

Filter Summary Report: CG,TIA,simple,Z2,Z3

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Contents

1 Examined $H(z)$ for CG TIA simple **Z2 Z3:** Z_3

$$H(z) = Z_3$$

2 HP

3 BP

3.1 **BP-1** $Z(s) = \left(\infty, \ R_2, \ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \ \infty, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$
K-LP: 0
K-HP: 0
K-BP: R_3
Qz: 0
Wz: None

3.2 **BP-2** $Z(s) = \left(\infty, \ \frac{1}{C_2 s}, \ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \ \infty, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$
K-LP: 0
K-HP: 0
K-BP: R_3
Qz: 0
Wz: None

3.3 **BP-3** $Z(s) = \left(\infty, \ \frac{R_2}{C_2 R_2 s + 1}, \ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \ \infty, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$
K-LP: 0
K-HP: 0
K-BP: R_3
Qz: 0
Wz: None

$$\mathbf{3.4 \quad BP-4} \quad Z(s) = \left(\infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \infty, \quad \infty, \quad \infty \right)$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$
K-LP: 0
K-HP: 0
K-BP: R_3
Qz: 0
Wz: None

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}$$

$$\mathbf{3.5 \quad BP-5} \quad Z(s) = \left(\infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \infty, \quad \infty, \quad \infty \right)$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$
K-LP: 0
K-HP: 0
K-BP: R_3
Qz: 0
Wz: None

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}$$

$$\mathbf{3.6 \quad BP-6} \quad Z(s) = \left(\infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \infty, \quad \infty, \quad \infty \right)$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$
K-LP: 0
K-HP: 0
K-BP: R_3
Qz: 0
Wz: None

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}$$

$$\mathbf{3.7 \quad BP-7} \quad Z(s) = \left(\infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \infty, \quad \infty, \quad \infty \right)$$

Parameters:

Q: $C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{1}{C_3 R_3}$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}$$

K-LP: 0
 K-HP: 0
 K-BP: R_3
 Qz: 0
 Wz: None

3.8 BP-8 $Z(s) = \left(\infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \frac{L_3R_3s}{C_3L_3R_3s^2+L_3s+R_3}, \infty, \infty, \infty \right)$

Parameters:

Q: $C_3R_3\sqrt{\frac{1}{C_3L_3}}$
 wo: $\sqrt{\frac{1}{C_3L_3}}$
 bandwidth: $\frac{1}{C_3R_3}$
 K-LP: 0
 K-HP: 0
 K-BP: R_3
 Qz: 0
 Wz: None

$$H(s) = \frac{L_3R_3s}{C_3L_3R_3s^2 + L_3s + R_3}$$

4 LP

5 BS

5.1 BS-1 $Z(s) = \left(\infty, R_2, \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \infty, \infty, \infty \right)$

Parameters:

Q: $\frac{L_3\sqrt{\frac{1}{C_3L_3}}}{R_3}$
 wo: $\sqrt{\frac{1}{C_3L_3}}$
 bandwidth: $\frac{R_3}{L_3}$
 K-LP: R_3
 K-HP: R_3
 K-BP: 0
 Qz: None
 Wz: $\sqrt{\frac{1}{C_3L_3}}$

$$H(s) = \frac{C_3L_3R_3s^2 + R_3}{C_3L_3s^2 + C_3R_3s + 1}$$

5.2 BS-2 $Z(s) = \left(\infty, \frac{1}{C_2s}, \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \infty, \infty, \infty \right)$

Parameters:

Q: $\frac{L_3\sqrt{\frac{1}{C_3L_3}}}{R_3}$
 wo: $\sqrt{\frac{1}{C_3L_3}}$
 bandwidth: $\frac{R_3}{L_3}$
 K-LP: R_3

$$H(s) = \frac{C_3L_3R_3s^2 + R_3}{C_3L_3s^2 + C_3R_3s + 1}$$

K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

$$\mathbf{5.3 \quad BS-3} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

Parameters:

Q: $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{R_3}{L_3}$
K-LP: R_3
K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

$$\mathbf{5.4 \quad BS-4} \quad Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

Parameters:

Q: $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{R_3}{L_3}$
K-LP: R_3
K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

$$\mathbf{5.5 \quad BS-5} \quad Z(s) = \left(\infty, L_2 s + \frac{1}{C_2 s}, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

Parameters:

Q: $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{R_3}{L_3}$
K-LP: R_3
K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + R_3}{C_3 L_3 s^2 + C_3 R_3 s + 1}$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + R_3}{C_3 L_3 s^2 + C_3 R_3 s + 1}$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + R_3}{C_3 L_3 s^2 + C_3 R_3 s + 1}$$

5.6 BS-6 $Z(s) = \left(\infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$

Parameters:

Q: $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{R_3}{L_3}$
K-LP: R_3
K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + R_3}{C_3 L_3 s^2 + C_3 R_3 s + 1}$$

5.7 BS-7 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$

Parameters:

Q: $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{R_3}{L_3}$
K-LP: R_3
K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + R_3}{C_3 L_3 s^2 + C_3 R_3 s + 1}$$

5.8 BS-8 $Z(s) = \left(\infty, \frac{R_2(C_2 L_2 s^2 + 1)}{C_2 L_2 s^2 + C_2 R_2 s + 1}, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$

Parameters:

Q: $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$
wo: $\sqrt{\frac{1}{C_3 L_3}}$
bandwidth: $\frac{R_3}{L_3}$
K-LP: R_3
K-HP: R_3
K-BP: 0
Qz: None
Wz: $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + R_3}{C_3 L_3 s^2 + C_3 R_3 s + 1}$$

6 GE

7 AP

8 INVALID-NUMER

9 INVALID-WZ

10 INVALID-ORDER

10.1 INVALID-ORDER-1 $Z(s) = (\infty, \ R_2, \ R_3, \ \infty, \ \infty, \ \infty)$

$$H(s) = R_3$$

10.2 INVALID-ORDER-2 $Z(s) = \left(\infty, \ R_2, \ \frac{1}{C_3s}, \ \infty, \ \infty, \ \infty\right)$

$$H(s) = \frac{1}{C_3s}$$

10.3 INVALID-ORDER-3 $Z(s) = \left(\infty, \ R_2, \ \frac{R_3}{C_3R_3s+1}, \ \infty, \ \infty, \ \infty\right)$

$$H(s) = \frac{R_3}{C_3R_3s+1}$$

10.4 INVALID-ORDER-4 $Z(s) = \left(\infty, \ R_2, \ R_3 + \frac{1}{C_3s}, \ \infty, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_3R_3s+1}{C_3s}$$

10.5 INVALID-ORDER-5 $Z(s) = \left(\infty, \ R_2, \ L_3s + \frac{1}{C_3s}, \ \infty, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_3L_3s^2+1}{C_3s}$$

10.6 INVALID-ORDER-6 $Z(s) = \left(\infty, \ R_2, \ \frac{L_3s}{C_3L_3s^2+1}, \ \infty, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_3s}{C_3L_3s^2+1}$$

10.7 INVALID-ORDER-7 $Z(s) = \left(\infty, \ R_2, \ L_3s + R_3 + \frac{1}{C_3s}, \ \infty, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_3L_3s^2+C_3R_3s+1}{C_3s}$$

10.8 INVALID-ORDER-8 $Z(s) = \left(\infty, \ R_2, \ \frac{L_3s}{C_3L_3s^2+1} + R_3, \ \infty, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_3L_3R_3s^2+L_3s+R_3}{C_3L_3s^2+1}$$

$$\mathbf{10.9 \quad INVALID-ORDER-9} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \infty \right)$$

$$H(s) = R_3$$

$$\mathbf{10.10 \quad INVALID-ORDER-10} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{1}{C_3 s}$$

$$\mathbf{10.11 \quad INVALID-ORDER-11} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + 1}$$

$$\mathbf{10.12 \quad INVALID-ORDER-12} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{C_3 s}$$

$$\mathbf{10.13 \quad INVALID-ORDER-13} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{C_3 s}$$

$$\mathbf{10.14 \quad INVALID-ORDER-14} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + 1}$$

$$\mathbf{10.15 \quad INVALID-ORDER-15} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{C_3 s}$$

$$\mathbf{10.16 \quad INVALID-ORDER-16} \quad Z(s) = \left(\infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 L_3 s^2 + 1}$$

$$\mathbf{10.17 \quad INVALID-ORDER-17} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \infty \right)$$

$$H(s) = R_3$$

$$\mathbf{10.18 \quad INVALID-ORDER-18} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{1}{C_3 s}$$

$$10.19 \quad \text{INVALID-ORDER-19} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + 1}$$

$$10.20 \quad \text{INVALID-ORDER-20} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{C_3 s}$$

$$10.21 \quad \text{INVALID-ORDER-21} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{C_3 s}$$

$$10.22 \quad \text{INVALID-ORDER-22} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + 1}$$

$$10.23 \quad \text{INVALID-ORDER-23} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{C_3 s}$$

$$10.24 \quad \text{INVALID-ORDER-24} \quad Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 L_3 s^2 + 1}$$

$$10.25 \quad \text{INVALID-ORDER-25} \quad Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \infty \right)$$

$$H(s) = R_3$$

$$10.26 \quad \text{INVALID-ORDER-26} \quad Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{1}{C_3 s}$$

$$10.27 \quad \text{INVALID-ORDER-27} \quad Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + 1}$$

$$10.28 \quad \text{INVALID-ORDER-28} \quad Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{C_3 s}$$

$$10.29 \quad \text{INVALID-ORDER-29} \quad Z(s) = \left(\infty, \quad R_2 + \frac{1}{C_2 s}, \quad L_3 s + \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{C_3 s}$$

$$10.30 \quad \text{INVALID-ORDER-30} \quad Z(s) = \left(\infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + 1}$$

$$10.31 \quad \text{INVALID-ORDER-31} \quad Z(s) = \left(\infty, \quad R_2 + \frac{1}{C_2 s}, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{C_3 s}$$

$$10.32 \quad \text{INVALID-ORDER-32} \quad Z(s) = \left(\infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 L_3 s^2 + 1}$$

$$10.33 \quad \text{INVALID-ORDER-33} \quad Z(s) = \left(\infty, \quad L_2 s + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = R_3$$

$$10.34 \quad \text{INVALID-ORDER-34} \quad Z(s) = \left(\infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{1}{C_3 s}$$

$$10.35 \quad \text{INVALID-ORDER-35} \quad Z(s) = \left(\infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + 1}$$

$$10.36 \quad \text{INVALID-ORDER-36} \quad Z(s) = \left(\infty, \quad L_2 s + \frac{1}{C_2 s}, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{C_3 s}$$

$$10.37 \quad \text{INVALID-ORDER-37} \quad Z(s) = \left(\infty, \quad L_2 s + \frac{1}{C_2 s}, \quad L_3 s + \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{C_3 s}$$

$$10.38 \quad \text{INVALID-ORDER-38} \quad Z(s) = \left(\infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + 1}$$

$$10.39 \quad \text{INVALID-ORDER-39} \quad Z(s) = \left(\infty, \quad L_2s + \frac{1}{C_2s}, \quad L_3s + R_3 + \frac{1}{C_3s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3L_3s^2 + C_3R_3s + 1}{C_3s}$$

$$10.40 \quad \text{INVALID-ORDER-40} \quad Z(s) = \left(\infty, \quad L_2s + \frac{1}{C_2s}, \quad \frac{L_3s}{C_3L_3s^2+1} + R_3, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3L_3R_3s^2 + L_3s + R_3}{C_3L_3s^2 + 1}$$

$$10.41 \quad \text{INVALID-ORDER-41} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad R_3, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = R_3$$

$$10.42 \quad \text{INVALID-ORDER-42} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \frac{1}{C_3s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{1}{C_3s}$$

$$10.43 \quad \text{INVALID-ORDER-43} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \frac{R_3}{C_3R_3s+1}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{R_3}{C_3R_3s + 1}$$

$$10.44 \quad \text{INVALID-ORDER-44} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad R_3 + \frac{1}{C_3s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3R_3s + 1}{C_3s}$$

$$10.45 \quad \text{INVALID-ORDER-45} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad L_3s + \frac{1}{C_3s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3L_3s^2 + 1}{C_3s}$$

$$10.46 \quad \text{INVALID-ORDER-46} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \frac{L_3s}{C_3L_3s^2+1}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{L_3s}{C_3L_3s^2 + 1}$$

$$10.47 \quad \text{INVALID-ORDER-47} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad L_3s + R_3 + \frac{1}{C_3s}, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3L_3s^2 + C_3R_3s + 1}{C_3s}$$

$$10.48 \quad \text{INVALID-ORDER-48} \quad Z(s) = \left(\infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \frac{L_3s}{C_3L_3s^2+1} + R_3, \quad \infty, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{C_3L_3R_3s^2 + L_3s + R_3}{C_3L_3s^2 + 1}$$

$$10.49 \quad \text{INVALID-ORDER-49} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, \infty \right)$$

$$H(s) = R_3$$

$$10.50 \quad \text{INVALID-ORDER-50} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{1}{C_3 s}$$

$$10.51 \quad \text{INVALID-ORDER-51} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + 1}$$

$$10.52 \quad \text{INVALID-ORDER-52} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{C_3 s}$$

$$10.53 \quad \text{INVALID-ORDER-53} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{C_3 s}$$

$$10.54 \quad \text{INVALID-ORDER-54} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + 1}$$

$$10.55 \quad \text{INVALID-ORDER-55} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{C_3 s}$$

$$10.56 \quad \text{INVALID-ORDER-56} \quad Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 L_3 s^2 + 1}$$

$$10.57 \quad \text{INVALID-ORDER-57} \quad Z(s) = \left(\infty, \frac{R_2 (C_2 L_2 s^2 + 1)}{C_2 L_2 s^2 + C_2 R_2 s + 1}, R_3, \infty, \infty, \infty \right)$$

$$H(s) = R_3$$

$$10.58 \quad \text{INVALID-ORDER-58} \quad Z(s) = \left(\infty, \frac{R_2 (C_2 L_2 s^2 + 1)}{C_2 L_2 s^2 + C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{1}{C_3 s}$$

$$\mathbf{10.59 \quad INVALID-ORDER-59} \quad Z(s) = \left(\infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{R_3}{C_3R_3s+1}$$

$$\mathbf{10.60 \quad INVALID-ORDER-60} \quad Z(s) = \left(\infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3R_3s+1}{C_3s}$$

$$\mathbf{10.61 \quad INVALID-ORDER-61} \quad Z(s) = \left(\infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, L_3s + \frac{1}{C_3s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3L_3s^2+1}{C_3s}$$

$$\mathbf{10.62 \quad INVALID-ORDER-62} \quad Z(s) = \left(\infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{L_3s}{C_3L_3s^2+1}$$

$$\mathbf{10.63 \quad INVALID-ORDER-63} \quad Z(s) = \left(\infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3L_3s^2 + C_3R_3s + 1}{C_3s}$$

$$\mathbf{10.64 \quad INVALID-ORDER-64} \quad Z(s) = \left(\infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \infty \right)$$

$$H(s) = \frac{C_3L_3R_3s^2 + L_3s + R_3}{C_3L_3s^2+1}$$

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