4.

1 ,

가  $Z_3 = Z_5, Z_4 = Z_6$

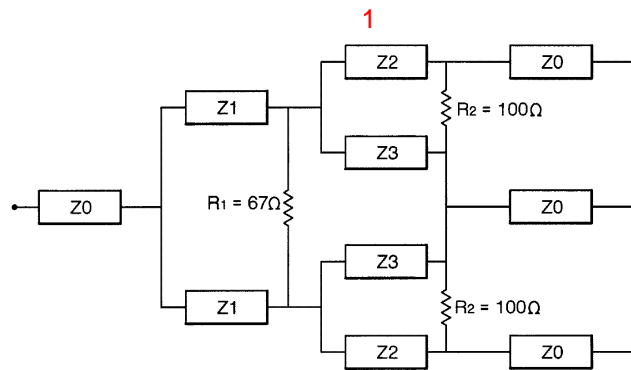
3

/ .

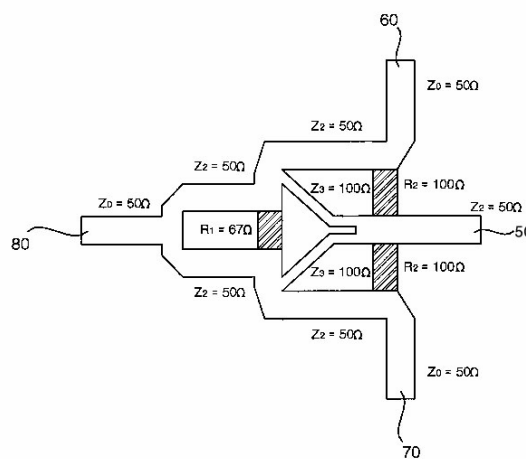
5.

1 ,

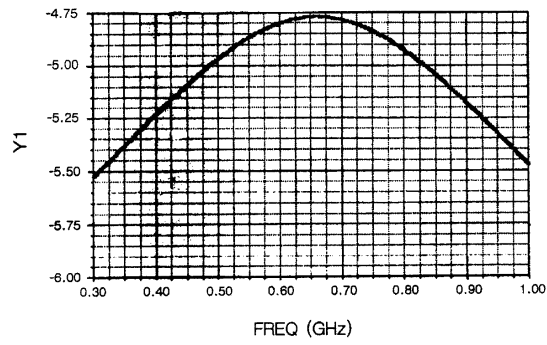
(Z4) (Z3) (Z0) (Z0) (Z0) (Z5) ,  
 (Z0) × 2 (Z6) ( /4)



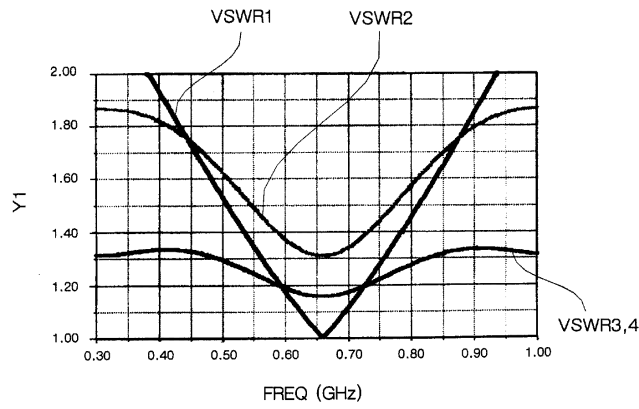
2



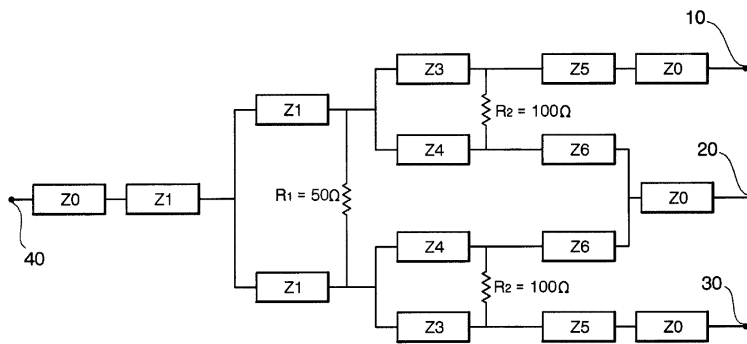
3



4

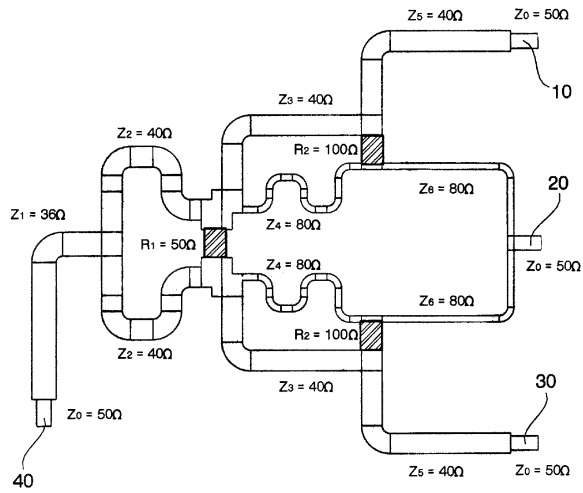


5

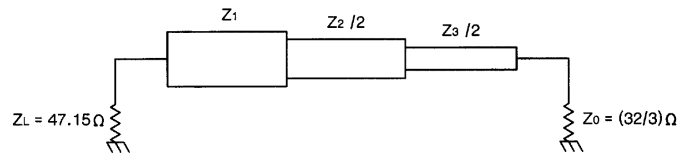




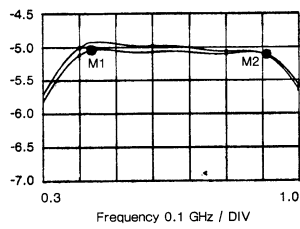
6



7

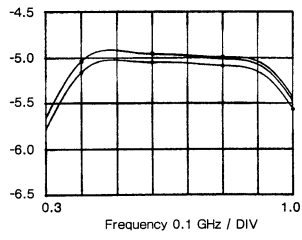


8a



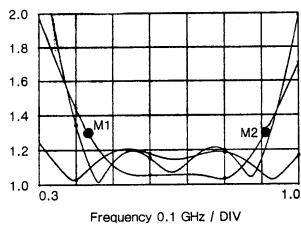
회로 시뮬레이션 결과 (삽입손실)

8b



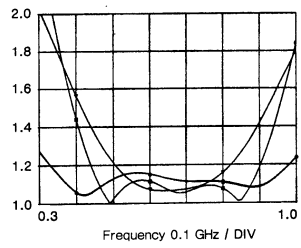
모멘텀 시뮬레이션 결과 (삽입손실)

9a



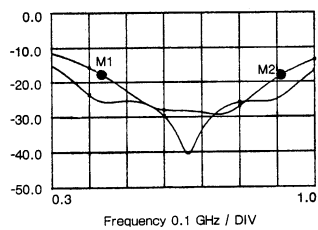
외로 시뮬레이션 결과 (VSWR)

9b



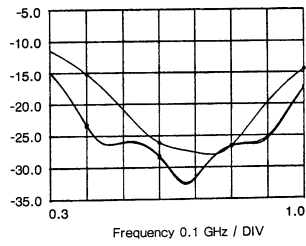
모멘텀 시뮬레이션 결과 (VSWR)

10a



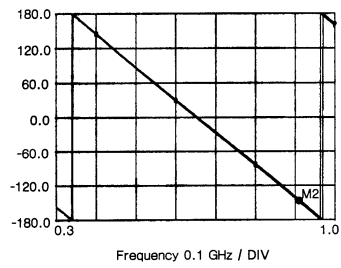
외로 시뮬레이션 결과 (Isolation)

10b



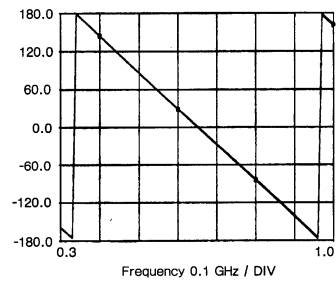
모멘텀 시뮬레이션 결과 (Isolation)

11a



회로 시뮬레이션 결과 (Phase)

11b



모멘텀 시뮬레이션 결과 (Phase)