Filter Summary Report: CG,Test,simple,Z1,Z4

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Contents

11 PolynomialError

1 Examined $H(z)$ for CG Test simple Z1 Z4: $\frac{Z_1 Z_4 g_m}{2Z_1 g_m + 2}$

$$H(z) = \frac{Z_1 Z_4 g_m}{2Z_1 g_m + 2}$$

2 HP

3 BP

3.1 BP-1 $Z(s) = \left(R_1, \ \infty, \ \infty, \ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_4 R_1 R_4 g_m s}{2R_1 R_4 g_m + 2R_4 + s^2 \left(2C_4 L_4 R_1 R_4 g_m + 2C_4 L_4 R_4 \right) + s \left(2L_4 R_1 g_m + 2L_4 \right)}$$

Parameters:

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

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

bandwidth: $\frac{1}{C_4 R_4}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_1 R_4 g_m}{2R_1 g_m + 2}$

Qz: 0

Wz: None

3.2 BP-2 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ \frac{R_4}{C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_1 R_4 g_m s}{2C_4 L_1 R_4 g_m s^2 + s \left(2C_4 R_4 + 2L_1 g_m \right) + 2}$$

Parameters:

Q: $\frac{C_4 L_1 R_4 g_m \sqrt{\frac{1}{C_4 L_1 R_4 g_m}}}{C_4 R_4 + L_1 g_m}$

wo: $\sqrt{\frac{1}{C_4 L_1 R_4 g_m}}$

bandwidth: $\frac{C_4 R_4 + L_1 g_m}{C_4 L_1 R_4 g_m}$

K-LP: 0

K-HP: 0

K-BP: $\frac{L_1 R_4 g_m}{2C_4 R_4 + 2L_1 g_m}$

Qz: 0

Wz: None

3.3 BP-3 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_1 R_4 g_m s}{2C_1 L_1 s^2 + 2L_1 g_m s + 2}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{g_m}{C_1}$

K-LP: 0

K-HP: 0

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

Qz: 0

3.4 BP-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_1 R_1 R_4 g_m s}{2 C_1 L_1 R_1 s^2 + 2 R_1 + s \left(2 L_1 R_1 g_m + 2 L_1\right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$

K-LP: 0

K-HP: 0

K-BP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

Qz: 0

Wz: None

4 LP

4.1 LP-1 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{R_4}{C_4 R_4 s + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{R_4 g_m}{2 C_1 C_4 R_4 s^2 + 2 g_m + s \left(2 C_1 + 2 C_4 R_4 g_m\right)}$$

Parameters:

Q: $\frac{C_1 C_4 R_4 \sqrt{\frac{g_m}{C_1 C_4 R_4}}}{C_1 + C_4 R_4 g_m}$

wo: $\sqrt{\frac{g_m}{C_1 C_4 R_4}}$

bandwidth: $\frac{C_1 + C_4 R_4 g_m}{C_1 C_4 R_4}$

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

K-HP: 0

K-BP: 0

Qz: None

Wz: None

4.2 LP-2 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{R_4}{C_4 R_4 s + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{R_1 R_4 g_m}{2 C_1 C_4 R_1 R_4 s^2 + 2 R_1 g_m + s \left(2 C_1 R_1 + 2 C_4 R_1 R_4 g_m + 2 C_4 R_4\right) + 2}$$

Parameters:

Q: $\frac{C_1 C_4 R_1 R_4 \sqrt{\frac{g_m}{C_1 C_4 R_4} + \frac{1}{C_1 C_4 R_1 R_4}}}{C_1 R_1 + C_4 R_1 R_4 g_m + C_4 R_4}$

wo: $\sqrt{\frac{R_1 g_m + 1}{C_1 C_4 R_1 R_4}}$

bandwidth: $\frac{\sqrt{\frac{R_1 g_m + 1}{C_1 C_4 R_1 R_4}} \left(C_1 R_1 + C_4 R_1 R_4 g_m + C_4 R_4\right)}{C_1 C_4 R_1 R_4 \sqrt{\frac{g_m}{C_1 C_4 R_4} + \frac{1}{C_1 C_4 R_1 R_4}}}$

K-LP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

K-HP: 0

K-BP: 0

Qz: None

Wz: None

4.3 LP-3 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_1 g_m}{2C_1 C_4 L_1 s^2 + 2C_4 L_1 g_m s + 2C_4}$$

Parameters:

Q: $\dfrac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$

wo: $\sqrt{\dfrac{1}{C_1 L_1}}$

bandwidth: $\dfrac{g_m}{C_1}$

K-LP: $\dfrac{L_1 g_m}{2C_4}$

K-HP: 0

K-BP: 0

Qz: None

Wz: None

4.4 LP-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1}, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_1 R_1 g_m}{2C_1 C_4 L_1 R_1 s^2 + 2C_4 R_1 + s \left(2C_4 L_1 R_1 g_m + 2C_4 L_1 \right)}$$

Parameters:

Q: $\dfrac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$

wo: $\sqrt{\dfrac{1}{C_1 L_1}}$

bandwidth: $\dfrac{R_1 g_m + 1}{C_1 R_1}$

K-LP: $\dfrac{L_1 g_m}{2C_4}$

K-HP: 0

K-BP: 0

Qz: None

Wz: None

5 BS

5.1 BS-1 $Z(s) = \left(R_1, \ \infty, \ \infty, \ \frac{R_4 \left(C_4 L_4 s^2 + 1 \right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_4 R_1 R_4 g_m s^2 + R_1 R_4 g_m}{2R_1 g_m + s^2 \left(2C_4 L_4 R_1 g_m + 2C_4 L_4 \right) + s \left(2C_4 R_1 R_4 g_m + 2C_4 R_4 \right) + 2}$$

Parameters:

Q: $\dfrac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4}$

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

bandwidth: $\dfrac{R_4}{L_4}$

K-LP: $\dfrac{R_1 R_4 g_m}{2R_1 g_m + 2}$

K-HP: $\dfrac{R_1 R_4 g_m}{2R_1 g_m + 2}$

K-BP: 0

Qz: None

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

5.2 BS-2 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_4 g_m s^2 + R_4 g_m}{2 C_1 L_1 g_m s^2 + 2 C_1 s + 2 g_m}$$

Parameters:

Q: $L_1 g_m \sqrt{\frac{1}{C_1 L_1}}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{1}{L_1 g_m}$

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

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

K-BP: 0

Qz: None

Wz: $\sqrt{\frac{1}{C_1 L_1}}$

5.3 BS-3 $Z(s) = \left(\frac{R_1 \left(C_1 L_1 s^2 + 1 \right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 R_4 g_m s^2 + R_1 R_4 g_m}{2 C_1 R_1 s + 2 R_1 g_m + s^2 \left(2 C_1 L_1 R_1 g_m + 2 C_1 L_1 \right) + 2}$$

Parameters:

Q: $\frac{L_1 R_1 g_m \sqrt{\frac{1}{C_1 L_1}} + L_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{R_1 \sqrt{\frac{1}{C_1 L_1}}}{L_1 R_1 g_m \sqrt{\frac{1}{C_1 L_1}} + L_1 \sqrt{\frac{1}{C_1 L_1}}}$

K-LP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

K-HP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

K-BP: 0

Qz: None

Wz: $\sqrt{\frac{1}{C_1 L_1}}$

6 GE

6.1 GE-1 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_4 g_m s^2 + C_1 R_1 R_4 g_m s + R_4 g_m}{2 C_1 L_1 g_m s^2 + 2 g_m + s \left(2 C_1 R_1 g_m + 2 C_1 \right)}$$

Parameters:

Q: $\frac{L_1 g_m \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{R_1 g_m + 1}{L_1 g_m}$

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

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

K-BP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

Qz: $\frac{L_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1}$

Wz: $\sqrt{\frac{1}{C_1 L_1}}$

6.2 GE-2 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 R_4 g_m s^2 + L_1 R_4 g_m s + R_1 R_4 g_m}{2 L_1 g_m s + 2 R_1 g_m + s^2 \left(2 C_1 L_1 R_1 g_m + 2 C_1 L_1 \right) + 2}$$

Parameters:

Q: $\frac{C_1 R_1 g_m \sqrt{\frac{1}{C_1 L_1}} + C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{g_m \sqrt{\frac{1}{C_1 L_1}}}{C_1 R_1 g_m \sqrt{\frac{1}{C_1 L_1}} + C_1 \sqrt{\frac{1}{C_1 L_1}}}$

K-LP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

K-HP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

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

Qz: $C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}$

Wz: $\sqrt{\frac{1}{C_1 L_1}}$

7 AP

8 INVALID-NUMER

8.1 INVALID-NUMER-1 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{R_4}{C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 R_1 R_4 g_m s + R_4 g_m}{2 g_m + s^2 \left(2 C_1 C_4 R_1 R_4 g_m + 2 C_1 C_4 R_4 \right) + s \left(2 C_1 R_1 g_m + 2 C_1 + 2 C_4 R_4 g_m \right)}$$

Parameters:

Q: $\frac{C_1 C_4 R_1 R_4 g_m \sqrt{\frac{g_m}{C_1 C_4 R_1 R_4 g_m + C_1 C_4 R_4}} + C_1 C_4 R_4 \sqrt{\frac{g_m}{C_1 C_4 R_1 R_4 g_m + C_1 C_4 R_4}}}{C_1 R_1 g_m + C_1 + C_4 R_4 g_m}$

wo: $\sqrt{\frac{g_m}{C_1 C_4 R_1 R_4 g_m + C_1 C_4 R_4}}$

bandwidth: $\frac{\sqrt{\frac{g_m}{C_1 C_4 R_1 R_4 g_m + C_1 C_4 R_4}} \left(C_1 R_1 g_m + C_1 + C_4 R_4 g_m \right)}{C_1 C_4 R_1 R_4 g_m \sqrt{\frac{g_m}{C_1 C_4 R_1 R_4 g_m + C_1 C_4 R_4}} + C_1 C_4 R_4 \sqrt{\frac{g_m}{C_1 C_4 R_1 R_4 g_m + C_1 C_4 R_4}}}$

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

K-HP: 0

K-BP: $\frac{C_1 R_1 R_4 g_m}{2 C_1 R_1 g_m + 2 C_1 + 2 C_4 R_4 g_m}$

Qz: 0

Wz: None

8.2 INVALID-NUMER-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_1 R_4 g_m s + L_1 g_m}{2 C_1 C_4 L_1 s^2 + 2 C_4 L_1 g_m s + 2 C_4}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{g_m}{C_1}$

K-LP: $\frac{L_1 g_m}{2 C_4}$

K-HP: 0

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

Qz: 0

Wz: None

8.3 INVALID-NUMER-3 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1}, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_1 R_1 R_4 g_m s + L_1 R_1 g_m}{2C_1 C_4 L_1 R_1 s^2 + 2C_4 R_1 + s\left(2C_4 L_1 R_1 g_m + 2C_4 L_1\right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$

K-LP: $\frac{L_1 g_m}{2C_4}$

K-HP: 0

K-BP: $\frac{R_1 R_4 g_m}{2R_1 g_m + 2}$

Qz: 0

Wz: None

9 INVALID-WZ

9.1 INVALID-WZ-1 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_1 L_4 g_m s^2 + L_1 g_m}{2C_1 C_4 L_1 s^2 + 2C_4 L_1 g_m s + 2C_4}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{g_m}{C_1}$

K-LP: $\frac{L_1 g_m}{2C_4}$

K-HP: $\frac{L_4 g_m}{2C_1}$

K-BP: 0

Qz: None

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

9.2 INVALID-WZ-2 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_1 L_4 g_m s^2 + C_4 L_1 R_4 g_m s + L_1 g_m}{2C_1 C_4 L_1 s^2 + 2C_4 L_1 g_m s + 2C_4}$$

Parameters:

Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{g_m}{C_1}$

K-LP: $\frac{L_1 g_m}{2C_4}$

K-HP: $\frac{L_4 g_m}{2C_1}$

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

Qz: $\frac{L_4 \sqrt{\frac{1}{C_1 L_1}}}{R_4}$

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

9.3 INVALID-WZ-3 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \infty,\ L_4 s + \frac{1}{C_4 s},\ \infty,\ \infty \right)$

$$H(s) = \frac{C_4 L_1 L_4 R_1 g_m s^2 + L_1 R_1 g_m}{2 C_1 C_4 L_1 R_1 s^2 + 2 C_4 R_1 + s \left(2 C_4 L_1 R_1 g_m + 2 C_4 L_1 \right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$

K-LP: $\frac{L_1 g_m}{2 C_4}$

K-HP: $\frac{L_4 g_m}{2 C_1}$

K-BP: 0

Qz: None

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

9.4 INVALID-WZ-4 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \infty,\ L_4 s + R_4 + \frac{1}{C_4 s},\ \infty,\ \infty \right)$

$$H(s) = \frac{C_4 L_1 L_4 R_1 g_m s^2 + C_4 L_1 R_1 R_4 g_m s + L_1 R_1 g_m}{2 C_1 C_4 L_1 R_1 s^2 + 2 C_4 R_1 + s \left(2 C_4 L_1 R_1 g_m + 2 C_4 L_1 \right)}$$

Parameters:

Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$

wo: $\sqrt{\frac{1}{C_1 L_1}}$

bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$

K-LP: $\frac{L_1 g_m}{2 C_4}$

K-HP: $\frac{L_4 g_m}{2 C_1}$

K-BP: $\frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$

Qz: $\frac{L_4 \sqrt{\frac{1}{C_1 L_1}}}{R_4}$

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

10 INVALID-ORDER

10.1 INVALID-ORDER-1 $Z(s) = (R_1,\ \infty,\ \infty,\ R_4,\ \infty,\ \infty)$

$$H(s) = \frac{R_1 R_4 g_m}{2 R_1 g_m + 2}$$

10.2 INVALID-ORDER-2 $Z(s) = \left(R_1,\ \infty,\ \infty,\ \frac{1}{C_4 s},\ \infty,\ \infty \right)$

$$H(s) = \frac{R_1 g_m}{s \left(2 C_4 R_1 g_m + 2 C_4 \right)}$$

10.3 INVALID-ORDER-3 $Z(s) = \left(R_1,\ \infty,\ \infty,\ \frac{R_4}{C_4 R_4 s + 1},\ \infty,\ \infty \right)$

$$H(s) = \frac{R_1 R_4 g_m}{2 R_1 g_m + s \left(2 C_4 R_1 R_4 g_m + 2 C_4 R_4 \right) + 2}$$

10.4 INVALID-ORDER-4 $Z(s) = \left(R_1, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 R_1 R_4 g_m s + R_1 g_m}{s\left(2C_4 R_1 g_m + 2C_4\right)}$$

10.5 INVALID-ORDER-5 $Z(s) = \left(R_1, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_4 R_1 g_m s^2 + R_1 g_m}{s\left(2C_4 R_1 g_m + 2C_4\right)}$$

10.6 INVALID-ORDER-6 $Z(s) = \left(R_1, \ \infty, \ \infty, \ \frac{L_4 s}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_4 R_1 g_m s}{2R_1 g_m + s^2\left(2C_4 L_4 R_1 g_m + 2C_4 L_4\right) + 2}$$

10.7 INVALID-ORDER-7 $Z(s) = \left(R_1, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_4 R_1 g_m s^2 + C_4 R_1 R_4 g_m s + R_1 g_m}{s\left(2C_4 R_1 g_m + 2C_4\right)}$$

10.8 INVALID-ORDER-8 $Z(s) = \left(R_1, \ \infty, \ \infty, \ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_4 R_1 R_4 g_m s^2 + L_4 R_1 g_m s + R_1 R_4 g_m}{2R_1 g_m + s^2\left(2C_4 L_4 R_1 g_m + 2C_4 L_4\right) + 2}$$

10.9 INVALID-ORDER-9 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_1 R_4 g_m s}{2L_1 g_m s + 2}$$

10.10 INVALID-ORDER-10 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_1 g_m}{2C_4 L_1 g_m s + 2C_4}$$

10.11 INVALID-ORDER-11 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_1 R_4 g_m s + L_1 g_m}{2C_4 L_1 g_m s + 2C_4}$$

10.12 INVALID-ORDER-12 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_1 L_4 g_m s^2 + L_1 g_m}{2C_4 L_1 g_m s + 2C_4}$$

10.13 INVALID-ORDER-13 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ \frac{L_4 s}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_1 L_4 g_m s^2}{2C_4 L_1 L_4 g_m s^3 + 2C_4 L_4 s^2 + 2L_1 g_m s + 2}$$

10.14 INVALID-ORDER-14 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_1 L_4 g_m s^2 + C_4 L_1 R_4 g_m s + L_1 g_m}{2 C_4 L_1 g_m s + 2 C_4}$$

10.15 INVALID-ORDER-15 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_1 L_4 R_4 g_m s^2}{2 C_4 L_1 L_4 R_4 g_m s^3 + 2 R_4 + s^2 \left(2 C_4 L_4 R_4 + 2 L_1 L_4 g_m\right) + s \left(2 L_1 R_4 g_m + 2 L_4\right)}$$

10.16 INVALID-ORDER-16 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_1 L_4 R_4 g_m s^3 + L_1 L_4 g_m s^2 + L_1 R_4 g_m s}{2 C_4 L_1 L_4 g_m s^3 + 2 C_4 L_4 s^2 + 2 L_1 g_m s + 2}$$

10.17 INVALID-ORDER-17 $Z(s) = \left(L_1 s, \ \infty, \ \infty, \ \frac{R_4\left(C_4 L_4 s^2 + 1\right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_1 L_4 R_4 g_m s^3 + L_1 R_4 g_m s}{2 C_4 L_1 L_4 g_m s^3 + s^2 \left(2 C_4 L_1 R_4 g_m + 2 C_4 L_4\right) + s \left(2 C_4 R_4 + 2 L_1 g_m\right) + 2}$$

10.18 INVALID-ORDER-18 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty\right)$

$$H(s) = \frac{R_4 g_m}{2 C_1 s + 2 g_m}$$

10.19 INVALID-ORDER-19 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{g_m}{2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.20 INVALID-ORDER-20 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 R_4 g_m s + g_m}{2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.21 INVALID-ORDER-21 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_4 g_m s^2 + g_m}{2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.22 INVALID-ORDER-22 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{L_4 s}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty\right)$

$$H(s) = \frac{L_4 g_m s}{2 C_1 C_4 L_4 s^3 + 2 C_1 s + 2 C_4 L_4 g_m s^2 + 2 g_m}$$

10.23 INVALID-ORDER-23 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty\right)$

$$H(s) = \frac{C_4 L_4 g_m s^2 + C_4 R_4 g_m s + g_m}{2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.24 INVALID-ORDER-24 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_4 R_4 g_m s}{2 C_1 C_4 L_4 R_4 s^3 + 2 R_4 g_m + s^2 \left(2 C_1 L_4 + 2 C_4 L_4 R_4 g_m \right) + s \left(2 C_1 R_4 + 2 L_4 g_m \right)}$$

10.25 INVALID-ORDER-25 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_4 R_4 g_m s^2 + L_4 g_m s + R_4 g_m}{2 C_1 C_4 L_4 s^3 + 2 C_1 s + 2 C_4 L_4 g_m s^2 + 2 g_m}$$

10.26 INVALID-ORDER-26 $Z(s) = \left(\frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{R_4 \left(C_4 L_4 s^2 + 1 \right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_4 R_4 g_m s^2 + R_4 g_m}{2 C_1 C_4 L_4 s^3 + 2 g_m + s^2 \left(2 C_1 C_4 R_4 + 2 C_4 L_4 g_m \right) + s \left(2 C_1 + 2 C_4 R_4 g_m \right)}$$

10.27 INVALID-ORDER-27 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ R_4, \ \infty, \ \infty \right)$

$$H(s) = \frac{R_1 R_4 g_m}{2 C_1 R_1 s + 2 R_1 g_m + 2}$$

10.28 INVALID-ORDER-28 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{R_1 g_m}{2 C_1 C_4 R_1 s^2 + s \left(2 C_4 R_1 g_m + 2 C_4 \right)}$$

10.29 INVALID-ORDER-29 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 R_1 R_4 g_m s + R_1 g_m}{2 C_1 C_4 R_1 s^2 + s \left(2 C_4 R_1 g_m + 2 C_4 \right)}$$

10.30 INVALID-ORDER-30 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_4 R_1 g_m s^2 + R_1 g_m}{2 C_1 C_4 R_1 s^2 + s \left(2 C_4 R_1 g_m + 2 C_4 \right)}$$

10.31 INVALID-ORDER-31 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{L_4 s}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_4 R_1 g_m s}{2 C_1 C_4 L_4 R_1 s^3 + 2 C_1 R_1 s + 2 R_1 g_m + s^2 \left(2 C_4 L_4 R_1 g_m + 2 C_4 L_4 \right) + 2}$$

10.32 INVALID-ORDER-32 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_4 R_1 g_m s^2 + C_4 R_1 R_4 g_m s + R_1 g_m}{2 C_1 C_4 R_1 s^2 + s \left(2 C_4 R_1 g_m + 2 C_4 \right)}$$

10.33 INVALID-ORDER-33 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \ \infty, \ \infty \right)$

$$H(s) = \frac{L_4 R_1 R_4 g_m s}{2 C_1 C_4 L_4 R_1 R_4 s^3 + 2 R_1 R_4 g_m + 2 R_4 + s^2 \left(2 C_1 L_4 R_1 + 2 C_4 L_4 R_1 R_4 g_m + 2 C_4 L_4 R_4 \right) + s \left(2 C_1 R_1 R_4 + 2 L_4 R_1 g_m + 2 L_4 \right)}$$

10.34 **INVALID-ORDER-34** $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \; \infty, \; \infty, \; \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_4 L_4 R_1 R_4 g_m s^2 + L_4 R_1 g_m s + R_1 R_4 g_m}{2 C_1 C_4 L_4 R_1 s^3 + 2 C_1 R_1 s + 2 R_1 g_m + s^2 \left(2 C_4 L_4 R_1 g_m + 2 C_4 L_4 \right) + 2}$$

10.35 **INVALID-ORDER-35** $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \; \infty, \; \infty, \; \frac{R_4 \left(C_4 L_4 s^2 + 1 \right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_4 L_4 R_1 R_4 g_m s^2 + R_1 R_4 g_m}{2 C_1 C_4 L_4 R_1 s^3 + 2 R_1 g_m + s^2 \left(2 C_1 C_4 R_1 R_4 + 2 C_4 L_4 R_1 g_m + 2 C_4 L_4 \right) + s \left(2 C_1 R_1 + 2 C_4 R_1 R_4 g_m + 2 C_4 R_4 \right) + 2}$$

10.36 **INVALID-ORDER-36** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; R_4, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 R_1 R_4 g_m s + R_4 g_m}{2 g_m + s \left(2 C_1 R_1 g_m + 2 C_1 \right)}$$

10.37 **INVALID-ORDER-37** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; \frac{1}{C_4 s}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 R_1 g_m s + g_m}{2 C_4 g_m s + s^2 \left(2 C_1 C_4 R_1 g_m + 2 C_1 C_4 \right)}$$

10.38 **INVALID-ORDER-38** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; R_4 + \frac{1}{C_4 s}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 C_4 R_1 R_4 g_m s^2 + g_m + s \left(C_1 R_1 g_m + C_4 R_4 g_m \right)}{2 C_4 g_m s + s^2 \left(2 C_1 C_4 R_1 g_m + 2 C_1 C_4 \right)}$$

10.39 **INVALID-ORDER-39** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; L_4 s + \frac{1}{C_4 s}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 C_4 L_4 R_1 g_m s^3 + C_1 R_1 g_m s + C_4 L_4 g_m s^2 + g_m}{2 C_4 g_m s + s^2 \left(2 C_1 C_4 R_1 g_m + 2 C_1 C_4 \right)}$$

10.40 **INVALID-ORDER-40** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; \frac{L_4 s}{C_4 L_4 s^2 + 1}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 L_4 R_1 g_m s^2 + L_4 g_m s}{2 C_4 L_4 g_m s^2 + 2 g_m + s^3 \left(2 C_1 C_4 L_4 R_1 g_m + 2 C_1 C_4 L_4 \right) + s \left(2 C_1 R_1 g_m + 2 C_1 \right)}$$

10.41 **INVALID-ORDER-41** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; L_4 s + R_4 + \frac{1}{C_4 s}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 C_4 L_4 R_1 g_m s^3 + g_m + s^2 \left(C_1 C_4 R_1 R_4 g_m + C_4 L_4 g_m \right) + s \left(C_1 R_1 g_m + C_4 R_4 g_m \right)}{2 C_4 g_m s + s^2 \left(2 C_1 C_4 R_1 g_m + 2 C_1 C_4 \right)}$$

10.42 **INVALID-ORDER-42** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 L_4 R_1 R_4 g_m s^2 + L_4 R_4 g_m s}{2 R_4 g_m + s^3 \left(2 C_1 C_4 L_4 R_1 R_4 g_m + 2 C_1 C_4 L_4 R_4 \right) + s^2 \left(2 C_1 L_4 R_1 g_m + 2 C_1 L_4 + 2 C_4 L_4 R_4 g_m \right) + s \left(2 C_1 R_1 R_4 g_m + 2 C_1 R_4 + 2 L_4 g_m \right)}$$

10.43 **INVALID-ORDER-43** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \; \infty, \; \infty, \; \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \; \infty, \; \infty \right)$

$$H(s) = \frac{C_1 C_4 L_4 R_1 R_4 g_m s^3 + R_4 g_m + s^2 \left(C_1 L_4 R_1 g_m + C_4 L_4 R_4 g_m \right) + s \left(C_1 R_1 R_4 g_m + L_4 g_m \right)}{2 C_4 L_4 g_m s^2 + 2 g_m + s^3 \left(2 C_1 C_4 L_4 R_1 g_m + 2 C_1 C_4 L_4 \right) + s \left(2 C_1 R_1 g_m + 2 C_1 \right)}$$

10.44 **INVALID-ORDER-44** $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{R_4\left(C_4 L_4 s^2 + 1\right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_4 R_1 R_4 g_m s^3 + C_1 R_1 R_4 g_m s + C_4 L_4 R_4 g_m s^2 + R_4 g_m}{2 g_m + s^3 \left(2 C_1 C_4 L_4 R_1 g_m + 2 C_1 C_4 L_4\right) + s^2 \left(2 C_1 C_4 R_1 R_4 g_m + 2 C_1 C_4 R_4 + 2 C_4 L_4 g_m\right) + s \left(2 C_1 R_1 g_m + 2 C_1 + 2 C_4 R_4 g_m\right)}$$

10.45 **INVALID-ORDER-45** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 g_m s^2 + g_m}{2 C_1 C_4 L_1 g_m s^3 + 2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.46 **INVALID-ORDER-46** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{R_4}{C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_4 g_m s^2 + R_4 g_m}{2 C_1 C_4 L_1 R_4 g_m s^3 + 2 g_m + s^2 \left(2 C_1 C_4 R_4 + 2 C_1 L_1 g_m\right) + s \left(2 C_1 + 2 C_4 R_4 g_m\right)}$$

10.47 **INVALID-ORDER-47** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 R_4 g_m s^3 + C_1 L_1 g_m s^2 + C_4 R_4 g_m s + g_m}{2 C_1 C_4 L_1 g_m s^3 + 2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.48 **INVALID-ORDER-48** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 g_m s^4 + g_m + s^2 \left(C_1 L_1 g_m + C_4 L_4 g_m\right)}{2 C_1 C_4 L_1 g_m s^3 + 2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.49 **INVALID-ORDER-49** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{L_4 s}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_4 g_m s^3 + L_4 g_m s}{2 C_1 C_4 L_1 L_4 g_m s^4 + 2 C_1 C_4 L_4 s^3 + 2 C_1 s + 2 g_m + s^2 \left(2 C_1 L_1 g_m + 2 C_4 L_4 g_m\right)}$$

10.50 **INVALID-ORDER-50** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 g_m s^4 + C_1 C_4 L_1 R_4 g_m s^3 + C_4 R_4 g_m s + g_m + s^2 \left(C_1 L_1 g_m + C_4 L_4 g_m\right)}{2 C_1 C_4 L_1 g_m s^3 + 2 C_1 C_4 s^2 + 2 C_4 g_m s}$$

10.51 **INVALID-ORDER-51** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_4 R_4 g_m s^3 + L_4 R_4 g_m s}{2 C_1 C_4 L_1 L_4 R_4 g_m s^4 + 2 R_4 g_m + s^3 \left(2 C_1 C_4 L_4 R_4 + 2 C_1 L_1 L_4 g_m\right) + s^2 \left(2 C_1 L_1 R_4 g_m + 2 C_1 L_4 + 2 C_4 L_4 R_4 g_m\right) + s \left(2 C_1 R_4 + 2 L_4 g_m\right)}$$

10.52 **INVALID-ORDER-52** $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \ \infty, \ \infty, \ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_4 g_m s^4 + C_1 L_1 L_4 g_m s^3 + L_4 g_m s + R_4 g_m + s^2 \left(C_1 L_1 R_4 g_m + C_4 L_4 R_4 g_m\right)}{2 C_1 C_4 L_1 L_4 g_m s^4 + 2 C_1 C_4 L_4 s^3 + 2 C_1 s + 2 g_m + s^2 \left(2 C_1 L_1 g_m + 2 C_4 L_4 g_m\right)}$$

10.53 INVALID-ORDER-53 $Z(s) = \left(L_1 s + \frac{1}{C_1 s},\ \infty,\ \infty,\ \frac{R_4\left(C_4 L_4 s^2 + 1\right)}{C_4 L_4 s^2 + C_4 R_4 s + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_4 g_m s^4 + R_4 g_m + s^2\left(C_1 L_1 R_4 g_m + C_4 L_4 R_4 g_m\right)}{2 C_1 C_4 L_1 L_4 g_m s^4 + 2 g_m + s^3\left(2 C_1 C_4 L_1 R_4 g_m + 2 C_1 C_4 L_4\right) + s^2\left(2 C_1 C_4 R_4 + 2 C_1 L_1 g_m + 2 C_4 L_4 g_m\right) + s\left(2 C_1 + 2 C_4 R_4 g_m\right)}$$

10.54 INVALID-ORDER-54 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \infty,\ \frac{R_4}{C_4 R_4 s + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_4 g_m s}{2 C_1 C_4 L_1 R_4 s^3 + s^2\left(2 C_1 L_1 + 2 C_4 L_1 R_4 g_m\right) + s\left(2 C_4 R_4 + 2 L_1 g_m\right) + 2}$$

10.55 INVALID-ORDER-55 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \infty,\ \frac{L_4 s}{C_4 L_4 s^2 + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_4 g_m s^2}{2 C_1 C_4 L_1 L_4 s^4 + 2 C_4 L_1 L_4 g_m s^3 + 2 L_1 g_m s + s^2\left(2 C_1 L_1 + 2 C_4 L_4\right) + 2}$$

10.56 INVALID-ORDER-56 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \infty,\ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4},\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_4 R_4 g_m s^2}{2 C_1 C_4 L_1 L_4 R_4 s^4 + 2 R_4 + s^3\left(2 C_1 L_1 L_4 + 2 C_4 L_1 L_4 R_4 g_m\right) + s^2\left(2 C_1 L_1 R_4 + 2 C_4 L_4 R_4 + 2 L_1 L_4 g_m\right) + s\left(2 L_1 R_4 g_m + 2 L_4\right)}$$

10.57 INVALID-ORDER-57 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \infty,\ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_4 L_1 L_4 R_4 g_m s^3 + L_1 L_4 g_m s^2 + L_1 R_4 g_m s}{2 C_1 C_4 L_1 L_4 s^4 + 2 C_4 L_1 L_4 g_m s^3 + 2 L_1 g_m s + s^2\left(2 C_1 L_1 + 2 C_4 L_4\right) + 2}$$

10.58 INVALID-ORDER-58 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1},\ \infty,\ \infty,\ \frac{R_4\left(C_4 L_4 s^2 + 1\right)}{C_4 L_4 s^2 + C_4 R_4 s + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_4 L_1 L_4 R_4 g_m s^3 + L_1 R_4 g_m s}{2 C_1 C_4 L_1 L_4 s^4 + s^3\left(2 C_1 C_4 L_1 R_4 + 2 C_4 L_1 L_4 g_m\right) + s^2\left(2 C_1 L_1 + 2 C_4 L_1 R_4 g_m + 2 C_4 L_4\right) + s\left(2 C_4 R_4 + 2 L_1 g_m\right) + 2}$$

10.59 INVALID-ORDER-59 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ \frac{1}{C_4 s},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 g_m s^2 + C_1 R_1 g_m s + g_m}{2 C_1 C_4 L_1 g_m s^3 + 2 C_4 g_m s + s^2\left(2 C_1 C_4 R_1 g_m + 2 C_1 C_4\right)}$$

10.60 INVALID-ORDER-60 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ \frac{R_4}{C_4 R_4 s + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 R_4 g_m s^2 + C_1 R_1 R_4 g_m s + R_4 g_m}{2 C_1 C_4 L_1 R_4 g_m s^3 + 2 g_m + s^2\left(2 C_1 C_4 R_1 R_4 g_m + 2 C_1 C_4 R_4 + 2 C_1 L_1 g_m\right) + s\left(2 C_1 R_1 g_m + 2 C_1 + 2 C_4 R_4 g_m\right)}$$

10.61 INVALID-ORDER-61 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ R_4 + \frac{1}{C_4 s},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_4 L_1 R_4 g_m s^3 + g_m + s^2\left(C_1 C_4 R_1 R_4 g_m + C_1 L_1 g_m\right) + s\left(C_1 R_1 g_m + C_4 R_4 g_m\right)}{2 C_1 C_4 L_1 g_m s^3 + 2 C_4 g_m s + s^2\left(2 C_1 C_4 R_1 g_m + 2 C_1 C_4\right)}$$

10.62 INVALID-ORDER-62 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ L_4 s + \frac{1}{C_4 s},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 g_m s^4 + C_1 C_4 L_4 R_1 g_m s^3 + C_1 R_1 g_m s + g_m + s^2 \left(C_1 L_1 g_m + C_4 L_4 g_m\right)}{2C_1 C_4 L_1 g_m s^3 + 2C_4 g_m s + s^2 \left(2C_1 C_4 R_1 g_m + 2C_1 C_4\right)}$$

10.63 INVALID-ORDER-63 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ \frac{L_4 s}{C_4 L_4 s^2 + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_4 g_m s^3 + C_1 L_4 R_1 g_m s^2 + L_4 g_m s}{2C_1 C_4 L_1 L_4 g_m s^4 + 2g_m + s^3 \left(2C_1 C_4 L_4 R_1 g_m + 2C_1 C_4 L_4\right) + s^2 \left(2C_1 L_1 g_m + 2C_4 L_4 g_m\right) + s \left(2C_1 R_1 g_m + 2C_1\right)}$$

10.64 INVALID-ORDER-64 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ L_4 s + R_4 + \frac{1}{C_4 s},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 g_m s^4 + g_m + s^3 \left(C_1 C_4 L_1 R_4 g_m + C_1 C_4 L_4 R_1 g_m\right) + s^2 \left(C_1 C_4 R_1 R_4 g_m + C_1 L_1 g_m + C_4 L_4 g_m\right) + s \left(C_1 R_1 g_m + C_4 R_4 g_m\right)}{2C_1 C_4 L_1 g_m s^3 + 2C_4 g_m s + s^2 \left(2C_1 C_4 R_1 g_m + 2C_1 C_4\right)}$$

10.65 INVALID-ORDER-65 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 L_1 L_4 R_4 g_m s^3 + C_1 L_4 R_1 R_4 g_m s^2 + L_4 R_4 g_m s}{2C_1 C_4 L_1 L_4 R_4 g_m s^4 + 2R_4 g_m + s^3 \left(2C_1 C_4 L_4 R_1 R_4 g_m + 2C_1 C_4 L_4 R_4 + 2C_1 L_1 L_4 g_m\right) + s^2 \left(2C_1 L_1 R_4 g_m + 2C_1 L_4 R_1 g_m + 2C_1 L_4 + 2C_4 L_4 R_4 g_m\right) + s \left(2C_1 R_1 R_4 g_m + 2C_1 R_4 + 2L_4 g_m\right)}$$

10.66 INVALID-ORDER-66 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_4 g_m s^4 + R_4 g_m + s^3 \left(C_1 C_4 L_4 R_1 R_4 g_m + C_1 L_1 L_4 g_m\right) + s^2 \left(C_1 L_1 R_4 g_m + C_1 L_4 R_1 g_m + C_4 L_4 R_4 g_m\right) + s \left(C_1 R_1 R_4 g_m + L_4 g_m\right)}{2C_1 C_4 L_1 L_4 g_m s^4 + 2g_m + s^3 \left(2C_1 C_4 L_4 R_1 g_m + 2C_1 C_4 L_4\right) + s^2 \left(2C_1 L_1 g_m + 2C_4 L_4 g_m\right) + s \left(2C_1 R_1 g_m + 2C_1\right)}$$

10.67 INVALID-ORDER-67 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s},\ \infty,\ \infty,\ \frac{R_4 \left(C_4 L_4 s^2 + 1\right)}{C_4 L_4 s^2 + C_4 R_4 s + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_4 g_m s^4 + C_1 C_4 L_4 R_1 R_4 g_m s^3 + C_1 R_1 R_4 g_m s + R_4 g_m + s^2 \left(C_1 L_1 R_4 g_m + C_4 L_4 R_4 g_m\right)}{2C_1 C_4 L_1 L_4 g_m s^4 + 2g_m + s^3 \left(2C_1 C_4 L_1 R_4 g_m + 2C_1 C_4 L_4 R_1 g_m + 2C_1 C_4 L_4\right) + s^2 \left(2C_1 C_4 R_1 R_4 g_m + 2C_1 C_4 R_4 + 2C_1 L_1 g_m + 2C_4 L_4 g_m\right) + s \left(2C_1 R_1 g_m + 2C_1 + 2C_4 R_4 g_m\right)}$$

10.68 INVALID-ORDER-68 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \infty,\ \frac{R_4}{C_4 R_4 s + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 R_1 R_4 g_m s}{2C_1 C_4 L_1 R_1 R_4 s^3 + 2R_1 + s^2 \left(2C_1 L_1 R_1 + 2C_4 L_1 R_1 R_4 g_m + 2C_4 L_1 R_4\right) + s \left(2C_4 R_1 R_4 + 2L_1 R_1 g_m + 2L_1\right)}$$

10.69 INVALID-ORDER-69 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \infty,\ \frac{L_4 s}{C_4 L_4 s^2 + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_4 R_1 g_m s^2}{2C_1 C_4 L_1 L_4 R_1 s^4 + 2R_1 + s^3 \left(2C_4 L_1 L_4 R_1 g_m + 2C_4 L_1 L_4\right) + s^2 \left(2C_1 L_1 R_1 + 2C_4 L_4 R_1\right) + s \left(2L_1 R_1 g_m + 2L_1\right)}$$

10.70 INVALID-ORDER-70 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \infty,\ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4},\ \infty,\ \infty\right)$

$$H(s) = \frac{L_1 L_4 R_1 R_4 g_m s^2}{2C_1 C_4 L_1 L_4 R_1 R_4 s^4 + 2R_1 R_4 + s^3 \left(2C_1 L_1 L_4 R_1 + 2C_4 L_1 L_4 R_1 R_4 g_m + 2C_4 L_1 L_4 R_4\right) + s^2 \left(2C_1 L_1 R_1 R_4 + 2C_4 L_4 R_1 R_4 + 2L_1 L_4 R_1 g_m + 2L_1 L_4\right) + s \left(2L_1 R_1 R_4 g_m + 2L_1 R_4 + 2L_4 R_1\right)}$$

10.71 INVALID-ORDER-71 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1},\ \infty,\ \infty,\ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1},\ \infty,\ \infty\right)$

$$H(s) = \frac{C_4 L_1 L_4 R_1 R_4 g_m s^3 + L_1 L_4 R_1 g_m s^2 + L_1 R_1 R_4 g_m s}{2C_1 C_4 L_1 L_4 R_1 s^4 + 2R_1 + s^3 \left(2C_4 L_1 L_4 R_1 g_m + 2C_4 L_1 L_4\right) + s^2 \left(2C_1 L_1 R_1 + 2C_4 L_4 R_1\right) + s \left(2L_1 R_1 g_m + 2L_1\right)}$$

10.72 INVALID-ORDER-72 $Z(s) = \left(\frac{L_1 R_1 s}{C_1 L_1 R_1 s^2 + L_1 s + R_1}, \ \infty, \ \infty, \ \frac{R_4 \left(C_4 L_4 s^2 + 1 \right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_4 L_1 L_4 R_1 R_4 g_m s^3 + L_1 R_1 R_4 g_m s}{2C_1 C_4 L_1 L_4 R_1 s^4 + 2R_1 + s^3 \left(2C_1 C_4 L_1 R_1 R_4 + 2C_4 L_1 L_4 R_1 g_m + 2C_4 L_1 L_4 \right) + s^2 \left(2C_1 L_1 R_1 + 2C_4 L_1 R_1 R_4 g_m + 2C_4 L_1 R_4 + 2C_4 L_4 R_1 \right) + s \left(2C_4 R_1 R_4 + 2L_1 R_1 g_m + 2L_1 \right)}$$

10.73 INVALID-ORDER-73 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 g_m s^2 + L_1 g_m s + R_1 g_m}{2C_4 L_1 g_m s^2 + s^3 \left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1 \right) + s \left(2C_4 R_1 g_m + 2C_4 \right)}$$

10.74 INVALID-ORDER-74 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ \frac{R_4}{C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 R_4 g_m s^2 + L_1 R_4 g_m s + R_1 R_4 g_m}{2R_1 g_m + s^3 \left(2C_1 C_4 L_1 R_1 R_4 g_m + 2C_1 C_4 L_1 R_4 \right) + s^2 \left(2C_1 L_1 R_1 g_m + 2C_1 L_1 + 2C_4 L_1 R_4 g_m \right) + s \left(2C_4 R_1 R_4 g_m + 2C_4 R_4 + 2L_1 g_m \right) + 2}$$

10.75 INVALID-ORDER-75 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 R_1 R_4 g_m s^3 + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_4 L_1 R_4 g_m \right) + s \left(C_4 R_1 R_4 g_m + L_1 g_m \right)}{2C_4 L_1 g_m s^2 + s^3 \left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1 \right) + s \left(2C_4 R_1 g_m + 2C_4 \right)}$$

10.76 INVALID-ORDER-76 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 g_m s^4 + C_4 L_1 L_4 g_m s^3 + L_1 g_m s + R_1 g_m + s^2 \left(C_1 L_1 R_1 g_m + C_4 L_4 R_1 g_m \right)}{2C_4 L_1 g_m s^2 + s^3 \left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1 \right) + s \left(2C_4 R_1 g_m + 2C_4 \right)}$$

10.77 INVALID-ORDER-77 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ \frac{L_4 s}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_4 R_1 g_m s^3 + L_1 L_4 g_m s^2 + L_4 R_1 g_m s}{2C_4 L_1 L_4 g_m s^3 + 2L_1 g_m s + 2R_1 g_m + s^4 \left(2C_1 C_4 L_1 L_4 R_1 g_m + 2C_1 C_4 L_1 L_4 \right) + s^2 \left(2C_1 L_1 R_1 g_m + 2C_1 L_1 + 2C_4 L_4 R_1 g_m + 2C_4 L_4 \right) + 2}$$

10.78 INVALID-ORDER-78 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 g_m s^4 + R_1 g_m + s^3 \left(C_1 C_4 L_1 R_1 R_4 g_m + C_4 L_1 L_4 g_m \right) + s^2 \left(C_1 L_1 R_1 g_m + C_4 L_1 R_4 g_m + C_4 L_4 R_1 g_m \right) + s \left(C_4 R_1 R_4 g_m + L_1 g_m \right)}{2C_4 L_1 g_m s^2 + s^3 \left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1 \right) + s \left(2C_4 R_1 g_m + 2C_4 \right)}$$

10.79 INVALID-ORDER-79 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_4 R_1 R_4 g_m s^3 + L_1 L_4 R_4 g_m s^2 + L_4 R_1 R_4 g_m s}{2R_1 R_4 g_m + 2R_4 + s^4 \left(2C_1 C_4 L_1 L_4 R_1 R_4 g_m + 2C_1 C_4 L_1 L_4 R_4 \right) + s^3 \left(2C_1 L_1 L_4 R_1 g_m + 2C_1 L_1 L_4 + 2C_4 L_1 L_4 R_4 g_m \right) + s^2 \left(2C_1 L_1 R_1 R_4 g_m + 2C_1 L_1 R_4 + 2C_4 L_4 R_1 R_4 g_m + 2C_4 L_4 R_4 + 2L_1 L_4 g_m \right) + s \left(2L_1 R_4 g_m + 2L_4 R_1 g_m + 2L_4 \right)}$$

10.80 INVALID-ORDER-80 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 R_4 g_m s^4 + R_1 R_4 g_m + s^3 \left(C_1 L_1 L_4 R_1 g_m + C_4 L_1 L_4 R_4 g_m \right) + s^2 \left(C_1 L_1 R_1 R_4 g_m + C_4 L_4 R_1 R_4 g_m + L_1 L_4 g_m \right) + s \left(L_1 R_4 g_m + L_4 R_1 g_m \right)}{2C_4 L_1 L_4 g_m s^3 + 2L_1 g_m s + 2R_1 g_m + s^4 \left(2C_1 C_4 L_1 L_4 R_1 g_m + 2C_1 C_4 L_1 L_4 \right) + s^2 \left(2C_1 L_1 R_1 g_m + 2C_1 L_1 + 2C_4 L_4 R_1 g_m + 2C_4 L_4 \right) + 2}$$

10.81 INVALID-ORDER-81 $Z(s) = \left(\frac{C_1 L_1 R_1 s^2 + L_1 s + R_1}{C_1 L_1 s^2 + 1}, \ \infty, \ \infty, \ \frac{R_4\left(C_4 L_4 s^2 + 1\right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 R_4 g_m s^4 + C_4 L_1 L_4 R_4 g_m s^3 + L_1 R_4 g_m s + R_1 R_4 g_m + s^2\left(C_1 L_1 R_1 R_4 g_m + C_4 L_4 R_1 R_4 g_m\right)}{2R_1 g_m + s^4\left(2C_1 C_4 L_1 L_4 R_1 g_m + 2C_1 C_4 L_1 L_4\right) + s^3\left(2C_1 C_4 L_1 R_1 R_4 g_m + 2C_1 C_4 L_1 R_4 + 2C_4 L_1 L_4 g_m\right) + s^2\left(2C_1 L_1 R_1 g_m + 2C_1 L_1 + 2C_4 L_1 R_4 g_m + 2C_4 L_4 R_1 g_m + 2C_4 L_4\right) + s\left(2C_4 R_1 R_4 g_m + 2C_4 R_4 + 2L_1 g_m\right) + 2}$$

10.82 INVALID-ORDER-82 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 g_m s^2 + R_1 g_m}{2C_1 C_4 R_1 s^2 + s^3\left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1\right) + s\left(2C_4 R_1 g_m + 2C_4\right)}$$

10.83 INVALID-ORDER-83 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{R_4}{C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 R_1 R_4 g_m s^2 + R_1 R_4 g_m}{2R_1 g_m + s^3\left(2C_1 C_4 L_1 R_1 R_4 g_m + 2C_1 C_4 L_1 R_4\right) + s^2\left(2C_1 C_4 R_1 R_4 + 2C_1 L_1 R_1 g_m + 2C_1 L_1\right) + s\left(2C_1 R_1 + 2C_4 R_1 R_4 g_m + 2C_4 R_4\right) + 2}$$

10.84 INVALID-ORDER-84 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 R_1 R_4 g_m s^3 + C_1 L_1 R_1 g_m s^2 + C_4 R_1 R_4 g_m s + R_1 g_m}{2C_1 C_4 R_1 s^2 + s^3\left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1\right) + s\left(2C_4 R_1 g_m + 2C_4\right)}$$

10.85 INVALID-ORDER-85 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ L_4 s + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 g_m s^4 + R_1 g_m + s^2\left(C_1 L_1 R_1 g_m + C_4 L_4 R_1 g_m\right)}{2C_1 C_4 R_1 s^2 + s^3\left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1\right) + s\left(2C_4 R_1 g_m + 2C_4\right)}$$

10.86 INVALID-ORDER-86 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{L_4 s}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_4 R_1 g_m s^3 + L_4 R_1 g_m s}{2C_1 C_4 L_4 R_1 s^3 + 2C_1 R_1 s + 2R_1 g_m + s^4\left(2C_1 C_4 L_1 L_4 R_1 g_m + 2C_1 C_4 L_1 L_4\right) + s^2\left(2C_1 L_1 R_1 g_m + 2C_1 L_1 + 2C_4 L_4 R_1 g_m + 2C_4 L_4\right) + 2}$$

10.87 INVALID-ORDER-87 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ L_4 s + R_4 + \frac{1}{C_4 s}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 g_m s^4 + C_1 C_4 L_1 R_1 R_4 g_m s^3 + C_4 R_1 R_4 g_m s + R_1 g_m + s^2\left(C_1 L_1 R_1 g_m + C_4 L_4 R_1 g_m\right)}{2C_1 C_4 R_1 s^2 + s^3\left(2C_1 C_4 L_1 R_1 g_m + 2C_1 C_4 L_1\right) + s\left(2C_4 R_1 g_m + 2C_4\right)}$$

10.88 INVALID-ORDER-88 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 L_1 L_4 R_1 R_4 g_m s^3 + L_4 R_1 R_4 g_m s}{2R_1 R_4 g_m + 2R_4 + s^4\left(2C_1 C_4 L_1 L_4 R_1 R_4 g_m + 2C_1 C_4 L_1 L_4 R_4\right) + s^3\left(2C_1 C_4 L_4 R_1 R_4 + 2C_1 L_1 L_4 R_1 g_m + 2C_1 L_1 L_4\right) + s^2\left(2C_1 L_1 R_1 R_4 g_m + 2C_1 L_1 R_4 + 2C_1 L_4 R_1 + 2C_4 L_4 R_1 R_4 g_m + 2C_4 L_4 R_4\right) + s\left(2C_1 R_1 R_4 + 2L_4 R_1 g_m + 2L_4\right)}$$

10.89 INVALID-ORDER-89 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 L_4 s^2 + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 R_4 g_m s^4 + C_1 L_1 L_4 R_1 g_m s^3 + L_4 R_1 g_m s + R_1 R_4 g_m + s^2\left(C_1 L_1 R_1 R_4 g_m + C_4 L_4 R_1 R_4 g_m\right)}{2C_1 C_4 L_4 R_1 s^3 + 2C_1 R_1 s + 2R_1 g_m + s^4\left(2C_1 C_4 L_1 L_4 R_1 g_m + 2C_1 C_4 L_1 L_4\right) + s^2\left(2C_1 L_1 R_1 g_m + 2C_1 L_1 + 2C_4 L_4 R_1 g_m + 2C_4 L_4\right) + 2}$$

10.90 INVALID-ORDER-90 $Z(s) = \left(\frac{R_1\left(C_1 L_1 s^2 + 1\right)}{C_1 L_1 s^2 + C_1 R_1 s + 1}, \ \infty, \ \infty, \ \frac{R_4\left(C_4 L_4 s^2 + 1\right)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \ \infty, \ \infty \right)$

$$H(s) = \frac{C_1 C_4 L_1 L_4 R_1 R_4 g_m s^4 + R_1 R_4 g_m + s^2 \left(C_1 L_1 R_1 R_4 g_m + C_4 L_4 R_1 R_4 g_m\right)}{2R_1 g_m + s^4 \left(2C_1 C_4 L_1 L_4 R_1 g_m + 2C_1 C_4 L_1 L_4\right) + s^3 \left(2C_1 C_4 L_1 R_1 R_4 g_m + 2C_1 C_4 L_1 R_4 + 2C_1 C_4 L_4 R_1\right) + s^2 \left(2C_1 C_4 R_1 R_4 + 2C_1 L_1 R_1 g_m + 2C_1 L_1 + 2C_4 L_4 R_1 g_m + 2C_4 L_4\right) + s \left(2C_1 R_1 + 2C_4 R_1 R_4 g_m + 2C_4 R_4\right) + 2}$$

11 PolynomialError