

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

Generated by MacAnalog-Symbolix

December 11, 2024

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10.28INVALID-ORDER-28	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$	11
10.29INVALID-ORDER-29	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$	12
10.30INVALID-ORDER-30	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \infty \right)$	12
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10.32INVALID-ORDER-32	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \infty \right)$	12
10.33INVALID-ORDER-33	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \infty \right)$	12
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10.38INVALID-ORDER-38	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \infty \right)$	12
10.39INVALID-ORDER-39	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \infty \right)$	13
10.40INVALID-ORDER-40	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \infty \right)$	13
10.41INVALID-ORDER-41	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \infty \right)$	13
10.42INVALID-ORDER-42	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \infty \right)$	13
10.43INVALID-ORDER-43	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \infty \right)$	13

10.44INVALID-ORDER-44	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \infty \right)$	13
10.45INVALID-ORDER-45	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \infty \right)$	13
10.46INVALID-ORDER-46	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \infty \right)$	13
10.47INVALID-ORDER-47	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \infty \right)$	13
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10.49INVALID-ORDER-49	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, R_3, \infty, \infty, \infty \right)$	14
10.50INVALID-ORDER-50	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \frac{1}{C_3s}, \infty, \infty, \infty \right)$	14
10.51INVALID-ORDER-51	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \infty \right)$	14
10.52INVALID-ORDER-52	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, \infty \right)$	14
10.53INVALID-ORDER-53	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \infty \right)$	14
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10.58INVALID-ORDER-58	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, \frac{1}{C_3s}, \infty, \infty, \infty \right)$	14
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10.60INVALID-ORDER-60	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, R_3 + \frac{1}{C_3s}, \infty, \infty, \infty \right)$	15
10.61INVALID-ORDER-61	$Z(s) = \left( \infty, \frac{R_2(C_2L_2s^2+1)}{C_2L_2s^2+C_2R_2s+1}, L_3s + \frac{1}{C_3s}, \infty, \infty, \infty \right)$	15
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## 11 PolynomialError

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

$$H(z) = Z_3$$

## 2 HP

## 3 BP

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

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

**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

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

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

**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

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

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

**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

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

**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

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

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

**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

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

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

**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

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

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

**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

$$\mathbf{3.8 \quad BP-8} \quad Z(s) = \left( \infty, \frac{R_2(C_2 L_2 s^2 + 1)}{C_2 L_2 s^2 + C_2 R_2 s + 1}, \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \infty, \infty, \infty \right)$$

**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

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

## 4 LP

## 5 BS

$$\mathbf{5.1 \quad BS-1} \quad Z(s) = \left( \infty, R_2, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

**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:  $\sqrt{\frac{1}{C_3 L_3}}$

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

$$\mathbf{5.2 \quad BS-2} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3(C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \infty, \infty, \infty \right)$$

**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:  $R_3$

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

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

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

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

$$H(s) = R_3$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$H(s) = R_3$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$H(s) = R_3$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$H(s) = R_3$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$H(s) = R_3$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$H(s) = R_3$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$H(s) = R_3$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## 11 PolynomialError