

Filter Summary Report: TIA,simple,Z2,Z4,ZL

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Contents

1 Examined $H(z)$ for TIA simple Z2 Z4 ZL: $\frac{Z_4 Z_L (Z_2 g_m + 1)}{Z_2 Z_4 g_m + 2 Z_2 Z_L g_m + Z_4 + 2 Z_L}$

$$H(z) = \frac{Z_4 Z_L (Z_2 g_m + 1)}{Z_2 Z_4 g_m + 2 Z_2 Z_L g_m + Z_4 + 2 Z_L}$$

2 HP

3 BP

3.1 BP-1 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2 L_L s + R_4}$$

Parameters:

$$Q: \frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$$

$$\text{wo: } \sqrt{\frac{1}{C_L L_L}}$$

$$\text{bandwidth: } \frac{2}{C_L R_4}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } \frac{R_4}{2}$$

$$\text{QZ: } 0$$

$$\text{WZ: None}$$

3.2 BP-2 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{1}{C_L L_L}}$
 bandwidth: $\frac{R_4 + 2R_L}{C_L R_4 R_L}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 Wz: None

3.3 BP-3 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)$
 wo: $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$
 bandwidth: $\frac{1}{R_L(2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L
 QZ: 0
 Wz: None

3.4 BP-4 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo: $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$
 bandwidth: $\frac{2}{R_4(2C_4+C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

3.5 BP-5 $Z(s) = \left(\frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_4R_Ls}{2C_4L_LR_4R_Ls^2 + C_LL_LR_4R_Ls^2 + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

Parameters:

Q: $\frac{R_4R_L\sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$
 wo: $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$
 bandwidth: $\frac{R_4+2R_L}{R_4R_L(2C_4+C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4R_L}{R_4+2R_L}$
 QZ: 0
 Wz: None

3.6 BP-6 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + L_4s + 2R_L}$$

Parameters:

Q: $2C_4R_L\sqrt{\frac{1}{C_4L_4}}$
 wo: $\sqrt{\frac{1}{C_4L_4}}$

bandwidth: $\frac{1}{2C_4R_L}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L
 QZ: 0
 Wz: None

3.7 BP-7 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + C_LR_4R_Ls^2 + L_4s + 2R_L}$$

Parameters:

Q: $\sqrt{2}R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4 + C_L)$
 wo: $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$
 bandwidth: $\frac{1}{R_L(2C_4+C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L
 QZ: 0
 Wz: None

3.8 BP-8 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_Ls}{2C_4L_4L_LR_Ls^2 + C_LL_4L_LR_Ls^2 + L_4L_Ls + L_4R_L + 2L_LR_L}$$

Parameters:

Q: $R_L\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}(2C_4 + C_L)$
 wo: $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$
 bandwidth: $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0
K-HP: 0
K-BP: R_L
QZ: 0
Wz: None

3.9 BP-9 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L \right)$

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

Parameters:

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

3.10 BP-10 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
K-LP: 0

K-HP: 0
K-BP: $\frac{R_4}{2}$
QZ: 0
Wz: None

3.11 BP-11 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
K-LP: 0
K-HP: 0
K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
QZ: 0
Wz: None

3.12 BP-12 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
K-LP: 0
K-HP: 0

K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

$$\mathbf{3.13 \quad BP-13} \quad Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 Wz: None

$$\mathbf{3.14 \quad BP-14} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$
 wo: $\sqrt{\frac{1}{C_L L_L}}$
 bandwidth: $\frac{2}{C_L R_4}$
 K-LP: 0
 K-HP: 0

K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

$$\mathbf{3.15 \quad BP-15} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{1}{C_L L_L}}$
 bandwidth: $\frac{R_4 + 2R_L}{C_L R_4 R_L}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 Wz: None

$$\mathbf{3.16 \quad BP-16} \quad Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)$
 wo: $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L

Qz: 0
Wz: None

3.17 BP-17 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{2}$
wo: $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$
bandwidth: $\frac{2}{R_4(2C_4+C_L)}$
K-LP: 0
K-HP: 0
K-BP: $\frac{R_4}{2}$
Qz: 0
Wz: None

3.18 BP-18 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$
wo: $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$
bandwidth: $\frac{R_4+2R_L}{R_4 R_L(2C_4+C_L)}$
K-LP: 0
K-HP: 0
K-BP: $\frac{R_4 R_L}{R_4+2R_L}$
Qz: 0

Wz: None

3.19 BP-19 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + L_4s + 2R_L}$$

Parameters:

Q: $2C_4R_L\sqrt{\frac{1}{C_4L_4}}$

wo: $\sqrt{\frac{1}{C_4L_4}}$

bandwidth: $\frac{1}{2C_4R_L}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.20 BP-20 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + C_LR_LR_Ls^2 + L_4s + 2R_L}$$

Parameters:

Q: $\sqrt{2}R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4 + C_L)$

wo: $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.21 BP-21 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_Ls}{2C_4L_4L_LR_Ls^2 + C_LL_4L_LR_Ls^2 + L_4L_Ls + L_4R_L + 2L_LR_L}$$

Parameters:

Q: $R_L \sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

QZ: 0

Wz: None

3.22 BP-22 $Z(s) = \left(\infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_4R_4R_Ls}{2C_4L_4R_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

Parameters:

Q: $\frac{2C_4R_4R_L \sqrt{\frac{1}{C_4L_4}}}{R_4+2R_L}$

wo: $\sqrt{\frac{1}{C_4L_4}}$

bandwidth: $\frac{R_4+2R_L}{2C_4R_4R_L}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4R_L}{R_4+2R_L}$

QZ: 0

Wz: None

3.23 BP-23 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

WZ: None

3.24 BP-24 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

WZ: None

3.25 BP-25 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 Qz: 0
 Wz: None

3.26 BP-26 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 Qz: 0
 Wz: None

3.27 BP-27 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

Qz: 0

Wz: None

3.28 BP-28 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{R_4 + 2R_L}{C_L R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

3.29 BP-29 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

QZ: 0

Wz: None

3.30 BP-30 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo: $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth: $\frac{2}{R_4(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.31 BP-31 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

3.32 BP-32 $Z(s) = \left(\infty, \infty, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.33 BP-33 $Z(s) = \left(\infty, \infty, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + C_LR_4R_Ls^2 + L_4s + 2R_L}$$

Parameters:

Q: $\sqrt{2}R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}} (2C_4 + C_L)$

wo: $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.34 BP-34 $Z(s) = \left(\infty, \infty, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_Ls}{2C_4L_4L_LR_Ls^2 + C_LL_4L_LR_Ls^2 + L_4L_Ls + L_4R_L + 2L_LR_L}$$

Parameters:

Q: $R_L\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.35 BP-35 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L \right)$

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

Parameters:

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

3.36 BP-36 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

3.37 BP-37 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 Wz: None

3.38 BP-38 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

3.39 BP-39 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

3.40 BP-40 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.41 BP-41 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{1}{C_L L_L}}$
 bandwidth: $\frac{R_4 + 2R_L}{C_L R_4 R_L}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 Wz: None

3.42 BP-42 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)$
 wo: $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L
 QZ: 0
 Wz: None

3.43 BP-43 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

$$Q: \frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}}(2C_4 + C_L)}{2}$$

$$\text{wo: } \sqrt{\frac{1}{L_L(2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{2}{R_4(2C_4 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } \frac{R_4}{2}$$

$$\text{QZ: } 0$$

$$\text{WZ: None}$$

3.44 BP-44 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

$$Q: \frac{R_4 R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}}(2C_4 + C_L)}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{1}{L_L(2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{R_4 R_L(2C_4 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{QZ: } 0$$

$$\text{WZ: None}$$

3.45 BP-45 $Z(s) = \left(\infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.46 BP-46 $Z(s) = \left(\infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $\sqrt{2} R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.47 BP-47 $Z(s) = \left(\infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

QZ: 0

Wz: None

3.48 BP-48 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$

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

Parameters:

Q: $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

3.49 BP-49 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$

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

Parameters:

Q: $\frac{\sqrt{2}R_4 \sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4+C_L)}{2}$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth: $\frac{2}{R_4(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.50 BP-50 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

Q: $\frac{\sqrt{2}R_4 R_L \sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth: $\frac{R_4+2R_L}{R_4 R_L (2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4+2R_L}$

QZ: 0

Wz: None

3.51 BP-51 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 Qz: 0
 Wz: None

3.52 BP-52 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 Qz: 0
 Wz: None

3.53 BP-53 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

Qz: 0

Wz: None

3.54 BP-54 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{R_4 + 2R_L}{C_L R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

3.55 BP-55 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

QZ: 0

Wz: None

3.56 BP-56 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo: $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth: $\frac{2}{R_4(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.57 BP-57 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

3.58 BP-58 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.59 BP-59 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + C_LR_4R_Ls^2 + L_4s + 2R_L}$$

Parameters:

Q: $\sqrt{2}R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}} (2C_4 + C_L)$

wo: $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.60 BP-60 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_Ls}{2C_4L_4L_LR_Ls^2 + C_LL_4L_LR_Ls^2 + L_4L_Ls + L_4R_L + 2L_LR_L}$$

Parameters:

Q: $R_L\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.61 BP-61 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, R_L \right)$

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

Parameters:

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

3.62 BP-62 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \frac{1}{C_L s} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

3.63 BP-63 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 Wz: None

3.64 BP-64 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

3.65 BP-65 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

3.66 BP-66 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.67 BP-67 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{1}{C_L L_L}}$
 bandwidth: $\frac{R_4 + 2R_L}{C_L R_4 R_L}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 Wz: None

3.68 BP-68 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)$
 wo: $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L
 QZ: 0
 Wz: None

3.69 BP-69 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{2}$
 wo: $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$
 bandwidth: $\frac{2}{R_4(2C_4+C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 WZ: None

3.70 BP-70 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$
 wo: $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$
 bandwidth: $\frac{R_4+2R_L}{R_4 R_L(2C_4+C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4+2R_L}$
 QZ: 0
 WZ: None

3.71 BP-71 $Z(s) = \left(R_1, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

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

3.72 BP-72 $Z(s) = \left(R_1, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $\sqrt{2} R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)$
 wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
 bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L
 Qz: 0
 Wz: None

3.73 BP-73 $Z(s) = \left(R_1, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

QZ: 0

Wz: None

3.74 BP-74 $Z(s) = (L_1 s, R_2, \infty, \infty, \infty, R_L)$

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

Parameters:

Q: $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

3.75 BP-75 $Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

Parameters:

$$\text{Q: } \frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4(2C_4+C_L)}} (2C_4+C_L)}{2}$$

$$\text{wo: } \sqrt{2} \sqrt{\frac{1}{L_4(2C_4+C_L)}}$$

$$\text{bandwidth: } \frac{2}{R_4(2C_4+C_L)}$$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.76 BP-76 $Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

$$\text{Q: } \frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4(2C_4+C_L)}} (2C_4+C_L)}{R_4+2R_L}$$

$$\text{wo: } \sqrt{2} \sqrt{\frac{1}{L_4(2C_4+C_L)}}$$

$$\text{bandwidth: } \frac{R_4+2R_L}{R_4 R_L (2C_4+C_L)}$$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4+2R_L}$

QZ: 0

Wz: None

3.77 BP-77 $Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 Qz: 0
 Wz: None

3.78 BP-78 $Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 Qz: 0
 Wz: None

3.79 BP-79 $Z(s) = \left(L_1 s, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2 L_L s + R_4}$$

Parameters:

Q: $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

Qz: 0

Wz: None

3.80 BP-80 $Z(s) = \left(L_1 s, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2 R_L}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{R_4 + 2 R_L}{C_L R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2 R_L}$

Qz: 0

Wz: None

3.81 BP-81 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

QZ: 0

Wz: None

3.82 BP-82 $Z(s) = \left(L_1 s, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo: $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth: $\frac{2}{R_4(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.83 BP-83 $Z(s) = \left(L_1 s, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

3.84 BP-84 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.85 BP-85 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $\sqrt{2} R_L \sqrt{\frac{1}{L_4(2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4(2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.86 BP-86 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.87 BP-87 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L \right)$

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

Parameters:

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

3.88 BP-88 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 Wz: None

3.89 BP-89 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 QZ: 0
 WZ: None

3.90 BP-90 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 QZ: 0
 WZ: None

3.91 BP-91 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

3.92 BP-92 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

Q: $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.93 BP-93 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

Parameters:

Q: $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2 R_L}$
 wo: $\sqrt{\frac{1}{C_L L_L}}$
 bandwidth: $\frac{R_4 + 2 R_L}{C_L R_4 R_L}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2 R_L}$
 QZ: 0
 Wz: None

3.94 BP-94 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{1}{L_L (2 C_4 + C_L)}} (2 C_4 + C_L)$
 wo: $\sqrt{\frac{1}{L_L (2 C_4 + C_L)}}$
 bandwidth: $\frac{1}{R_L (2 C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: R_L
 QZ: 0
 Wz: None

$$3.95 \quad \text{BP-95} \quad Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

Parameters:

$$\text{Q: } \frac{R_4 \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$$

$$\text{wo: } \sqrt{\frac{1}{L_L (2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{2}{R_4 (2C_4 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } \frac{R_4}{2}$$

$$\text{QZ: } 0$$

$$\text{Wz: None}$$

$$3.96 \quad \text{BP-96} \quad Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

Parameters:

$$\text{Q: } \frac{R_4 R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{1}{L_L (2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{QZ: } 0$$

$$\text{Wz: None}$$

3.97 BP-97 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.98 BP-98 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

Parameters:

Q: $\sqrt{2} R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

Qz: 0

Wz: None

3.99 BP-99 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

Parameters:

Q: $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth: $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: R_L

QZ: 0

Wz: None

3.100 BP-100 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$

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

Parameters:

Q: $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

3.101 BP-101 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4}{2}$

QZ: 0

Wz: None

3.102 BP-102 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

Parameters:

Q: $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo: $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

3.103 BP-103 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

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

Parameters:

Q: $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{2}{R_4 (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4}{2}$
 Qz: 0
 Wz: None

3.104 BP-104 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

Parameters:

Q: $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$
 wo: $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$
 bandwidth: $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$
 K-LP: 0
 K-HP: 0
 K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$
 Qz: 0
 Wz: None

4 LP

5 BS

5.1 BS-1 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_L L_L s^2 + C_L R_4 s + 2}$$

Parameters:

Q: $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{R_4}{2L_L}$

K-LP: $\frac{R_4}{2}$

K-HP: $\frac{R_4}{2}$

K-BP: 0

Qz: None

Wz: $\sqrt{\frac{1}{C_L L_L}}$

5.2 BS-2 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

Parameters:

Q: $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{R_4 R_L}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{R_4 R_L}{L_L (R_4 + 2R_L)}$

$$\begin{aligned}
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & 0 \\
\text{QZ: } & \text{None} \\
\text{WZ: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

5.3 BS-3 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L \right)$

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

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{2R_L}{L_4} \\
\text{K-LP: } & R_L \\
\text{K-HP: } & R_L \\
\text{K-BP: } & 0 \\
\text{QZ: } & \text{None} \\
\text{WZ: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

5.4 BS-4 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, R_L \right)$

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

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{2R_4 R_L}{L_4 (R_4 + 2R_L)}
\end{aligned}$$

$$\begin{aligned}
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & 0 \\
\text{QZ: } & \text{None} \\
\text{WZ: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.5 \quad \text{BS-5} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_L L_L s^2 + C_L R_4 s + 2}$$

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4} \\
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{R_4}{2L_L} \\
\text{K-LP: } & \frac{R_4}{2} \\
\text{K-HP: } & \frac{R_4}{2} \\
\text{K-BP: } & 0 \\
\text{QZ: } & \text{None} \\
\text{WZ: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.6 \quad \text{BS-6} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{R_4 R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.7 \quad \text{BS-7 } Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.8 \quad \text{BS-8 } Z(s) = (\infty, \infty, R_3, \infty, \infty, R_L)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.9 \quad \text{BS-9 } Z(s) = \left(\infty, \infty, \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.10 \quad \text{BS-10 } Z(s) = \left(\infty, \infty, \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.11 \quad \text{BS-11 } Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wO: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.12 \quad \text{BS-12 } Z(s) = (\infty, \infty, \infty, R_4, \infty, R_L)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wO: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.13 \quad \text{BS-13} \quad Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.14 \quad \text{BS-14} \quad Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.15 \quad \text{BS-15 } Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.16 \quad \text{BS-16 } Z(s) = (\infty, \infty, \infty, \infty, R_4, R_L)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.17 \quad \text{BS-17} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s}, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.18 \quad \text{BS-18} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s}, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.19 \quad \text{BS-19 } Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.20 \quad \text{BS-20 } Z(s) = (R_1, R_2, \infty, \infty, \infty, R_L)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.21 \quad \text{BS-21} \quad Z(s) = \left(R_1, \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.22 \quad \text{BS-22} \quad Z(s) = \left(R_1, \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.23 \quad \text{BS-23} \quad Z(s) = \left(R_1, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.24 \quad \text{BS-24} \quad Z(s) = \left(L_1 s, \quad \frac{R_2}{C_2 R_2 s + 1}, \quad \infty, \quad \infty, \quad \infty, \quad R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.25 \quad \text{BS-25} \quad Z(s) = \left(L_1s, \quad R_2 + \frac{1}{C_2s}, \quad \infty, \quad \infty, \quad \infty, \quad L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.26 \quad \text{BS-26} \quad Z(s) = \left(L_1s, \quad R_2 + \frac{1}{C_2s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.27 \quad \text{BS-27} \quad Z(s) = \left(L_1 s, \frac{R_2 (L_2 s + \frac{1}{C_2 s})}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.28 \quad \text{BS-28} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$\mathbf{5.29 \quad BS-29} \quad Z(s) = \left(\frac{1}{C_1s}, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \infty, \quad \infty, \quad \infty, \quad L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wO: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\mathbf{5.30 \quad BS-30} \quad Z(s) = \left(\frac{1}{C_1s}, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wO: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.31 \quad \text{BS-31} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.32 \quad \text{BS-32} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: } \text{None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

6 GE

$$6.1 \quad \text{GE-1} \quad Z(s) = \left(R_1, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4+2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_L L_L}} \\
&\text{bandwidth: } \frac{R_4+2R_L}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{QZ: } \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$6.2 \quad \text{GE-2} \quad Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{Qz: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{Wz: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

6.3 GE-3 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, R_L \right)$

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

Parameters:

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{Qz: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{Wz: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

6.4 GE-4 $Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, R_L \right)$

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

Parameters:

Q: $C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{C_4 (R_4 + 2R_L)}$

K-LP: $\frac{R_4 R_L}{R_4 + 2R_L}$

K-HP: $\frac{R_4 R_L}{R_4 + 2R_L}$

K-BP: R_L

QZ: $C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$

WZ: $\sqrt{\frac{1}{C_4 L_4}}$

6.5 GE-5 $Z(s) = \left(\frac{R_1 (L_1 s + \frac{1}{C_1 s})}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

Q: $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{C_L L_L}}$

bandwidth: $\frac{R_4 + 2R_L}{2L_L}$

K-LP: $\frac{R_4}{2}$

K-HP: $\frac{R_4}{2}$

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$

$$\text{Wz: } \sqrt{\frac{1}{C_L L_L}}$$

$$\mathbf{6.6 \quad GE-6} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{\frac{1}{L_1 s + R_1 + \frac{1}{C_1 s}}}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\text{Q: } \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2}$$

$$\text{wo: } \sqrt{\frac{1}{C_L L_L}}$$

$$\text{bandwidth: } \frac{2}{C_L (R_4 + 2R_L)}$$

$$\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-BP: } \frac{R_4}{2}$$

$$\text{Qz: } C_L R_L \sqrt{\frac{1}{C_L L_L}}$$

$$\text{Wz: } \sqrt{\frac{1}{C_L L_L}}$$

$$\mathbf{6.7 \quad GE-7} \quad Z(s) = \left(\infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{1}{C_4 L_4}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{L_4}$$

$$\text{K-LP: } R_L$$

$$\text{K-HP: } R_L$$

$$\text{K-BP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\begin{aligned} \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

$$\mathbf{6.8 \quad GE-8} \quad Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned} \text{Q: } & C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L) \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{1}{C_4 (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & R_L \\ \text{QZ: } & C_4 R_4 \sqrt{\frac{1}{C_4 L_4}} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

$$\mathbf{6.9 \quad GE-9} \quad Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{2L_L} \\ \text{K-LP: } & \frac{R_4}{2} \end{aligned}$$

$$\begin{aligned}\text{K-HP: } & \frac{R_4}{2} \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{QZ: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\ \text{WZ: } & \sqrt{\frac{1}{C_L L_L}}\end{aligned}$$

$$\mathbf{6.10 \quad GE-10} \quad Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}\text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{WZ: } & \sqrt{\frac{1}{C_L L_L}}\end{aligned}$$

$$\mathbf{6.11 \quad GE-11} \quad Z(s) = \left(\infty, \infty, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}}\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4+2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } \frac{R_4 R_L}{R_4+2R_L} \\
&\text{QZ: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\mathbf{6.12 \quad GE-12} \quad Z(s) = \left(\infty, \infty, \frac{R_3 \left(L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
&\text{Q: } C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L) \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{1}{C_4 (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } R_L \\
&\text{QZ: } C_4 R_4 \sqrt{\frac{1}{C_4 L_4}} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\mathbf{6.13 \quad GE-13} \quad Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

$$\text{Q: } \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$$

$$\begin{aligned}
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{R_4 + 2R_L}{2L_L} \\
\text{K-LP: } & \frac{R_4}{2} \\
\text{K-HP: } & \frac{R_4}{2} \\
\text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{QZ: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\
\text{WZ: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

6.14 GE-14 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & \frac{R_4}{2} \\
\text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\
\text{WZ: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

6.15 GE-15 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$

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

Parameters:

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

$$\mathbf{6.16 \quad GE-16} \quad Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned} \text{Q: } & C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L) \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{1}{C_4 (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & R_L \\ \text{QZ: } & C_4 R_4 \sqrt{\frac{1}{C_4 L_4}} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

6.17 GE-17 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{2L_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & \frac{R_4}{2} \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{Qz: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\ \text{Wz: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

6.18 GE-18 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{Qz: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{Wz: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

6.19 GE-19 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, R_L \right)$

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

Parameters:

Q: $\frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{R_4 + 2R_L}{L_4}$

K-LP: R_L

K-HP: R_L

K-BP: $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: $\frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4}$

Wz: $\sqrt{\frac{1}{C_4 L_4}}$

6.20 GE-20 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, R_L \right)$

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

Parameters:

Q: $C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{C_4 (R_4 + 2R_L)}$

K-LP: $\frac{R_4 R_L}{R_4 + 2R_L}$

K-HP: $\frac{R_4 R_L}{R_4 + 2R_L}$

K-BP: R_L

$$\text{QZ: } C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$$

$$\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}$$

6.21 GE-21 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

$$\text{Q: } \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{1}{C_L L_L}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{2L_L}$$

$$\text{K-LP: } \frac{R_4}{2}$$

$$\text{K-HP: } \frac{R_4}{2}$$

$$\text{K-BP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{QZ: } \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$$

$$\text{WZ: } \sqrt{\frac{1}{C_L L_L}}$$

6.22 GE-22 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\text{Q: } \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2}$$

$$\text{wo: } \sqrt{\frac{1}{C_L L_L}}$$

$$\text{bandwidth: } \frac{2}{C_L (R_4 + 2R_L)}$$

$$\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\begin{aligned}\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{WZ: } & \sqrt{\frac{1}{C_L L_L}}\end{aligned}$$

$$\mathbf{6.23 \quad GE-23} \quad Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}}\end{aligned}$$

$$\mathbf{6.24 \quad GE-24} \quad Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}\text{Q: } & C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L) \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}}\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{1}{C_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4+2R_L} \\
&\text{K-BP: } R_L \\
&\text{QZ: } C_4 R_4 \sqrt{\frac{1}{C_4 L_4}} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$6.25 \quad \text{GE-25} \quad Z(s) = \left(L_1 s, \quad R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

$$\begin{aligned}
&\text{Q: } \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4+2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_L L_L}} \\
&\text{bandwidth: } \frac{R_4+2R_L}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } \frac{R_4 R_L}{R_4+2R_L} \\
&\text{QZ: } \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$6.26 \quad \text{GE-26} \quad Z(s) = \left(L_1 s, \quad R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\text{Q: } \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4+2R_L)}{2}$$

$$\begin{aligned}
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{2}{C_L(R_4+2R_L)} \\
\text{K-LP: } & \frac{R_4 R_L}{R_4+2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4+2R_L} \\
\text{K-BP: } & \frac{R_4}{2} \\
\text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\
\text{WZ: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$6.27 \quad \text{GE-27} \quad Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4+2R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{R_4+2R_L}{L_4} \\
\text{K-LP: } & R_L \\
\text{K-HP: } & R_L \\
\text{K-BP: } & \frac{R_4 R_L}{R_4+2R_L} \\
\text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\
\text{WZ: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$6.28 \quad \text{GE-28} \quad Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

Parameters:

$$\text{Q: } C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$$

$$\text{wo: } \sqrt{\frac{1}{C_4 L_4}}$$

$$\text{bandwidth: } \frac{1}{C_4 (R_4 + 2R_L)}$$

$$\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-BP: } R_L$$

$$\text{QZ: } C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$$

$$\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}$$

$$\mathbf{6.29 \quad GE-29} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

$$\text{Q: } \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{1}{C_L L_L}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{2L_L}$$

$$\text{K-LP: } \frac{R_4}{2}$$

$$\text{K-HP: } \frac{R_4}{2}$$

$$\text{K-BP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{QZ: } \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$$

$$\text{WZ: } \sqrt{\frac{1}{C_L L_L}}$$

$$\mathbf{6.30 \quad GE-30} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & \frac{R_4}{2} \\
\text{Qz: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\
\text{Wz: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

6.31 GE-31 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$

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

Parameters:

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\
\text{K-LP: } & R_L \\
\text{K-HP: } & R_L \\
\text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{Qz: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\
\text{Wz: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

6.32 GE-32 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$

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

Parameters:

Q: $C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$

wo: $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth: $\frac{1}{C_4 (R_4 + 2R_L)}$

K-LP: $\frac{R_4 R_L}{R_4 + 2R_L}$

K-HP: $\frac{R_4 R_L}{R_4 + 2R_L}$

K-BP: R_L

Qz: $C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$

Wz: $\sqrt{\frac{1}{C_4 L_4}}$

7 AP

8 INVALID-NUMER

8.1 INVALID-NUMER-1 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

Q: $\frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$

wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$

bandwidth: $\frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L}$

K-LP: $\frac{R_4}{2}$
K-HP: 0
K-BP: $\frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
QZ: 0
WZ: None

8.2 INVALID-NUMER-2 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

Parameters:

Q: $\frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
bandwidth: $\frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L}$
K-LP: R_L
K-HP: 0
K-BP: $\frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
QZ: 0
WZ: None

8.3 INVALID-NUMER-3 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

Q: $\frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
bandwidth: $\frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L}$
K-LP: $\frac{R_4}{2}$

K-HP: 0
K-BP: $\frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
QZ: 0
Wz: None

8.4 INVALID-NUMER-4 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

Parameters:

Q: $\frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
bandwidth: $\frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L}$
K-LP: R_L
K-HP: 0
K-BP: $\frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
QZ: 0
Wz: None

8.5 INVALID-NUMER-5 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

Q: $\frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
bandwidth: $\frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L}$
K-LP: $\frac{R_4}{2}$
K-HP: 0

K-BP: $\frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
 QZ: 0
 Wz: None

8.6 INVALID-NUMER-6 $Z(s) = \left(\infty, \infty, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

Parameters:

Q: $\frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
 wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
 bandwidth: $\frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L}$
 K-LP: R_L
 K-HP: 0
 K-BP: $\frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
 QZ: 0
 Wz: None

8.7 INVALID-NUMER-7 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

Q: $\frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
 wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
 bandwidth: $\frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L}$
 K-LP: $\frac{R_4}{2}$
 K-HP: 0
 K-BP: $\frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$

Qz: 0
Wz: None

8.8 INVALID-NUMER-8 $Z(s) = \left(\infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L R_L s + 1}$$

Parameters:

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

8.9 INVALID-NUMER-9 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2 C_4 C_L R_4 R_L s^2 + 2 C_4 R_4 s + C_L R_4 s + 2 C_L R_L s + 2}$$

Parameters:

Q: $\frac{2 C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2 C_4 R_4 + C_L R_4 + 2 C_L R_L}$
 wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
 bandwidth: $\frac{2 C_4 R_4 + C_L R_4 + 2 C_L R_L}{2 C_4 C_L R_4 R_L}$
 K-LP: $\frac{R_4}{2}$
 K-HP: 0
 K-BP: $\frac{C_L R_4 R_L}{2 C_4 R_4 + C_L R_4 + 2 C_L R_L}$
 Qz: 0

Wz: None

8.10 INVALID-NUMER-10 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L R_L s + 1}$$

Parameters:

Q: $\frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2 C_4 R_L + C_L R_L}$
 wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
 bandwidth: $\frac{C_4 R_4 + 2 C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L}$
 K-LP: R_L
 K-HP: 0
 K-BP: $\frac{C_4 R_4 R_L}{C_4 R_4 + 2 C_4 R_L + C_L R_L}$
 QZ: 0
 Wz: None

8.11 INVALID-NUMER-11 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2 C_4 C_L R_4 R_L s^2 + 2 C_4 R_4 s + C_L R_4 s + 2 C_L R_L s + 2}$$

Parameters:

Q: $\frac{2 C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2 C_4 R_4 + C_L R_4 + 2 C_L R_L}$
 wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
 bandwidth: $\frac{2 C_4 R_4 + C_L R_4 + 2 C_L R_L}{2 C_4 C_L R_4 R_L}$
 K-LP: $\frac{R_4}{2}$
 K-HP: 0
 K-BP: $\frac{C_L R_4 R_L}{2 C_4 R_4 + C_L R_4 + 2 C_L R_L}$
 QZ: 0
 Wz: None

8.12 INVALID-NUMER-12 $Z(s) = \left(R_1, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_4R_4s + 1)}{C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

Parameters:

Q: $\frac{C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{C_4R_4+2C_4R_L+C_LR_L}$
 wo: $\sqrt{\frac{1}{C_4C_LR_4R_L}}$
 bandwidth: $\frac{C_4R_4+2C_4R_L+C_LR_L}{C_4C_LR_4R_L}$
 K-LP: R_L
 K-HP: 0
 K-BP: $\frac{C_4R_4R_L}{C_4R_4+2C_4R_L+C_LR_L}$
 QZ: 0
 WZ: None

8.13 INVALID-NUMER-13 $Z(s) = \left(L_1s, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4 (C_LR_Ls + 1)}{2C_4C_LR_4R_Ls^2 + 2C_4R_4s + C_LR_4s + 2C_LR_Ls + 2}$$

Parameters:

Q: $\frac{2C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{2C_4R_4+C_LR_4+2C_LR_L}$
 wo: $\sqrt{\frac{1}{C_4C_LR_4R_L}}$
 bandwidth: $\frac{2C_4R_4+C_LR_4+2C_LR_L}{2C_4C_LR_4R_L}$
 K-LP: $\frac{R_4}{2}$
 K-HP: 0
 K-BP: $\frac{C_LR_4R_L}{2C_4R_4+C_LR_4+2C_LR_L}$
 QZ: 0
 WZ: None

8.14 INVALID-NUMER-14 $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

Parameters:

Q: $\frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
 wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
 bandwidth: $\frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L}$
 K-LP: R_L
 K-HP: 0
 K-BP: $\frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L}$
 QZ: 0
 WZ: None

8.15 INVALID-NUMER-15 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 (L_2 s + \frac{1}{C_2 s})}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

Parameters:

Q: $\frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
 wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$
 bandwidth: $\frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L}$
 K-LP: $\frac{R_4}{2}$
 K-HP: 0
 K-BP: $\frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L}$
 QZ: 0
 WZ: None

8.16 INVALID-NUMER-16 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

Parameters:

Q: $\frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L}$

wo: $\sqrt{\frac{1}{C_4 C_L R_4 R_L}}$

bandwidth: $\frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L}$

K-LP: R_L

K-HP: 0

K-BP: $\frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L}$

QZ: 0

WZ: None

9 INVALID-WZ

10 INVALID-ORDER

10.1 INVALID-ORDER-1 $Z(s) = (R_1, \infty, \infty, \infty, \infty, R_L)$

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

10.2 INVALID-ORDER-2 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.3 INVALID-ORDER-3 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

10.4 INVALID-ORDER-4 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.5 INVALID-ORDER-5 $Z(s) = (L_1 s, \infty, \infty, \infty, \infty, R_L)$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

10.6 INVALID-ORDER-6 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

10.7 INVALID-ORDER-7 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

10.8 INVALID-ORDER-8 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.9 INVALID-ORDER-9 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.10 INVALID-ORDER-10 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.11 INVALID-ORDER-11 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.12 INVALID-ORDER-12 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.13 INVALID-ORDER-13 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.14 INVALID-ORDER-14 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.15 INVALID-ORDER-15 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.16 INVALID-ORDER-16 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.17 INVALID-ORDER-17 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.18 INVALID-ORDER-18 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.19 INVALID-ORDER-19 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.20 INVALID-ORDER-20 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.21 INVALID-ORDER-21 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

10.22 INVALID-ORDER-22 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.23 INVALID-ORDER-23 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.24 INVALID-ORDER-24 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.25 INVALID-ORDER-25 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.26 INVALID-ORDER-26 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.27 INVALID-ORDER-27 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

10.28 INVALID-ORDER-28 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.29 INVALID-ORDER-29 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.30 INVALID-ORDER-30 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.31 INVALID-ORDER-31 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

10.32 INVALID-ORDER-32 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.33 INVALID-ORDER-33 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.34 INVALID-ORDER-34 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.35 INVALID-ORDER-35 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.36 INVALID-ORDER-36 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

10.37 INVALID-ORDER-37 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

10.38 INVALID-ORDER-38 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.39 INVALID-ORDER-39 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

10.40 INVALID-ORDER-40 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$

10.41 INVALID-ORDER-41 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L s^4 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + 2}$$

10.42 INVALID-ORDER-42 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2 C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2 L_L}$$

10.43 INVALID-ORDER-43 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.44 INVALID-ORDER-44 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

10.45 INVALID-ORDER-45 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

10.46 INVALID-ORDER-46 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.47 INVALID-ORDER-47 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

10.48 INVALID-ORDER-48 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.49 INVALID-ORDER-49 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

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

10.50 INVALID-ORDER-50 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.51 INVALID-ORDER-51 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.52 INVALID-ORDER-52 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

10.53 INVALID-ORDER-53 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.54 INVALID-ORDER-54 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.55 INVALID-ORDER-55 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.56 INVALID-ORDER-56 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

10.57 INVALID-ORDER-57 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.58 INVALID-ORDER-58 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

10.59 INVALID-ORDER-59 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

10.60 INVALID-ORDER-60 $Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

10.61 INVALID-ORDER-61 $Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

10.62 INVALID-ORDER-62 $Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.63 \quad \text{INVALID-ORDER-63} \quad Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.64 \quad \text{INVALID-ORDER-64} \quad Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

$$10.65 \quad \text{INVALID-ORDER-65} \quad Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.66 \quad \text{INVALID-ORDER-66} \quad Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.67 \quad \text{INVALID-ORDER-67} \quad Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.68 \quad \text{INVALID-ORDER-68} \quad Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.69 \quad \text{INVALID-ORDER-69} \quad Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.70 \quad \text{INVALID-ORDER-70} \quad Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.71 \quad \text{INVALID-ORDER-71} \quad Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.72 \quad \text{INVALID-ORDER-72} \quad Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.73 INVALID-ORDER-73 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.74 INVALID-ORDER-74 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.75 INVALID-ORDER-75 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.76 INVALID-ORDER-76 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

10.77 INVALID-ORDER-77 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L}$$

$$10.78 \quad \text{INVALID-ORDER-78} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, R_L \right)$$

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

$$10.79 \quad \text{INVALID-ORDER-79} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

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

$$10.80 \quad \text{INVALID-ORDER-80} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

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

$$10.81 \quad \text{INVALID-ORDER-81} \quad Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

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

$$10.82 \quad \text{INVALID-ORDER-82} \quad Z(s) = (\infty, R_2, \infty, \infty, \infty, R_L)$$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

10.83 INVALID-ORDER-83 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

10.84 INVALID-ORDER-84 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

10.85 INVALID-ORDER-85 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.86 INVALID-ORDER-86 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.87 INVALID-ORDER-87 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.88 INVALID-ORDER-88 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.89 INVALID-ORDER-89 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.90 INVALID-ORDER-90 $Z(s) = \left(\infty, R_2, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.91 INVALID-ORDER-91 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.92 INVALID-ORDER-92 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.93 INVALID-ORDER-93 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.94 INVALID-ORDER-94 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.95 INVALID-ORDER-95 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.96 INVALID-ORDER-96 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.97 INVALID-ORDER-97 $Z(s) = \left(\infty, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.98 INVALID-ORDER-98 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

10.99 INVALID-ORDER-99 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.100 INVALID-ORDER-100 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.101 INVALID-ORDER-101 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1)(C_L L_L s^2 + 1)}{s(2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.102 INVALID-ORDER-102 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.103 INVALID-ORDER-103 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.104 INVALID-ORDER-104 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

10.105 INVALID-ORDER-105 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 R_4 s + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.106 INVALID-ORDER-106 $Z(s) = \left(\infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.107 INVALID-ORDER-107 $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.108 INVALID-ORDER-108 $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

10.109 INVALID-ORDER-109 $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.110 INVALID-ORDER-110 $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.111 **INVALID-ORDER-111** $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.112 **INVALID-ORDER-112** $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.113 **INVALID-ORDER-113** $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

10.114 **INVALID-ORDER-114** $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.115 **INVALID-ORDER-115** $Z(s) = \left(\infty, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.116 INVALID-ORDER-116 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s}{2C_4L_4s^2 + C_LL_4s^2 + 2}$$

10.117 INVALID-ORDER-117 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LR_Ls + 1)}{2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LR_Ls + 2}$$

10.118 INVALID-ORDER-118 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_Ls^4 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + 2}$$

10.119 INVALID-ORDER-119 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_4L_Ls}{2C_4L_4L_Ls^2 + C_LL_4L_Ls^2 + L_4 + 2L_L}$$

10.120 INVALID-ORDER-120 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_4L_Ls^4 + 2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + 2C_LR_Ls + 2}$$

10.121 INVALID-ORDER-121 $Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4s(C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4L_Ls^3 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + 2C_LL_LR_Ls^2 + L_4s + 2L_Ls + 2R_L}$$

$$10.122 \quad \text{INVALID-ORDER-122} \quad Z(s) = \left(\infty, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L \left(L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{L_4R_Ls (C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + C_LL_4R_Ls^2 + 2C_LL_LR_Ls^2 + L_4s + 2R_L}$$

$$10.123 \quad \text{INVALID-ORDER-123} \quad Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_4L_4s^2 + C_4R_4s + 1}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

$$10.124 \quad \text{INVALID-ORDER-124} \quad Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_L (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4R_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

$$10.125 \quad \text{INVALID-ORDER-125} \quad Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LR_Ls + 1) (C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

$$10.126 \quad \text{INVALID-ORDER-126} \quad Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LL_Ls^2 + 1) (C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.127 INVALID-ORDER-127 $Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

10.128 INVALID-ORDER-128 $Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1) (C_LL_Ls^2 + C_LR_Ls + 1)}{s (C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.129 INVALID-ORDER-129 $Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4C_LL_LR_4R_Ls^3 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.130 INVALID-ORDER-130 $Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1) (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

10.131 INVALID-ORDER-131 $Z(s) = \left(\infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L (L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L (C_LL_Ls^2 + 1) (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

10.132 INVALID-ORDER-132 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.133 INVALID-ORDER-133 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

10.134 INVALID-ORDER-134 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.135 INVALID-ORDER-135 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

10.136 INVALID-ORDER-136 $Z(s) = \left(\infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

10.137 INVALID-ORDER-137 $Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

10.138 INVALID-ORDER-138 $Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2 R_L}$$

10.139 INVALID-ORDER-139 $Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2 C_L R_L s + 2}$$

10.140 INVALID-ORDER-140 $Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2 C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + C_L R_4 s + 2}$$

10.141 INVALID-ORDER-141 $Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2 L_L s + R_4}$$

$$10.142 \quad \text{INVALID-ORDER-142} \quad Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.143 \quad \text{INVALID-ORDER-143} \quad Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.144 \quad \text{INVALID-ORDER-144} \quad Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.145 \quad \text{INVALID-ORDER-145} \quad Z(s) = \left(\infty, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.146 \quad \text{INVALID-ORDER-146} \quad Z(s) = \left(\infty, \infty, R_3, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

10.147 INVALID-ORDER-147 $Z(s) = \left(\infty, \infty, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.148 INVALID-ORDER-148 $Z(s) = \left(\infty, \infty, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

10.149 INVALID-ORDER-149 $Z(s) = \left(\infty, \infty, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.150 INVALID-ORDER-150 $Z(s) = \left(\infty, \infty, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.151 INVALID-ORDER-151 $Z(s) = \left(\infty, \infty, R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.152 \quad \text{INVALID-ORDER-152} \quad Z(s) = \left(\infty, \infty, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.153 \quad \text{INVALID-ORDER-153} \quad Z(s) = \left(\infty, \infty, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.154 \quad \text{INVALID-ORDER-154} \quad Z(s) = \left(\infty, \infty, R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L s}$$

$$10.155 \quad \text{INVALID-ORDER-155} \quad Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

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

$$10.156 \quad \text{INVALID-ORDER-156} \quad Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

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

10.157 **INVALID-ORDER-157** $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

10.158 **INVALID-ORDER-158** $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.159 **INVALID-ORDER-159** $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2 C_4 R_L s + 1}$$

10.160 **INVALID-ORDER-160** $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s (2 C_4 + C_L)}$$

10.161 **INVALID-ORDER-161** $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2 C_4 R_L s + C_L R_L s + 1}$$

10.162 **INVALID-ORDER-162** $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s (2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

10.163 INVALID-ORDER-163 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.164 INVALID-ORDER-164 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.165 INVALID-ORDER-165 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.166 INVALID-ORDER-166 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.167 INVALID-ORDER-167 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.168 INVALID-ORDER-168 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.169 INVALID-ORDER-169 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.170 INVALID-ORDER-170 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.171 INVALID-ORDER-171 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.172 INVALID-ORDER-172 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.173 INVALID-ORDER-173 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.174 INVALID-ORDER-174 $Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.175 INVALID-ORDER-175 $Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4R_4s + 1)}{C_4R_4s + 2C_4R_Ls + 1}$$

10.176 INVALID-ORDER-176 $Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4R_4s + 1}{s(C_4C_LR_4s + 2C_4 + C_L)}$$

10.177 INVALID-ORDER-177 $Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LR_Ls + 1)}{s(C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.178 INVALID-ORDER-178 $Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.179 INVALID-ORDER-179 $Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4s^3 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

10.180 INVALID-ORDER-180 $Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

$$10.181 \quad \text{INVALID-ORDER-181} \quad Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4R_Ls^3 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

$$10.182 \quad \text{INVALID-ORDER-182} \quad Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

$$10.183 \quad \text{INVALID-ORDER-183} \quad Z(s) = \left(\infty, \infty, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.184 \quad \text{INVALID-ORDER-184} \quad Z(s) = \left(\infty, \infty, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_4L_4s^2 + 1}{s(C_4C_LL_4s^2 + 2C_4 + C_L)}$$

$$10.185 \quad \text{INVALID-ORDER-185} \quad Z(s) = \left(\infty, \infty, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_L(C_4L_4s^2 + 1)}{C_4C_LL_4R_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LR_Ls + 1}$$

10.186 INVALID-ORDER-186 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.187 INVALID-ORDER-187 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.188 INVALID-ORDER-188 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.189 INVALID-ORDER-189 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.190 INVALID-ORDER-190 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.191 \quad \text{INVALID-ORDER-191} \quad Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.192 \quad \text{INVALID-ORDER-192} \quad Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.193 \quad \text{INVALID-ORDER-193} \quad Z(s) = \left(\infty, \infty, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

$$10.194 \quad \text{INVALID-ORDER-194} \quad Z(s) = \left(\infty, \infty, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$

$$10.195 \quad \text{INVALID-ORDER-195} \quad Z(s) = \left(\infty, \infty, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L s^4 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + 2}$$

$$10.196 \quad \text{INVALID-ORDER-196} \quad Z(s) = \left(\infty, \infty, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_4 L_L s}{2 C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2 L_L}$$

10.197 INVALID-ORDER-197 $Z(s) = \left(\infty, \infty, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.198 INVALID-ORDER-198 $Z(s) = \left(\infty, \infty, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4s + 2L_L s + 2R_L}$$

10.199 INVALID-ORDER-199 $Z(s) = \left(\infty, \infty, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4s + 2R_L}$$

10.200 INVALID-ORDER-200 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{1}{C_Ls} \right)$

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

10.201 INVALID-ORDER-201 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

10.202 INVALID-ORDER-202 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.203 INVALID-ORDER-203 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.204 INVALID-ORDER-204 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

10.205 INVALID-ORDER-205 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.206 INVALID-ORDER-206 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4C_LL_LR_4R_Ls^3 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

$$10.207 \quad \text{INVALID-ORDER-207} \quad Z(s) = \left(\infty, \infty, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.208 \quad \text{INVALID-ORDER-208} \quad Z(s) = \left(\infty, \infty, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.209 \quad \text{INVALID-ORDER-209} \quad Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.210 \quad \text{INVALID-ORDER-210} \quad Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

$$10.211 \quad \text{INVALID-ORDER-211} \quad Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.212 INVALID-ORDER-212 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

10.213 INVALID-ORDER-213 $Z(s) = \left(\infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

10.214 INVALID-ORDER-214 $Z(s) = \left(\infty, \infty, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

10.215 INVALID-ORDER-215 $Z(s) = \left(\infty, \infty, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

10.216 INVALID-ORDER-216 $Z(s) = \left(\infty, \infty, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.217 \quad \text{INVALID-ORDER-217} \quad Z(s) = \left(\infty, \infty, \frac{R_3 \left(L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.218 \quad \text{INVALID-ORDER-218} \quad Z(s) = \left(\infty, \infty, \frac{R_3 \left(L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

$$10.219 \quad \text{INVALID-ORDER-219} \quad Z(s) = \left(\infty, \infty, \frac{R_3 \left(L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.220 \quad \text{INVALID-ORDER-220} \quad Z(s) = \left(\infty, \infty, \frac{R_3 \left(L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.221 \quad \text{INVALID-ORDER-221} \quad Z(s) = \left(\infty, \infty, \frac{R_3 \left(L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.222 \quad \text{INVALID-ORDER-222} \quad Z(s) = \left(\infty, \infty, \frac{R_3 \left(L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.223 \quad \text{INVALID-ORDER-223} \quad Z(s) = \left(\infty, \infty, \infty, R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.224 \quad \text{INVALID-ORDER-224} \quad Z(s) = \left(\infty, \infty, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.225 \quad \text{INVALID-ORDER-225} \quad Z(s) = \left(\infty, \infty, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.226 \quad \text{INVALID-ORDER-226} \quad Z(s) = \left(\infty, \infty, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.227 INVALID-ORDER-227 $Z(s) = \left(\infty, \infty, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.228 INVALID-ORDER-228 $Z(s) = \left(\infty, \infty, \infty, R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.229 INVALID-ORDER-229 $Z(s) = \left(\infty, \infty, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.230 INVALID-ORDER-230 $Z(s) = \left(\infty, \infty, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

10.231 INVALID-ORDER-231 $Z(s) = \left(\infty, \infty, \infty, R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L}$$

10.232 INVALID-ORDER-232 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$

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

10.233 INVALID-ORDER-233 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

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

10.234 INVALID-ORDER-234 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

10.235 INVALID-ORDER-235 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.236 INVALID-ORDER-236 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

10.237 INVALID-ORDER-237 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

10.238 INVALID-ORDER-238 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

10.239 INVALID-ORDER-239 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.240 INVALID-ORDER-240 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.241 INVALID-ORDER-241 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.242 INVALID-ORDER-242 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.243 INVALID-ORDER-243 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.244 INVALID-ORDER-244 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.245 INVALID-ORDER-245 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.246 INVALID-ORDER-246 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.247 INVALID-ORDER-247 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.248 INVALID-ORDER-248 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.249 INVALID-ORDER-249 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.250 INVALID-ORDER-250 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.251 INVALID-ORDER-251 $Z(s) = \left(\infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.252 INVALID-ORDER-252 $Z(s) = \left(\infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

10.253 INVALID-ORDER-253 $Z(s) = \left(\infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.254 INVALID-ORDER-254 $Z(s) = \left(\infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.255 INVALID-ORDER-255 $Z(s) = \left(\infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.256 INVALID-ORDER-256 $Z(s) = \left(\infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_4R_4s+1)}{C_4C_LL_LR_4s^3+2C_4L_Ls^2+C_4R_4s+C_LL_Ls^2+1}$$

10.257 INVALID-ORDER-257 $Z(s) = \left(\infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s+1)(C_LL_Ls^2+C_LR_Ls+1)}{s(2C_4C_LL_Ls^2+C_4C_LR_4s+2C_4C_LR_Ls+2C_4+C_L)}$$

10.258 INVALID-ORDER-258 $Z(s) = \left(\infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls+\frac{1}{R_L}+\frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4R_4s+1)}{C_4C_LL_LR_4R_Ls^3+C_4L_LR_4s^2+2C_4L_LR_Ls^2+C_4R_4R_Ls+C_LL_LR_Ls^2+L_Ls+R_L}$$

10.259 INVALID-ORDER-259 $Z(s) = \left(\infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4R_4s+1)(C_LL_LR_Ls^2+L_Ls+R_L)}{C_4C_LL_LR_4s^3+2C_4C_LL_LR_Ls^3+2C_4L_Ls^2+C_4R_4s+2C_4R_Ls+C_LL_Ls^2+1}$$

10.260 INVALID-ORDER-260 $Z(s) = \left(\infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls+\frac{1}{C_Ls})}{L_Ls+R_L+\frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_4R_4s+1)(C_LL_Ls^2+1)}{C_4C_LL_LR_4s^3+2C_4C_LL_LR_Ls^3+C_4C_LR_4R_Ls^2+C_4R_4s+2C_4R_Ls+C_LL_Ls^2+C_LR_Ls+1}$$

10.261 INVALID-ORDER-261 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$

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

10.262 INVALID-ORDER-262 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

10.263 INVALID-ORDER-263 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.264 INVALID-ORDER-264 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.265 INVALID-ORDER-265 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.266 INVALID-ORDER-266 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.267 \quad \text{INVALID-ORDER-267} \quad Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.268 \quad \text{INVALID-ORDER-268} \quad Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.269 \quad \text{INVALID-ORDER-269} \quad Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.270 \quad \text{INVALID-ORDER-270} \quad Z(s) = \left(\infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

$$10.271 \quad \text{INVALID-ORDER-271} \quad Z(s) = \left(\infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$

10.272 INVALID-ORDER-272 $Z(s) = \left(\infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

10.273 INVALID-ORDER-273 $Z(s) = \left(\infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

10.274 INVALID-ORDER-274 $Z(s) = \left(\infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.275 INVALID-ORDER-275 $Z(s) = \left(\infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

10.276 INVALID-ORDER-276 $Z(s) = \left(\infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

10.277 INVALID-ORDER-277 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + C_4R_4s + 1}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.278 INVALID-ORDER-278 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4R_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

10.279 INVALID-ORDER-279 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.280 INVALID-ORDER-280 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.281 INVALID-ORDER-281 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

10.282 INVALID-ORDER-282 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.283 INVALID-ORDER-283 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4C_LL_LR_4R_Ls^3 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.284 INVALID-ORDER-284 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

10.285 INVALID-ORDER-285 $Z(s) = \left(\infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

10.286 INVALID-ORDER-286 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4R_4s(C_LR_Ls + 1)}{2C_4C_LL_4R_4R_Ls^3 + 2C_4L_4R_4s^2 + C_LL_4R_4s^2 + 2C_LR_4R_Ls^2 + 2C_LR_4R_Ls + 2L_4s + 2R_4}$$

10.287 INVALID-ORDER-287 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

10.288 INVALID-ORDER-288 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.289 INVALID-ORDER-289 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

10.290 INVALID-ORDER-290 $Z(s) = \left(\infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

10.291 INVALID-ORDER-291 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

10.292 INVALID-ORDER-292 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2 R_L}$$

10.293 INVALID-ORDER-293 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2 C_L R_L s + 2}$$

10.294 INVALID-ORDER-294 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2 C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + C_L R_4 s + 2}$$

10.295 INVALID-ORDER-295 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2 L_L s + R_4}$$

10.296 INVALID-ORDER-296 $Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2 C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + C_L R_4 s + 2 C_L R_L s + 2}$$

$$10.297 \quad \text{INVALID-ORDER-297} \quad Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.298 \quad \text{INVALID-ORDER-298} \quad Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.299 \quad \text{INVALID-ORDER-299} \quad Z(s) = \left(\infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.300 \quad \text{INVALID-ORDER-300} \quad Z(s) = \left(\infty, \infty, \infty, \infty, R_4, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.301 \quad \text{INVALID-ORDER-301} \quad Z(s) = \left(\infty, \infty, \infty, \infty, R_4, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.302 INVALID-ORDER-302 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

10.303 INVALID-ORDER-303 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.304 INVALID-ORDER-304 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.305 INVALID-ORDER-305 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.306 INVALID-ORDER-306 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.307 \quad \text{INVALID-ORDER-307} \quad Z(s) = \left(\infty, \infty, \infty, \infty, R_4, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.308 \quad \text{INVALID-ORDER-308} \quad Z(s) = \left(\infty, \infty, \infty, \infty, R_4, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L s}$$

$$10.309 \quad \text{INVALID-ORDER-309} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, R_L \right)$$

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

$$10.310 \quad \text{INVALID-ORDER-310} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, \frac{1}{C_L s} \right)$$

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

$$10.311 \quad \text{INVALID-ORDER-311} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, \frac{R_L}{C_L R_L s + 1} \right)$$

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

$$10.312 \quad \text{INVALID-ORDER-312} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4 s}, R_L + \frac{1}{C_L s} \right)$$

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

10.313 INVALID-ORDER-313 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, R_L \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

10.314 INVALID-ORDER-314 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

10.315 INVALID-ORDER-315 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

10.316 INVALID-ORDER-316 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.317 INVALID-ORDER-317 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.318 INVALID-ORDER-318 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.319 \quad \text{INVALID-ORDER-319} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.320 \quad \text{INVALID-ORDER-320} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.321 \quad \text{INVALID-ORDER-321} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4}{C_4 R_4 s + 1}, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.322 \quad \text{INVALID-ORDER-322} \quad Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

$$10.323 \quad \text{INVALID-ORDER-323} \quad Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.324 \quad \text{INVALID-ORDER-324} \quad Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.325 INVALID-ORDER-325 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.326 INVALID-ORDER-326 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.327 INVALID-ORDER-327 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.328 INVALID-ORDER-328 $Z(s) = \left(\infty, \infty, \infty, \infty, R_4 + \frac{1}{C_4 s}, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.329 INVALID-ORDER-329 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + \frac{1}{C_4 s}, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

10.330 INVALID-ORDER-330 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4R_4s + 1}{s(C_4C_LR_4s + 2C_4 + C_L)}$$

10.331 INVALID-ORDER-331 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LR_Ls + 1)}{s(C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.332 INVALID-ORDER-332 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.333 INVALID-ORDER-333 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4s^3 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

10.334 INVALID-ORDER-334 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.335 INVALID-ORDER-335 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4R_Ls^3 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.336 INVALID-ORDER-336 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4R_4s+1)(C_LL_LR_Ls^2+L_Ls+R_L)}{C_4C_LL_LR_4s^3+2C_4C_LL_LR_Ls^3+2C_4L_Ls^2+C_4R_4s+2C_4R_Ls+C_LL_Ls^2+1}$$

10.337 INVALID-ORDER-337 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + \frac{1}{C_4s}, \frac{R_L(L_Ls+\frac{1}{C_Ls})}{L_Ls+R_L+\frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_4R_4s+1)(C_LL_Ls^2+1)}{C_4C_LL_LR_4s^3+2C_4C_LL_LR_Ls^3+C_4C_LR_4R_Ls^2+C_4R_4s+2C_4R_Ls+C_LL_Ls^2+C_LR_Ls+1}$$

10.338 INVALID-ORDER-338 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4s}{C_4L_4s^2+1}, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2+1}{s(C_4C_LL_4s^2+2C_4+C_L)}$$

10.339 INVALID-ORDER-339 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4s}{C_4L_4s^2+1}, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2+1)}{C_4C_LL_4R_Ls^3+C_4L_4s^2+2C_4R_Ls+C_LR_Ls+1}$$

10.340 INVALID-ORDER-340 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4s}{C_4L_4s^2+1}, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2+1)(C_LR_Ls+1)}{s(C_4C_LL_4s^2+2C_4C_LR_Ls+2C_4+C_L)}$$

10.341 INVALID-ORDER-341 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.342 INVALID-ORDER-342 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.343 INVALID-ORDER-343 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.344 INVALID-ORDER-344 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

10.345 INVALID-ORDER-345 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.346 INVALID-ORDER-346 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.347 INVALID-ORDER-347 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

10.348 INVALID-ORDER-348 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$

10.349 INVALID-ORDER-349 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L s^4 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + 2}$$

10.350 INVALID-ORDER-350 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2 C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2 L_L}$$

10.351 INVALID-ORDER-351 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2 C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + 2 C_L R_L s + 2}$$

10.352 INVALID-ORDER-352 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{L_4s (C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4L_Ls^3 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + 2C_LL_LR_Ls^2 + L_4s + 2L_Ls + 2R_L}$$

10.353 INVALID-ORDER-353 $Z(s) = \left(\infty, \infty, \infty, \infty, L_4s + R_4 + \frac{1}{C_4s}, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{L_4R_Ls (C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + C_LL_4R_Ls^2 + 2C_LL_LR_Ls^2 + L_4s + 2R_L}$$

10.354 INVALID-ORDER-354 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + C_4R_4s + 1}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.355 INVALID-ORDER-355 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4R_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

10.356 INVALID-ORDER-356 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1) (C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.357 INVALID-ORDER-357 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.358 INVALID-ORDER-358 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

10.359 INVALID-ORDER-359 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.360 INVALID-ORDER-360 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4C_LL_LR_4R_Ls^3 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.361 INVALID-ORDER-361 $Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

$$10.362 \quad \text{INVALID-ORDER-362} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \frac{R_L \left(L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.363 \quad \text{INVALID-ORDER-363} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.364 \quad \text{INVALID-ORDER-364} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

$$10.365 \quad \text{INVALID-ORDER-365} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.366 \quad \text{INVALID-ORDER-366} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

$$10.367 \quad \text{INVALID-ORDER-367} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

$$10.368 \quad \text{INVALID-ORDER-368} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

$$10.369 \quad \text{INVALID-ORDER-369} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.370 \quad \text{INVALID-ORDER-370} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.371 \quad \text{INVALID-ORDER-371} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.372 \quad \text{INVALID-ORDER-372} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2 L_L s + R_4}$$

$$10.373 \quad \text{INVALID-ORDER-373} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2 C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + C_L R_4 s + 2 C_L R_L s + 2}$$

$$10.374 \quad \text{INVALID-ORDER-374} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2 C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

$$10.375 \quad \text{INVALID-ORDER-375} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + 2 C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + L_4 s + 2 L_L s + R_4 + 2 R_L}$$

$$10.376 \quad \text{INVALID-ORDER-376} \quad Z(s) = \left(\infty, \infty, \infty, \infty, \frac{R_4 \left(L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2 R_L}$$

10.377 INVALID-ORDER-377 $Z(s) = \left(R_1, R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

10.378 INVALID-ORDER-378 $Z(s) = \left(R_1, R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.379 INVALID-ORDER-379 $Z(s) = \left(R_1, R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

10.380 INVALID-ORDER-380 $Z(s) = \left(R_1, R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.381 INVALID-ORDER-381 $Z(s) = \left(R_1, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.382 INVALID-ORDER-382 $Z(s) = \left(R_1, R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.383 \quad \text{INVALID-ORDER-383} \quad Z(s) = \left(R_1, R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.384 \quad \text{INVALID-ORDER-384} \quad Z(s) = \left(R_1, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.385 \quad \text{INVALID-ORDER-385} \quad Z(s) = \left(R_1, R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L s}$$

$$10.386 \quad \text{INVALID-ORDER-386} \quad Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

$$10.387 \quad \text{INVALID-ORDER-387} \quad Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

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

10.388 INVALID-ORDER-388 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

10.389 INVALID-ORDER-389 $Z(s) = \left(R_1, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.390 INVALID-ORDER-390 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2 C_4 R_L s + 1}$$

10.391 INVALID-ORDER-391 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s (2 C_4 + C_L)}$$

10.392 INVALID-ORDER-392 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2 C_4 R_L s + C_L R_L s + 1}$$

10.393 INVALID-ORDER-393 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s (2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

10.394 INVALID-ORDER-394 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.395 INVALID-ORDER-395 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.396 INVALID-ORDER-396 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.397 INVALID-ORDER-397 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.398 INVALID-ORDER-398 $Z(s) = \left(R_1, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.399 INVALID-ORDER-399 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.400 INVALID-ORDER-400 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.401 INVALID-ORDER-401 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.402 INVALID-ORDER-402 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.403 INVALID-ORDER-403 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.404 INVALID-ORDER-404 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.405 INVALID-ORDER-405 $Z(s) = \left(R_1, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.406 \quad \text{INVALID-ORDER-406} \quad Z(s) = \left(R_1, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4R_4s + 1)}{C_4R_4s + 2C_4R_Ls + 1}$$

$$10.407 \quad \text{INVALID-ORDER-407} \quad Z(s) = \left(R_1, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_4R_4s + 1}{s(C_4C_LR_4s + 2C_4 + C_L)}$$

$$10.408 \quad \text{INVALID-ORDER-408} \quad Z(s) = \left(R_1, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LR_Ls + 1)}{s(C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

$$10.409 \quad \text{INVALID-ORDER-409} \quad Z(s) = \left(R_1, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

$$10.410 \quad \text{INVALID-ORDER-410} \quad Z(s) = \left(R_1, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$$

$$H(s) = \frac{L_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4s^3 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

$$10.411 \quad \text{INVALID-ORDER-411} \quad Z(s) = \left(R_1, L_2s + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

$$10.412 \quad \text{INVALID-ORDER-412} \quad Z(s) = \left(R_1, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.413 \quad \text{INVALID-ORDER-413} \quad Z(s) = \left(R_1, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.414 \quad \text{INVALID-ORDER-414} \quad Z(s) = \left(R_1, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.415 \quad \text{INVALID-ORDER-415} \quad Z(s) = \left(R_1, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

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

$$10.416 \quad \text{INVALID-ORDER-416} \quad Z(s) = \left(R_1, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

10.417 INVALID-ORDER-417 $Z(s) = \left(R_1, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.418 INVALID-ORDER-418 $Z(s) = \left(R_1, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4 + C_L)}$$

10.419 INVALID-ORDER-419 $Z(s) = \left(R_1, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4L_4s^2 + 2C_4L_Ls^2 + C_LL_Ls^2 + 1}$$

10.420 INVALID-ORDER-420 $Z(s) = \left(R_1, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.421 INVALID-ORDER-421 $Z(s) = \left(R_1, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4L_4s^2 + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + 2C_4L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.422 INVALID-ORDER-422 $Z(s) = \left(R_1, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

10.423 INVALID-ORDER-423 $Z(s) = \left(R_1, L_2s + R_2 + \frac{1}{C_2s}, \infty, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2 + 1)(C_LL_Ls^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

10.424 INVALID-ORDER-424 $Z(s) = \left(R_1, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s}{2C_4L_4s^2 + C_LL_4s^2 + 2}$$

10.425 INVALID-ORDER-425 $Z(s) = \left(R_1, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LR_Ls + 1)}{2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LR_Ls + 2}$$

10.426 INVALID-ORDER-426 $Z(s) = \left(R_1, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_Ls^4 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + 2}$$

10.427 INVALID-ORDER-427 $Z(s) = \left(R_1, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_4L_Ls}{2C_4L_4L_Ls^2 + C_LL_4L_Ls^2 + L_4 + 2L_L}$$

10.428 INVALID-ORDER-428 $Z(s) = \left(R_1, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.429 INVALID-ORDER-429 $Z(s) = \left(R_1, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

10.430 INVALID-ORDER-430 $Z(s) = \left(R_1, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

10.431 INVALID-ORDER-431 $Z(s) = \left(R_1, \frac{R_2 (L_2 s + \frac{1}{C_2 s})}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.432 INVALID-ORDER-432 $Z(s) = \left(R_1, \frac{R_2 (L_2 s + \frac{1}{C_2 s})}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

10.433 INVALID-ORDER-433 $Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.434 INVALID-ORDER-434 $Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

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

10.435 INVALID-ORDER-435 $Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.436 INVALID-ORDER-436 $Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2 C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

10.437 INVALID-ORDER-437 $Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2 C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.438 \quad \text{INVALID-ORDER-438} \quad Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.439 \quad \text{INVALID-ORDER-439} \quad Z(s) = \left(R_1, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.440 \quad \text{INVALID-ORDER-440} \quad Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_4 R_L s^3 + 2 C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2 C_L L_4 R_L s^2 + 2 C_L R_4 R_L s + 2 L_4 s + 2 R_4}$$

$$10.441 \quad \text{INVALID-ORDER-441} \quad Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 R_4 s^2 + 2 C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2 C_L L_L R_4 s^2 + 2 L_4 s + 2 R_4}$$

$$10.442 \quad \text{INVALID-ORDER-442} \quad Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2 C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 R_4 R_L s^3 + 2 C_4 L_4 R_4 s^2 + 2 C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2 C_L L_4 R_L s^2 + 2 C_L L_L R_4 s^2 + 2 C_L R_4 R_L s + 2 L_4 s + 2 R_4}$$

10.443 INVALID-ORDER-443 $Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

10.444 INVALID-ORDER-444 $Z(s) = \left(L_1 s, R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

10.445 INVALID-ORDER-445 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

10.446 INVALID-ORDER-446 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

10.447 INVALID-ORDER-447 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.448 INVALID-ORDER-448 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.449 INVALID-ORDER-449 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

10.450 INVALID-ORDER-450 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.451 INVALID-ORDER-451 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.452 INVALID-ORDER-452 $Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.453 \quad \text{INVALID-ORDER-453} \quad Z(s) = \left(L_1 s, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.454 \quad \text{INVALID-ORDER-454} \quad Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.455 \quad \text{INVALID-ORDER-455} \quad Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.456 \quad \text{INVALID-ORDER-456} \quad Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.457 \quad \text{INVALID-ORDER-457} \quad Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.458 INVALID-ORDER-458 $Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.459 INVALID-ORDER-459 $Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.460 INVALID-ORDER-460 $Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.461 INVALID-ORDER-461 $Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

10.462 INVALID-ORDER-462 $Z(s) = \left(L_1 s, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L}$$

10.463 INVALID-ORDER-463 $Z(s) = \left(L_1 s, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$

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

10.464 INVALID-ORDER-464 $Z(s) = \left(L_1 s, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.465 INVALID-ORDER-465 $Z(s) = \left(L_1 s, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

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

10.466 INVALID-ORDER-466 $Z(s) = \left(L_1 s, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.467 INVALID-ORDER-467 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

10.468 INVALID-ORDER-468 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

10.469 INVALID-ORDER-469 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

10.470 INVALID-ORDER-470 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.471 INVALID-ORDER-471 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.472 INVALID-ORDER-472 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.473 INVALID-ORDER-473 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.474 INVALID-ORDER-474 $Z(s) = \left(L_1 s, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.475 \quad \text{INVALID-ORDER-475} \quad Z(s) = \left(L_1 s, \quad L_2 s + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.476 \quad \text{INVALID-ORDER-476} \quad Z(s) = \left(L_1 s, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

$$10.477 \quad \text{INVALID-ORDER-477} \quad Z(s) = \left(L_1 s, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.478 \quad \text{INVALID-ORDER-478} \quad Z(s) = \left(L_1 s, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.479 \quad \text{INVALID-ORDER-479} \quad Z(s) = \left(L_1 s, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.480 \quad \text{INVALID-ORDER-480} \quad Z(s) = \left(L_1 s, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \infty, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.481 **INVALID-ORDER-481** $Z(s) = \left(L_1 s, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.482 **INVALID-ORDER-482** $Z(s) = \left(L_1 s, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.483 **INVALID-ORDER-483** $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

10.484 **INVALID-ORDER-484** $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.485 **INVALID-ORDER-485** $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.486 **INVALID-ORDER-486** $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.487 INVALID-ORDER-487 $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2 C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.488 INVALID-ORDER-488 $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (2 C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

10.489 INVALID-ORDER-489 $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2 C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

10.490 INVALID-ORDER-490 $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + 2 C_4 L_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

10.491 INVALID-ORDER-491 $Z(s) = \left(L_1 s, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.492 \quad \text{INVALID-ORDER-492} \quad Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

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

$$10.493 \quad \text{INVALID-ORDER-493} \quad Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

$$10.494 \quad \text{INVALID-ORDER-494} \quad Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.495 \quad \text{INVALID-ORDER-495} \quad Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

$$10.496 \quad \text{INVALID-ORDER-496} \quad Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.497 INVALID-ORDER-497 $Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2 C_4 C_L L_L s^2 + 2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

10.498 INVALID-ORDER-498 $Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

10.499 INVALID-ORDER-499 $Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

10.500 INVALID-ORDER-500 $Z(s) = \left(L_1 s, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.501 INVALID-ORDER-501 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

10.502 INVALID-ORDER-502 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L R_L s + 2}$$

10.503 INVALID-ORDER-503 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

10.504 INVALID-ORDER-504 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

10.505 INVALID-ORDER-505 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.506 INVALID-ORDER-506 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

10.507 INVALID-ORDER-507 $Z(s) = \left(\frac{1}{C_1 s}, R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

10.508 INVALID-ORDER-508 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.509 INVALID-ORDER-509 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

10.510 INVALID-ORDER-510 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.511 INVALID-ORDER-511 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

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

10.512 INVALID-ORDER-512 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.513 INVALID-ORDER-513 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.514 INVALID-ORDER-514 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

10.515 INVALID-ORDER-515 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.516 INVALID-ORDER-516 $Z(s) = \left(\frac{1}{C_1 s}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.517 INVALID-ORDER-517 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.518 INVALID-ORDER-518 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

10.519 INVALID-ORDER-519 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

10.520 INVALID-ORDER-520 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

10.521 INVALID-ORDER-521 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

10.522 INVALID-ORDER-522 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

10.523 INVALID-ORDER-523 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

10.524 INVALID-ORDER-524 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.525 INVALID-ORDER-525 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.526 INVALID-ORDER-526 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

10.527 INVALID-ORDER-527 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.528 INVALID-ORDER-528 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.529 INVALID-ORDER-529 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

10.530 INVALID-ORDER-530 $Z(s) = \left(\frac{1}{C_1 s}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

10.531 INVALID-ORDER-531 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

10.532 INVALID-ORDER-532 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.533 INVALID-ORDER-533 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

10.534 INVALID-ORDER-534 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.535 INVALID-ORDER-535 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.536 INVALID-ORDER-536 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.537 INVALID-ORDER-537 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.538 INVALID-ORDER-538 $Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.539 \quad \text{INVALID-ORDER-539} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.540 \quad \text{INVALID-ORDER-540} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L \right)$$

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

$$10.541 \quad \text{INVALID-ORDER-541} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

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

$$10.542 \quad \text{INVALID-ORDER-542} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

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

$$10.543 \quad \text{INVALID-ORDER-543} \quad Z(s) = \left(\frac{1}{C_1 s}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

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

$$10.544 \quad \text{INVALID-ORDER-544} \quad Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

10.545 INVALID-ORDER-545 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

10.546 INVALID-ORDER-546 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

10.547 INVALID-ORDER-547 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.548 INVALID-ORDER-548 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.549 INVALID-ORDER-549 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.550 INVALID-ORDER-550 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.551 INVALID-ORDER-551 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.552 INVALID-ORDER-552 $Z(s) = \left(\frac{1}{C_1 s}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.553 INVALID-ORDER-553 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.554 INVALID-ORDER-554 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.555 INVALID-ORDER-555 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.556 INVALID-ORDER-556 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.557 INVALID-ORDER-557 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.558 INVALID-ORDER-558 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

10.559 INVALID-ORDER-559 $Z(s) = \left(\frac{1}{C_1 s}, \frac{R_2 \left(L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.560 INVALID-ORDER-560 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

10.561 INVALID-ORDER-561 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.562 INVALID-ORDER-562 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1)(C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.563 INVALID-ORDER-563 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1)(C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.564 INVALID-ORDER-564 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.565 INVALID-ORDER-565 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.566 INVALID-ORDER-566 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

10.567 INVALID-ORDER-567 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.568 INVALID-ORDER-568 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.569 INVALID-ORDER-569 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.570 INVALID-ORDER-570 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

10.571 INVALID-ORDER-571 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.572 INVALID-ORDER-572 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.573 INVALID-ORDER-573 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.574 INVALID-ORDER-574 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.575 INVALID-ORDER-575 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

10.576 INVALID-ORDER-576 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.577 INVALID-ORDER-577 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.578 INVALID-ORDER-578 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

10.579 INVALID-ORDER-579 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L R_L s + 2}$$

10.580 INVALID-ORDER-580 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

10.581 INVALID-ORDER-581 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

10.582 INVALID-ORDER-582 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.583 INVALID-ORDER-583 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

10.584 INVALID-ORDER-584 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{R_2}{C_2 R_2 s + 1}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

10.585 INVALID-ORDER-585 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

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

10.586 INVALID-ORDER-586 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

10.587 INVALID-ORDER-587 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

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

10.588 INVALID-ORDER-588 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

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

10.589 INVALID-ORDER-589 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.590 INVALID-ORDER-590 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.591 INVALID-ORDER-591 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

10.592 INVALID-ORDER-592 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.593 \quad \text{INVALID-ORDER-593} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.594 \quad \text{INVALID-ORDER-594} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.595 \quad \text{INVALID-ORDER-595} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

$$10.596 \quad \text{INVALID-ORDER-596} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.597 \quad \text{INVALID-ORDER-597} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

$$10.598 \quad \text{INVALID-ORDER-598} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

$$10.599 \quad \text{INVALID-ORDER-599} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

$$10.600 \quad \text{INVALID-ORDER-600} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.601 \quad \text{INVALID-ORDER-601} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.602 \quad \text{INVALID-ORDER-602} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.603 INVALID-ORDER-603 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

10.604 INVALID-ORDER-604 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.605 INVALID-ORDER-605 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.606 INVALID-ORDER-606 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

10.607 INVALID-ORDER-607 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

10.608 INVALID-ORDER-608 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

10.609 INVALID-ORDER-609 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.610 INVALID-ORDER-610 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

10.611 INVALID-ORDER-611 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.612 INVALID-ORDER-612 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

10.613 INVALID-ORDER-613 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

10.614 INVALID-ORDER-614 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

10.615 INVALID-ORDER-615 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

10.616 INVALID-ORDER-616 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L s}$$