

Filter Summary Report: TIA,simple,Z4

Generated by MacAnalog-Symbolix

December 10, 2024

Contents

1	Examined $H(z)$ for TIA simple Z4: $\frac{Z_4}{2}$	2
2	HP	2
3	BP	2
3.1	BP-1 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \infty, \infty\right)$	2
4	LP	2
5	BS	2
5.1	BS-1 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \infty, \infty\right)$	2
6	GE	2
7	AP	2
8	INVALID-NUMER	3
9	INVALID-WZ	3
10	INVALID-ORDER	3
10.1	INVALID-ORDER-1 $Z(s) = (\infty, \infty, \infty, R_4, \infty, \infty)$	3
10.2	INVALID-ORDER-2 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, \infty\right)$	3
10.3	INVALID-ORDER-3 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \infty\right)$	3
10.4	INVALID-ORDER-4 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, \infty\right)$	3
10.5	INVALID-ORDER-5 $Z(s) = \left(\infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \infty\right)$	3
10.6	INVALID-ORDER-6 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \infty\right)$	3
10.7	INVALID-ORDER-7 $Z(s) = \left(\infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \infty\right)$	3
10.8	INVALID-ORDER-8 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \infty\right)$	3

1 Examined $H(z)$ for TIA simple **Z4**: $\frac{Z_4}{2}$

$$H(z) = \frac{Z_4}{2}$$

2 HP

3 BP

3.1 BP-1 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \infty, \infty \right)$

$$H(s) = \frac{L_4 R_4 s}{2 \left(C_4 L_4 R_4 s^2 + L_4 s + R_4 \right)}$$

Parameters:

Q: $C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$
wo: $\sqrt{\frac{1}{C_4 L_4}}$
bandwidth: $\frac{1}{C_4 R_4}$
K-LP: 0
K-HP: 0
K-BP: $\frac{R_4}{2}$
Qz: 0
Wz: None

4 LP

5 BS

5.1 BS-1 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(C_4 L_4 s^2 + 1 \right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \infty, \infty \right)$

$$H(s) = \frac{R_4 \left(C_4 L_4 s^2 + 1 \right)}{2 \left(C_4 L_4 s^2 + C_4 R_4 s + 1 \right)}$$

Parameters:

Q: $\frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4}$
wo: $\sqrt{\frac{1}{C_4 L_4}}$
bandwidth: $\frac{R_4}{L_4}$
K-LP: $\frac{R_4}{2}$
K-HP: $\frac{R_4}{2}$
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_4 L_4}}$

6 GE

7 AP

8 INVALID-NUMER

9 INVALID-WZ

10 INVALID-ORDER

10.1 INVALID-ORDER-1 $Z(s) = (\infty, \infty, \infty, R_4, \infty, \infty)$

$$H(s) = \frac{R_4}{2}$$

10.2 INVALID-ORDER-2 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s}, \infty, \infty\right)$

$$H(s) = \frac{1}{2C_4s}$$

10.3 INVALID-ORDER-3 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \infty\right)$

$$H(s) = \frac{R_4}{2(C_4R_4s+1)}$$

10.4 INVALID-ORDER-4 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4s}, \infty, \infty\right)$

$$H(s) = \frac{C_4R_4s+1}{2C_4s}$$

10.5 INVALID-ORDER-5 $Z(s) = \left(\infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \infty, \infty\right)$

$$H(s) = \frac{C_4L_4s^2+1}{2C_4s}$$

10.6 INVALID-ORDER-6 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \infty\right)$

$$H(s) = \frac{L_4s}{2(C_4L_4s^2+1)}$$

10.7 INVALID-ORDER-7 $Z(s) = \left(\infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \infty\right)$

$$H(s) = \frac{C_4L_4s^2+C_4R_4s+1}{2C_4s}$$

10.8 INVALID-ORDER-8 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \infty\right)$

$$H(s) = \frac{C_4L_4R_4s^2+L_4s+R_4}{2(C_4L_4s^2+1)}$$

11 PolynomialError