

Filter Summary Report: TIA,full,parasitic,Z1,ZL

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Contents

1 Examined $H(z)$ for TIA full parasitic Z1 ZL: $\frac{C_{gd}^2 C_{gs} Z_1 Z_L r_o^2 s^3 + C_{gd}^2 Z_1 Z_L g_m r_o^2 s^2 + C_{gd}^2 Z_1 Z_L r_o s^2 + C_{gd}^2 Z_L r_o s^2 - C_{gd} C_{gs} Z_1 Z_L g_m r_o^2 s^2 + C_{gd} C_{gs} Z_1 Z_L r_o s}{C_{gd} C_{gs} Z_1 Z_L r_o^2 s^3 + C_{gd}^2 Z_1 Z_L g_m r_o^2 s^2 + C_{gd}^2 Z_1 Z_L r_o s^2 + C_{gd}^2 Z_L r_o s^2 - C_{gd} C_{gs} Z_1 Z_L g_m r_o^2 s^2 + C_{gd} C_{gs} Z_1 Z_L r_o s}$

$$H(z) = \frac{Z_1 Z_L (C_{gd} s - C_{gs}^2)}{C_{gd}^2 C_{gs} Z_1 Z_L r_o^2 s^3 + C_{gd}^2 Z_1 Z_L g_m r_o^2 s^2 + C_{gd}^2 Z_1 Z_L r_o s^2 + C_{gd}^2 Z_L r_o s^2 - C_{gd} C_{gs} Z_1 Z_L g_m r_o^2 s^2 + C_{gd} C_{gs} Z_1 Z_L r_o s^2 + C_{gd} C_{gs} Z_1 r_o^2 s^2 - C_{gd} Z_1 Z_L g_m^2 r_o^2 s - C_{gd} Z_1 Z_L g_m r_o s + C_{gd} Z_L g_m r_o s}$$

2 HP

3 BP

4 LP

5 BS

6 GE

7 AP

8 INVALID-NUMBER

9 INVALID-WZ

10 INVALID-ORDER

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

$$H(s) = \frac{R_1 R_L (C_{gd} C_{gs} R_1 R_L r_o^2 s^3 + C_{gd}^2 R_1 R_L g_m r_o^2 s^2 + C_{gd}^2 R_1 R_L r_o s^2 + C_{gd}^2 R_L r_o s^2 - C_{gd} C_{gs} R_1 R_L g_m r_o^2 s^2 + C_{gd} C_{gs} R_1 R_L r_o s^2 + C_{gd} C_{gs} R_1 r_o^2 s^2 - C_{gd} R_1 R_L g_m^2 r_o^2 s - C_{gd} R_1 R_L g_m r_o s + C_{gd} R_1 R_L r_o^2 s^3)}{C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^3 + C_{gd}^2 R_1 R_L g_m r_o^2 s^2 + C_{gd}^2 R_1 R_L r_o s^2 + C_{gd}^2 R_L r_o s^2 - C_{gd} C_{gs} R_1 R_L g_m r_o^2 s^2 + C_{gd} C_{gs} R_1 R_L r_o s^2 + C_{gd} C_{gs} R_1 r_o^2 s^2 - C_{gd} R_1 R_L g_m^2 r_o^2 s - C_{gd} R_1 R_L g_m r_o s + C_{gd} R_1 R_L r_o^2 s^3}$$

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

$$H(s) = \frac{R_1 (C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3 + C_L C_{gd} R_1 R_L g_m r_o^2 s^2 + 2 C_L C_{gd} R_1 R_L g_m r_o s^2 + C_L C_{gd} R_1 r_o s^2 + 2 C_L C_{gd} R_1 s^2 + C_L C_{gd} r_o s^2 + C_L C_{gs} R_1 g_m r_o s^2 + C_L C_{gs} R_1 r_o s^2 + C_L C_{gs} R_1 s^2 - C_L R_1 g_m^2 r_o s - C_L R_1 g_m r_o s + C_L R_1 r_o^2 s^3)}{C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3 + C_L C_{gd} R_1 R_L g_m r_o^2 s^2 + 2 C_L C_{gd} R_1 R_L g_m r_o s^2 + C_L C_{gd} R_1 r_o s^2 + 2 C_L C_{gd} R_1 s^2 + C_L C_{gd} r_o s^2 + C_L C_{gs} R_1 g_m r_o s^2 + C_L C_{gs} R_1 r_o s^2 + C_L C_{gs} R_1 s^2 - C_L R_1 g_m^2 r_o s - C_L R_1 g_m r_o s + C_L R_1 r_o^2 s^3}$$

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

$$H(s) = \frac{R_L (C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3 + C_L C_{gd} R_1 R_L g_m r_o^2 s^2 + 2 C_L C_{gd} R_1 R_L g_m r_o s^2 + C_L C_{gd} R_1 R_L r_o s^2 + 2 C_L C_{gd} R_1 R_L s^2 + C_L C_{gd} R_L r_o s^2 + C_L C_{gs} R_1 R_L g_m r_o s^2 + C_L C_{gs} R_1 R_L r_o s^2 + C_L C_{gs} R_1 R_L s^2 - C_L R_1 g_m^2 r_o s - C_L R_1 g_m r_o s + C_L R_1 r_o^2 s^3)}{C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3 + C_L C_{gd} R_1 R_L g_m r_o^2 s^2 + 2 C_L C_{gd} R_1 R_L g_m r_o s^2 + C_L C_{gd} R_1 R_L r_o s^2 + 2 C_L C_{gd} R_1 R_L s^2 + C_L C_{gd} R_L r_o s^2 + C_L C_{gs} R_1 R_L g_m r_o s^2 + C_L C_{gs} R_1 R_L r_o s^2 + C_L C_{gs} R_1 R_L s^2 - C_L R_1 g_m^2 r_o s - C_L R_1 g_m r_o s + C_L R_1 r_o^2 s^3}$$

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

$$H(s) = \frac{R_L (C_L C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_L C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_L C_{gd}^2 R_1 R_L r_o s^3 + C_L C_{gd}^2 R_L r_o s^3 - C_L C_{gd} C_{gs} R_1 R_L g_m r_o^2 s^3 + C_L C_{gd} C_{gs} R_1 R_L r_o s^3 + C_L C_{gd} C_{gs} R_1 r_o^2 s^3 - C_L C_{gd} R_1 R_L g_m^2 r_o^2 s^3 - C_L C_{gd} R_1 R_L g_m r_o s^3 + C_L C_{gd} R_1 R_L r_o^2 s^3)}{C_L C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_L C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_L C_{gd}^2 R_1 R_L r_o s^3 + C_L C_{gd}^2 R_L r_o s^3 - C_L C_{gd} C_{gs} R_1 R_L g_m r_o^2 s^3 + C_L C_{gd} C_{gs} R_1 R_L r_o s^3 + C_L C_{gd} C_{gs} R_1 r_o^2 s^3 - C_L C_{gd} R_1 R_L g_m^2 r_o^2 s^3 - C_L C_{gd} R_1 R_L g_m r_o s^3 + C_L C_{gd} R_1 R_L r_o^2 s^3}$$

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

$$H(s) = \frac{L_L (C_L C_{gd}^2 C_{gs} L_L R_1 r_o^2 s^5 + C_L C_{gd}^2 L_L R_1 g_m r_o^2 s^4 + C_L C_{gd}^2 L_L R_1 r_o s^4 + C_L C_{gd}^2 L_L r_o s^4 - C_L C_{gd} C_{gs} L_L R_1 g_m r_o^2 s^4 + C_L C_{gd} C_{gs} L_L R_1 r_o s^4 + C_L C_{gd} C_{gs} R_1 r_o^2 s^3 - C_L C_{gd} L_L R_1 g_m^2 r_o^2 s^3 - C_L C_{gd} L_L R_1 g_m r_o s^3 + C_L C_{gd} L_L R_1 r_o^2 s^3)}{C_L C_{gd}^2 C_{gs} L_L R_1 r_o^2 s^5 + C_L C_{gd}^2 L_L R_1 g_m r_o^2 s^4 + C_L C_{gd}^2 L_L R_1 r_o s^4 + C_L C_{gd}^2 L_L r_o s^4 - C_L C_{gd} C_{gs} L_L R_1 g_m r_o^2 s^4 + C_L C_{gd} C_{gs} L_L R_1 r_o s^4 + C_L C_{gd} C_{gs} R_1 r_o^2 s^3 - C_L C_{gd} L_L R_1 g_m^2 r_o^2 s^3 - C_L C_{gd} L_L R_1 g_m r_o s^3 + C_L C_{gd} L_L R_1 r_o^2 s^3}$$

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

$$H(s) = \frac{L_L (C_L C_{gd} C_{gs} L_L R_1 r_o^2 s^4 + C_L C_{gd} L_L R_1 g_m r_o^2 s^3 + 2 C_L C_{gd} L_L R_1 g_m r_o s^3 + C_L C_{gd} L_L R_1 r_o s^3 + 2 C_L C_{gd} L_L R_1 s^3 + C_L C_{gd} L_L r_o s^3 + C_L C_{gs} L_L R_1 g_m r_o s^3 + C_L C_{gs} L_L R_1 r_o s^3 + C_L C_{gs} L_L R_1 s^3 - C_L R_1 g_m^2 r_o s - C_L R_1 g_m r_o s + C_L R_1 r_o^2 s^3)}{C_L C_{gd} C_{gs} L_L R_1 r_o^2 s^4 + C_L C_{gd} L_L R_1 g_m r_o^2 s^3 + 2 C_L C_{gd} L_L R_1 g_m r_o s^3 + C_L C_{gd} L_L R_1 r_o s^3 + 2 C_L C_{gd} L_L R_1 s^3 + C_L C_{gd} L_L r_o s^3 + C_L C_{gs} L_L R_1 g_m r_o s^3 + C_L C_{gs} L_L R_1 r_o s^3 + C_L C_{gs} L_L R_1 s^3 - C_L R_1 g_m^2 r_o s - C_L R_1 g_m r_o s + C_L R_1 r_o^2 s^3}$$

10.7 INVALID-ORDER-7 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L C_{gd}^2 C_{gs} L_L R_1 r_o^2 s^5 + C_L C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_L C_{gd}^2 L_L R_1 g_m r_o^2 s^4 + C_L C_{gd}^2 L_L R_1 r_o s^4 + C_L C_{gd}^2 L_L r_o s^4 + C_L C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_L C_{gd}^2 R_1 R_L r_o s^3 + C_L C_{gd}^2 R_L r_o s^3 - C_L C_{gs} L_L R_1 R_L r_o^2 s^4}{C_L C_{gd} C_{gs} L_L R_1 R_L r_o^2 s^4 + C_L C_{gd} L_L R_1 R_L g_m r_o^2 s^3 + 2 C_L C_{gd} L_L R_1 R_L g_m r_o s^3 + C_L C_{gd} L_L R_1 R_L r_o s^3 + 2 C_L C_{gd} L_L R_1 R_L s^3 + C_L C_{gd} L_L R_L r_o s^3 + C_L C_{gs} L_L R_1 R_L g_m r_o s^3 + C_L C_{gs} L_L R_L r_o s^3 + C_L C_{gs} L_L R_L r_o^2 s^4}$$

10.8 INVALID-ORDER-8 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{C_L C_{gd} C_{gs} L_L R_1 R_L r_o^2 s^4 + C_L C_{gd} L_L R_1 R_L g_m r_o^2 s^3 + 2 C_L C_{gd} L_L R_1 R_L g_m r_o s^3 + C_L C_{gd} L_L R_1 R_L r_o s^3 + 2 C_L C_{gd} L_L R_1 R_L s^3 + C_L C_{gd} L_L R_L r_o s^3 + C_L C_{gs} L_L R_1 R_L g_m r_o s^3 + C_L C_{gs} L_L R_L r_o s^3 + C_L C_{gs} L_L R_L r_o^2 s^4}{C_L C_{gd} C_{gs} L_L R_1 R_L r_o^2 s^4 + C_L C_{gd} L_L R_1 R_L g_m r_o^2 s^3 + 2 C_L C_{gd} L_L R_1 R_L g_m r_o s^3 + C_L C_{gd} L_L R_1 R_L r_o s^3 + 2 C_L C_{gd} L_L R_1 R_L s^3 + C_L C_{gd} L_L R_L r_o s^3 + C_L C_{gs} L_L R_1 R_L g_m r_o s^3 + C_L C_{gs} L_L R_L r_o s^3 + C_L C_{gs} L_L R_L r_o^2 s^4}$$

10.9 INVALID-ORDER-9 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L C_{gd}^2 C_{gs} L_L R_1 R_L r_o^2 s^5 + C_L C_{gd}^2 L_L R_1 R_L g_m r_o^2 s^4 + C_L C_{gd}^2 L_L R_1 R_L r_o s^4 + C_L C_{gd}^2 L_L R_L r_o s^4 - C_L C_{gd} C_{gs} L_L R_1 R_L g_m r_o^2 s^4 + C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^4 + C_L C_{gd} C_{gs} L_L R_1 r_o^2 s^4}{C_L C_{gd} C_{gs} L_L R_1 R_L r_o^2 s^4 + C_L C_{gd} L_L R_1 R_L g_m r_o^2 s^3 + 2 C_L C_{gd} L_L R_1 R_L g_m r_o s^3 + C_L C_{gd} L_L R_1 R_L r_o s^3 + 2 C_L C_{gd} L_L R_1 R_L s^3 + C_L C_{gd} L_L R_L r_o s^3 + C_L C_{gs} L_L R_1 R_L g_m r_o s^3 + C_L C_{gs} L_L R_L r_o s^3 + C_L C_{gs} L_L R_L r_o^2 s^4}$$

10.10 INVALID-ORDER-10 $Z(s) = \left(R_1, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_L C_{gd}^2 C_{gs} L_L R_1 R_L r_o^2 s^5 + C_L C_{gd}^2 L_L R_1 R_L g_m r_o^2 s^4 + C_L C_{gd}^2 L_L R_1 R_L r_o s^4 + C_L C_{gd}^2 L_L R_L r_o s^4 - C_L C_{gd} C_{gs} L_L R_1 R_L g_m r_o^2 s^4 + C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^4 + C_L C_{gd} C_{gs} L_L R_1 r_o^2 s^4}{C_L C_{gd} C_{gs} L_L R_1 R_L r_o^2 s^4 + C_L C_{gd} L_L R_1 R_L g_m r_o^2 s^3 + 2 C_L C_{gd} L_L R_1 R_L g_m r_o s^3 + C_L C_{gd} L_L R_1 R_L r_o s^3 + 2 C_L C_{gd} L_L R_1 R_L s^3 + C_L C_{gd} L_L R_L r_o s^3 + C_L C_{gs} L_L R_1 R_L g_m r_o s^3 + C_L C_{gs} L_L R_L r_o s^3 + C_L C_{gs} L_L R_L r_o^2 s^4}$$

10.11 INVALID-ORDER-11 $Z(s) = (L_1 s, \infty, \infty, \infty, \infty, R_L)$

$$H(s) = \frac{C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^4 + C_{gd}^2 L_1 R_L g_m r_o^2 s^3 + C_{gd}^2 L_1 R_L r_o s^3 + C_{gd}^2 R_L r_o s^2 - C_{gd} C_{gs} L_1 R_L g_m r_o^2 s^3 + C_{gd} C_{gs} L_1 R_L r_o s^3 + C_{gd} C_{gs} L_1 r_o^2 s^3 - C_{gd} L_1 R_L g_m^2 r_o^2 s^2 - C_{gd} L_1 R_L g_m r_o s^2 + C_{gd} L_1 R_L r_o^2 s^2}{C_{gd} C_{gs} L_1 R_L r_o^2 s^4 + C_{gd} L_1 R_L g_m r_o^2 s^3 + C_{gd} L_1 R_L r_o s^3 + C_{gd} R_L r_o s^2 - C_{gd} C_{gs} L_1 R_L g_m r_o^2 s^3 + C_{gd} C_{gs} L_1 R_L r_o s^3 + C_{gd} C_{gs} L_1 r_o^2 s^3 - C_{gd} L_1 R_L g_m^2 r_o^2 s^2 - C_{gd} L_1 R_L g_m r_o s^2 + C_{gd} L_1 R_L r_o^2 s^2}$$

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

$$H(s) = \frac{L_1 s}{C_L C_{gd} C_{gs} L_1 r_o^2 s^4 + C_L C_{gd} L_1 g_m r_o^2 s^3 + 2 C_L C_{gd} L_1 g_m r_o s^3 + C_L C_{gd} L_1 r_o s^3 + 2 C_L C_{gd} L_1 s^3 + C_L C_{gd} r_o s^2 + C_L C_{gs} L_1 g_m r_o s^3 + C_L C_{gs} L_1 r_o s^3 + C_L C_{gs} L_1 s^3 - C_L L_1 g_m^2 r_o s^2 -}$$

10.13 INVALID-ORDER-13 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_1 s}{C_L C_{gd} C_{gs} L_1 R_L r_o^2 s^4 + C_L C_{gd} L_1 R_L g_m r_o^2 s^3 + 2 C_L C_{gd} L_1 R_L g_m r_o s^3 + C_L C_{gd} L_1 R_L r_o s^3 + 2 C_L C_{gd} L_1 R_L s^3 + C_L C_{gd} R_L r_o s^2 + C_L C_{gs} L_1 R_L g_m r_o s^3 + C_L C_{gs} L_1 R_L r_o s^3 + C_L C_{gs} L_1 R_L s^3 -}$$

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

$$H(s) = \frac{L_1 s}{C_L C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^5 + C_L C_{gd}^2 L_1 R_L g_m r_o^2 s^4 + C_L C_{gd}^2 L_1 R_L r_o s^4 + C_L C_{gd}^2 R_L r_o s^3 - C_L C_{gd} C_{gs} L_1 R_L g_m r_o^2 s^4 + C_L C_{gd} C_{gs} L_1 R_L r_o s^4 + C_L C_{gd} C_{gs} L_1 r_o^2 s^4 - C_L C_{gd} L_1 R_L g_m^2 r_o^2 s^3 -}$$

10.15 INVALID-ORDER-15 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_1 s}{C_L C_{gd}^2 C_{gs} L_1 L_L r_o^2 s^6 + C_L C_{gd}^2 L_1 L_L g_m r_o^2 s^5 + C_L C_{gd}^2 L_1 L_L r_o s^5 + C_L C_{gd}^2 L_L r_o s^4 - C_L C_{gd} C_{gs} L_1 L_L g_m r_o^2 s^5 + C_L C_{gd} C_{gs} L_1 L_L r_o s^5 + C_L C_{gd} C_{gs} L_1 r_o^2 s^4 - C_L C_{gd} L_1 L_L g_m^2 r_o^2 s^3 -}$$

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

$$H(s) = \frac{L_1 s}{C_L C_{gd} C_{gs} L_1 L_L r_o^2 s^5 + C_L C_{gd} L_1 L_L g_m r_o^2 s^4 + 2 C_L C_{gd} L_1 L_L g_m r_o s^4 + C_L C_{gd} L_1 L_L r_o s^4 + 2 C_L C_{gd} L_1 L_L s^4 + C_L C_{gd} L_L r_o s^3 + C_L C_{gs} L_1 L_L g_m r_o s^4 + C_L C_{gs} L_1 L_L r_o s^4 + C_L C_{gs} L_1 L_L s^4 -}$$

10.17 INVALID-ORDER-17 $Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_1 s}{C_L C_{gd}^2 C_{gs} L_1 L_L r_o^2 s^6 + C_L C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^5 + C_L C_{gd}^2 L_1 L_L g_m r_o^2 s^5 + C_L C_{gd}^2 L_1 L_L r_o s^5 + C_L C_{gd}^2 L_1 R_L g_m r_o^2 s^4 + C_L C_{gd}^2 L_1 R_L r_o s^4 + C_L C_{gd}^2 L_L r_o s^4 + C_L C_{gd}^2 R_L r_o s^3 - C_L C_{gd} L_1 L_L g_m^2 r_o^2 s^3 -}$$

$$10.18 \quad \text{INVALID-ORDER-18} \quad Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{C_L C_{gd} C_{gs} L_1 L_L R_L r_o^2 s^5 + C_L C_{gd} L_1 L_L R_L g_m r_o^2 s^4 + 2 C_L C_{gd} L_1 L_L R_L g_m r_o s^4 + C_L C_{gd} L_1 L_L R_L r_o s^4 + 2 C_L C_{gd} L_1 L_L R_L s^4 + C_L C_{gd} L_L R_L r_o s^3 + C_L C_{gs} L_1 L_L R_L g_m r_o s^4 + C_L C_{gs} L_1 L_L R_L r_o s^3 + C_L C_{gs} L_1 L_L R_L s^3 + C_L C_{gs} L_1 L_L R_L s^2 + C_L C_{gs} L_1 L_L R_L s + C_L C_{gs} L_1 L_L s + C_L C_{gs} L_1 L_L}{C_L C_{gd} C_{gs} L_1 L_L R_L r_o^2 s^5 + C_L C_{gd} L_1 L_L R_L g_m r_o^2 s^4 + 2 C_L C_{gd} L_1 L_L R_L g_m r_o s^4 + C_L C_{gd} L_1 L_L R_L r_o s^4 + 2 C_L C_{gd} L_1 L_L R_L s^4 + C_L C_{gd} L_L R_L r_o s^3 + C_L C_{gs} L_1 L_L R_L g_m r_o s^4 + C_L C_{gs} L_1 L_L R_L r_o s^3 + C_L C_{gs} L_1 L_L R_L s^3 + C_L C_{gs} L_1 L_L R_L s^2 + C_L C_{gs} L_1 L_L R_L s + C_L C_{gs} L_1 L_L s + C_L C_{gs} L_1 L_L}$$

$$10.19 \quad \text{INVALID-ORDER-19} \quad Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L C_{gd}^2 C_{gs} L_1 L_L R_L r_o^2 s^6 + C_L C_{gd}^2 L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd}^2 L_1 L_L R_L r_o s^5 + C_L C_{gd}^2 L_L R_L r_o s^4 - C_L C_{gd} C_{gs} L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L r_o^2 s^5 - C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^4 + C_L C_{gd} C_{gs} L_1 L_L s^3 + C_L C_{gd} C_{gs} L_1 L_L s^2 + C_L C_{gd} C_{gs} L_1 L_L s + C_L C_{gd} C_{gs} L_1 L_L}{C_L C_{gd}^2 C_{gs} L_1 L_L R_L r_o^2 s^6 + C_L C_{gd}^2 L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd}^2 L_1 L_L R_L r_o s^5 + C_L C_{gd}^2 L_L R_L r_o s^4 - C_L C_{gd} C_{gs} L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L r_o^2 s^5 - C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^4 + C_L C_{gd} C_{gs} L_1 L_L s^3 + C_L C_{gd} C_{gs} L_1 L_L s^2 + C_L C_{gd} C_{gs} L_1 L_L s + C_L C_{gd} C_{gs} L_1 L_L}$$

$$10.20 \quad \text{INVALID-ORDER-20} \quad Z(s) = \left(L_1 s, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{C_L C_{gd}^2 C_{gs} L_1 L_L R_L r_o^2 s^6 + C_L C_{gd}^2 L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd}^2 L_1 L_L R_L r_o s^5 + C_L C_{gd}^2 L_L R_L r_o s^4 - C_L C_{gd} C_{gs} L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L r_o^2 s^5 - C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^4 + C_L C_{gd} C_{gs} L_1 L_L s^3 + C_L C_{gd} C_{gs} L_1 L_L s^2 + C_L C_{gd} C_{gs} L_1 L_L s + C_L C_{gd} C_{gs} L_1 L_L}{C_L C_{gd}^2 C_{gs} L_1 L_L R_L r_o^2 s^6 + C_L C_{gd}^2 L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd}^2 L_1 L_L R_L r_o s^5 + C_L C_{gd}^2 L_L R_L r_o s^4 - C_L C_{gd} C_{gs} L_1 L_L R_L g_m r_o^2 s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L r_o^2 s^5 - C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^5 + C_L C_{gd} C_{gs} L_1 L_L R_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^5 + C_L C_{gd} C_{gs} L_1 L_L s^4 + C_L C_{gd} C_{gs} L_1 L_L s^3 + C_L C_{gd} C_{gs} L_1 L_L s^2 + C_L C_{gd} C_{gs} L_1 L_L s + C_L C_{gd} C_{gs} L_1 L_L}$$

$$10.21 \quad \text{INVALID-ORDER-21} \quad Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_{gd} s - g_m) (g_m r_o + 1)}{C_1 C_{gd}^2 R_L r_o s^3 - C_1 C_{gd} R_L g_m r_o s^2 + C_1 C_{gd} R_L s^2 + C_1 C_{gd} r_o s^2 - C_1 R_L g_m s - C_1 g_m r_o s + C_{gd}^2 C_{gs} R_L r_o^2 s^3 + C_{gd}^2 R_L g_m r_o^2 s^2 + C_{gd}^2 R_L r_o s^2 - C_{gd} C_{gs} R_L g_m r_o^2 s^2 + C_{gd} C_{gs} R_L r_o s^2 + C_{gd} C_{gs} R_L s^2 + C_{gd} C_{gs} R_L s + C_{gd} C_{gs} R_L}$$

$$10.22 \quad \text{INVALID-ORDER-22} \quad Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_{gd} s - g_m) (g_m r_o + 1)}{s \left(C_1 C_L C_{gd} r_o s^2 - C_1 C_L g_m r_o s + C_1 C_{gd}^2 r_o s^2 - C_1 C_{gd} g_m r_o s + C_1 C_{gd} s - C_1 g_m + C_L C_{gd} C_{gs} r_o^2 s^2 + C_L C_{gd} g_m r_o^2 s + 2 C_L C_{gd} g_m r_o s + C_L C_{gd} r_o s + 2 C_L C_{gd} s + C_L C_{gs} g_m r_o s + C_L C_{gs} g_m s + C_L C_{gs} r_o s + C_L C_{gs} s + C_L C_{gs} \right)}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} R_L r_o s^3 - C_1 C_L R_L g_m r_o s^2 + C_1 C_{gd}^2 R_L r_o s^3 - C_1 C_{gd} R_L g_m r_o s^2 + C_1 C_{gd} R_L s^2 + C_1 C_{gd} r_o s^2 - C_1 R_L g_m s - C_1 g_m r_o s + C_L C_{gd} C_{gs} R_L r_o^2 s^3 + C_L C_{gd} R_L g_m r_o^2 s^2 + 2C_L}{\dots}$$

10.24 INVALID-ORDER-24 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s \left(C_1 C_L C_{gd}^2 R_L r_o s^3 - C_1 C_L C_{gd} R_L g_m r_o s^2 + C_1 C_L C_{gd} R_L s^2 + C_1 C_L C_{gd} r_o s^2 - C_1 C_L R_L g_m s - C_1 C_L g_m r_o s + C_1 C_{gd}^2 r_o s^2 - C_1 C_{gd} g_m r_o s + C_1 C_{gd} s - C_1 g_m + C_L C_{gd}^2 C_{gs} R_L \right)}$$

10.25 INVALID-ORDER-25 $Z(s) = \left(\frac{1}{C_{1s}}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_{Ls}} \right)$

$$H(s) = \frac{s \left(C_1 C_L C_{gd}^2 L_L r_o s^4 - C_1 C_L C_{gd} L_L g_m r_o s^3 + C_1 C_L C_{gd} L_L s^3 + C_1 C_L C_{gd} r_o s^2 - C_1 C_L L_L g_m s^2 - C_1 C_L g_m r_o s + C_1 C_{gd}^2 r_o s^2 - C_1 C_{gd} g_m r_o s + C_1 C_{gd} s - C_1 g_m + C_L C_{gd}^2 C_g s L_L \right)}{s^5 + C_L C_{gd} s^4 + C_L C_{gd} g_m s^3 + C_L C_{gd}^2 r_o s^2 + C_L C_{gd} g_m r_o s + C_L C_{gd} s + C_L g_m}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_L r_o s^4 - C_1 C_L L_L g_m r_o s^3 + C_1 C_{gd}^2 L_L r_o s^4 - C_1 C_{gd} L_L g_m r_o s^3 + C_1 C_{gd} L_L s^3 + C_1 C_{gd} r_o s^2 - C_1 L_L g_m s^2 - C_1 g_m r_o s + C_L C_{gd} C_{gs} L_L r_o^2 s^4 + C_L C_{gd} L_L g_m r_o^2 s^3 + 2 C_L$$

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

$$H(s) = \frac{s \left(C_1 C_L C_{gd}^2 L_L r_o s^4 + C_1 C_L C_{gd}^2 R_L r_o s^3 - C_1 C_L C_{gd} L_L g_m r_o s^3 + C_1 C_L C_{gd} L_L s^3 - C_1 C_L C_{gd} R_L g_m r_o s^2 + C_1 C_L C_{gd} R_L s^2 + C_1 C_L C_{gd} r_o s^2 - C_1 C_L L_L g_m s^2 - C_1 C_L R_L g_m s - C_1 C_L R_L s \right)}{s^5 + C_1 C_L C_{gd} L_L s^4 + C_1 C_L C_{gd} R_L s^3 + C_1 C_L C_{gd} L_L g_m s^2 + C_1 C_L C_{gd} R_L g_m s + C_1 C_L C_{gd} r_o s + C_1 C_L R_L g_m + C_1 C_L R_L}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_L R_L r_o s^4 - C_1 C_L L_L R_L g_m r_o s^3 + C_1 C_{gd}^2 L_L R_L r_o s^4 - C_1 C_{gd} L_L R_L g_m r_o s^3 + C_1 C_{gd} L_L R_L s^3 + C_1 C_{gd} L_L r_o s^3 + C_1 C_{gd} R_L r_o s^2 - C_1 L_L R_L g_m s^2 - C_1 L_L g_m r_o s^2 - C_1 C_L R_L r_o s^2 - C_1 C_L L_L R_L s^2 - C_1 C_L L_L g_m r_o s^2 - C_1 C_L R_L g_m r_o s^2 - C_1 C_L L_L s^2 - C_1 C_L R_L s^2 - C_1 C_L g_m r_o s^2 - C_1 C_L s^2 - C_1 C_{gd} L_L R_L s^2 - C_1 C_{gd} L_L r_o s^2 - C_1 C_{gd} R_L r_o s^2 - C_1 C_{gd} L_L s^2 - C_1 C_{gd} R_L s^2 - C_1 C_{gd} g_m r_o s^2 - C_1 C_{gd} s^2 - C_1 L_L R_L s^2 - C_1 L_L r_o s^2 - C_1 L_L g_m r_o s^2 - C_1 L_L s^2 - C_1 R_L r_o s^2 - C_1 R_L g_m r_o s^2 - C_1 R_L s^2 - C_1 g_m r_o s^2 - C_1 s^2}{C_1 C_L C_{gd} L_L R_L r_o s^4 - C_1 C_L L_L R_L g_m r_o s^3 + C_1 C_{gd}^2 L_L R_L r_o s^4 - C_1 C_{gd} L_L R_L g_m r_o s^3 + C_1 C_{gd} L_L R_L s^3 + C_1 C_{gd} L_L r_o s^3 + C_1 C_{gd} R_L r_o s^2 - C_1 L_L R_L g_m s^2 - C_1 L_L g_m r_o s^2 - C_1 C_L R_L r_o s^2 - C_1 C_L L_L R_L s^2 - C_1 C_L L_L g_m r_o s^2 - C_1 C_L R_L g_m r_o s^2 - C_1 C_L L_L s^2 - C_1 C_L R_L s^2 - C_1 C_L g_m r_o s^2 - C_1 C_L s^2 - C_1 C_{gd} L_L R_L s^2 - C_1 C_{gd} L_L r_o s^2 - C_1 C_{gd} R_L r_o s^2 - C_1 C_{gd} L_L s^2 - C_1 C_{gd} R_L s^2 - C_1 C_{gd} g_m r_o s^2 - C_1 C_{gd} s^2 - C_1 L_L R_L s^2 - C_1 L_L r_o s^2 - C_1 L_L g_m r_o s^2 - C_1 L_L s^2 - C_1 R_L r_o s^2 - C_1 R_L g_m r_o s^2 - C_1 R_L s^2 - C_1 g_m r_o s^2 - C_1 s^2}$$

10.29 INVALID-ORDER-29 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} L_L R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_L s^4 + C_1 C_L C_{gd} L_L r_o s^4 - C_1 C_L L_L R_L g_m s^3 - C_1 C_L L_L g_m r_o s^3 + C_1 C_{gd}^2 L_L r_o s^4 + C_1 C_{gd}^2 R_L r_o s^3 - C_1 C_{gd} L_L g_m}{\dots}$$

10.30 INVALID-ORDER-30 $Z(s) = \left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} L_L R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_L s^4 + C_1 C_L C_{gd} L_L r_o s^4 + C_1 C_L C_{gd} R_L r_o s^3 - C_1 C_L L_L R_L g_m s^3 - C_1 C_L L_L g_m r_o s^3 - C_1 C_L R_L g_m r_o s^2 + C_1 C_{gd}^2}{C_1 C_L C_{gd}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} L_L R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_L s^4 + C_1 C_L C_{gd} L_L r_o s^4 + C_1 C_L C_{gd} R_L r_o s^3 - C_1 C_L L_L R_L g_m s^3 - C_1 C_L L_L g_m r_o s^3 - C_1 C_L R_L g_m r_o s^2 + C_1 C_{gd}^2}$$

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

$$H(s) = \frac{C_1 C_{gd}^2 R_1 R_L r_o s^3 - C_1 C_{gd} R_1 R_L g_m r_o s^2 + C_1 C_{gd} R_1 R_L s^2 + C_1 C_{gd} R_1 r_o s^2 - C_1 R_1 R_L g_m s - C_1 R_1 g_m r_o s + C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^3 + C_{gd}^2 R_1 R_L g_m r_o^2 s^2 + C_{gd}^2 R_1 R_L r_o s^2 + C_{gd}^2 R_L r_o}{\dots}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L R_1 g_m r_o s^2 + C_1 C_{gd}^2 R_1 r_o s^3 - C_1 C_{gd} R_1 g_m r_o s^2 + C_1 C_{gd} R_1 s^2 - C_1 R_1 g_m s + C_L C_{gd} C_{gs} R_1 r_o^2 s^3 + C_L C_{gd} R_1 g_m r_o^2 s^2 + 2 C_L C_{gd} R_1 g_m r_o s^2 + C_L C_{gd} R_1 r_o}{C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L R_1 g_m r_o s^2 + C_1 C_{gd}^2 R_1 r_o s^3 - C_1 C_{gd} R_1 g_m r_o s^2 + C_1 C_{gd} R_1 s^2 - C_1 R_1 g_m s + C_L C_{gd} C_{gs} R_1 r_o^2 s^3 + C_L C_{gd} R_1 g_m r_o^2 s^2 + 2 C_L C_{gd} R_1 g_m r_o s^2 + C_L C_{gd} R_1 r_o}$$

10.33 INVALID-ORDER-33 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} R_1 R_L r_o s^3 - C_1 C_L R_1 R_L g_m r_o s^2 + C_1 C_{gd}^2 R_1 R_L r_o s^3 - C_1 C_{gd} R_1 R_L g_m r_o s^2 + C_1 C_{gd} R_1 R_L s^2 + C_1 C_{gd} R_1 r_o s^2 - C_1 R_1 R_L g_m s - C_1 R_1 g_m r_o s + C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3}{C_1 C_L C_{gd} R_1 R_L r_o s^3 - C_1 C_L R_1 R_L g_m r_o s^2 + C_1 C_{gd}^2 R_1 R_L r_o s^3 - C_1 C_{gd} R_1 R_L g_m r_o s^2 + C_1 C_{gd} R_1 R_L s^2 + C_1 C_{gd} R_1 r_o s^2 - C_1 R_1 R_L g_m s - C_1 R_1 g_m r_o s + C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3}$$

10.34 INVALID-ORDER-34 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 R_1 R_L r_o s^4 - C_1 C_L C_{gd} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gd} R_1 R_L s^3 + C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L R_1 R_L g_m s^2 - C_1 C_L R_1 g_m r_o s^2 + C_1 C_{gd}^2 R_1 r_o s^3 - C_1 C_{gd} R_1 g_m r_o s^2 + C_1 C_{gd} R_1 s}{C_1 C_L C_{gd}^2 R_1 R_L r_o s^4 - C_1 C_L C_{gd} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gd} R_1 R_L s^3 + C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L R_1 R_L g_m s^2 - C_1 C_L R_1 g_m r_o s^2 + C_1 C_{gd}^2 R_1 r_o s^3 - C_1 C_{gd} R_1 g_m r_o s^2 + C_1 C_{gd} R_1 s}$$

10.35 INVALID-ORDER-35 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_L R_1 r_o s^5 - C_1 C_L C_{gd} L_L R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 s^4 + C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L L_L R_1 g_m s^3 - C_1 C_L R_1 g_m r_o s^2 + C_1 C_{gd}^2 R_1 r_o s^3 - C_1 C_{gd} R_1 g_m r_o s^2 + C_1 C_{gd} R_1 s^2}{C_1 C_L C_{gd}^2 L_L R_1 r_o s^5 - C_1 C_L C_{gd} L_L R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 s^4 + C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L L_L R_1 g_m s^3 - C_1 C_L R_1 g_m r_o s^2 + C_1 C_{gd}^2 R_1 r_o s^3 - C_1 C_{gd} R_1 g_m r_o s^2 + C_1 C_{gd} R_1 s^2}$$

10.36 INVALID-ORDER-36 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} L_L R_1 r_o s^4 - C_1 C_L L_L R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_L R_1 r_o s^4 - C_1 C_{gd} L_L R_1 g_m r_o s^3 + C_1 C_{gd} L_L R_1 s^3 + C_1 C_{gd} R_1 r_o s^2 - C_1 L_L R_1 g_m s^2 - C_1 R_1 g_m r_o s + C_L C_{gd} C_{gs} L_L R_1 r_o^2 s^4 +$$

10.37 INVALID-ORDER-37 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_L R_1 r_o s^5 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^4 - C_1 C_L C_{gd} L_L R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 s^4 - C_1 C_L C_{gd} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gd} R_1 R_L s^3 + C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L L_L R_1 g_m s^3}{C_1 C_L C_{gd}^2 L_L R_1 r_o s^5 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^4 - C_1 C_L C_{gd} L_L R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 s^4 - C_1 C_L C_{gd} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gd} R_1 R_L s^3 + C_1 C_L C_{gd} R_1 r_o s^3 - C_1 C_L L_L R_1 g_m s^3}$$

10.38 INVALID-ORDER-38 $Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} L_L R_1 R_L r_o s^4 - C_1 C_L L_L R_1 R_L g_m r_o s^3 + C_1 C_{gd}^2 L_L R_1 R_L r_o s^4 - C_1 C_{gd} L_L R_1 R_L g_m r_o s^3 + C_1 C_{gd} L_L R_1 R_L s^3 + C_1 C_{gd} L_L R_1 r_o s^3 + C_1 C_{gd} R_1 R_L r_o s^2 - C_1 L_L R_1 R_L g_m}{\dots}$$

$$10.39 \quad \text{INVALID-ORDER-39} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_L R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 R_L s^4 + C_1 C_L C_{gd} L_L R_1 r_o s^4 - C_1 C_L L_L R_1 R_L g_m s^3 - C_1 C_L L_L R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_L R_1 r_o s^4 + C_1 C_{gd}^2 R_1 r_o s^4}{C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_L R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 R_L s^4 + C_1 C_L C_{gd} L_L R_1 r_o s^4 - C_1 C_L L_L R_1 R_L g_m s^3 - C_1 C_L L_L R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_L R_1 r_o s^4 + C_1 C_{gd}^2 R_1 r_o s^4}$$

$$10.40 \quad \text{INVALID-ORDER-40} \quad Z(s) = \left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_L R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 R_L s^4 + C_1 C_L C_{gd} L_L R_1 r_o s^4 + C_1 C_L C_{gd} R_1 R_L r_o s^3 - C_1 C_L L_L R_1 R_L g_m s^3 - C_1 C_L L_L R_1 g_m r_o s^3 - C_1 C_L L_L R_1 g_m r_o s^3 - C_1 C_L L_L R_1 g_m r_o s^3}{C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_L R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 R_L s^4 + C_1 C_L C_{gd} L_L R_1 r_o s^4 + C_1 C_L C_{gd} R_1 R_L r_o s^3 - C_1 C_L L_L R_1 R_L g_m s^3 - C_1 C_L L_L R_1 g_m r_o s^3 - C_1 C_L L_L R_1 g_m r_o s^3 - C_1 C_L L_L R_1 g_m r_o s^3}$$

$$10.41 \quad \text{INVALID-ORDER-41} \quad Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L \right)$$

$$H(s) = \frac{C_1 C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_1 C_{gd}^2 R_1 R_L r_o s^3 + C_1 C_{gd}^2 R_L r_o s^3 - C_1 C_{gd} C_{gs} R_1 R_L g_m r_o^2 s^3 + C_1 C_{gd} C_{gs} R_1 R_L r_o s^3 + C_1 C_{gd} C_{gs} R_1 r_o^2 s^3 - C_1 C_{gd} R_1 R_L g_m^2 r_o^2 s^2}{C_1 C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_1 C_{gd}^2 R_1 R_L r_o s^3 + C_1 C_{gd}^2 R_L r_o s^3 - C_1 C_{gd} C_{gs} R_1 R_L g_m r_o^2 s^3 + C_1 C_{gd} C_{gs} R_1 R_L r_o s^3 + C_1 C_{gd} C_{gs} R_1 r_o^2 s^3 - C_1 C_{gd} R_1 R_L g_m^2 r_o^2 s^2}$$

$$10.42 \quad \text{INVALID-ORDER-42} \quad Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{s \left(C_1 C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3 + C_1 C_L C_{gd} R_1 g_m r_o^2 s^2 + 2 C_1 C_L C_{gd} R_1 g_m r_o s^2 + C_1 C_L C_{gd} R_1 r_o s^2 + 2 C_1 C_L C_{gd} R_1 s^2 + C_1 C_L C_{gd} r_o s^2 + C_1 C_L C_{gs} R_1 g_m r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 \right)}{s \left(C_1 C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^3 + C_1 C_L C_{gd} R_1 g_m r_o^2 s^2 + 2 C_1 C_L C_{gd} R_1 g_m r_o s^2 + C_1 C_L C_{gd} R_1 r_o s^2 + 2 C_1 C_L C_{gd} R_1 s^2 + C_1 C_L C_{gd} r_o s^2 + C_1 C_L C_{gs} R_1 g_m r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 + C_1 C_L C_{gs} R_1 r_o s^2 \right)}$$

$$10.43 \quad \text{INVALID-ORDER-43} \quad Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_L C_{gd} R_1 R_L g_m r_o^2 s^3 + 2 C_1 C_L C_{gd} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gd} R_1 R_L r_o s^3 + 2 C_1 C_L C_{gd} R_1 R_L s^3 + C_1 C_L C_{gd} R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3}{C_1 C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_L C_{gd} R_1 R_L g_m r_o^2 s^3 + 2 C_1 C_L C_{gd} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gd} R_1 R_L r_o s^3 + 2 C_1 C_L C_{gd} R_1 R_L s^3 + C_1 C_L C_{gd} R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L g_m r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3 + C_1 C_L C_{gs} R_1 R_L r_o s^3}$$

10.44 INVALID-ORDER-44 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s \left(C_1 C_L C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_L C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^3 + C_1 C_L C_{gd}^2 R_L r_o s^3 - C_1 C_L C_{gd} C_{gs} R_1 R_L g_m r_o^2 s^3 + C_1 C_L C_{gd} C_{gs} R_1 R_L r_o s^3 + C_1 C_L C_{gd} C_{gs} R_1 r_o^2 s^3 \right)}$$

10.45 INVALID-ORDER-45 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s \left(C_1 C_L C_{gd}^2 C_{gs} L_L R_1 r_o^2 s^5 + C_1 C_L C_{gd}^2 L_L R_1 g_m r_o^2 s^4 + C_1 C_L C_{gd}^2 L_L R_1 r_o s^4 + C_1 C_L C_{gd}^2 L_L r_o s^4 - C_1 C_L C_{gd} C_{gs} L_L R_1 g_m r_o^2 s^4 + C_1 C_L C_{gd} C_{gs} L_L R_1 r_o s^4 + C_1 C_L C_{gd} C_{gs} R_1 r_o^2 s^3 \right)}$$

10.46 INVALID-ORDER-46 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{1}{C_1 C_L C_{gd} C_{gs} L_L R_1 r_o^2 s^5 + C_1 C_L C_{gd} L_L R_1 g_m r_o^2 s^4 + 2C_1 C_L C_{gd} L_L R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 r_o s^4 + 2C_1 C_L C_{gd} L_L R_1 s^4 + C_1 C_L C_{gd} L_L r_o s^4 + C_1 C_L C_{gs} L_L R_1 g_m r_o s^4 + C_1 C_L C_{gs} L_L R_1 r_o^2 s^3}$$

10.47 INVALID-ORDER-47 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s \left(C_1 C_L C_{gd}^2 C_{gs} L_L R_1 r_o^2 s^5 + C_1 C_L C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_L C_{gd}^2 L_L R_1 g_m r_o^2 s^4 + C_1 C_L C_{gd}^2 L_L R_1 r_o s^4 + C_1 C_L C_{gd}^2 L_L r_o s^4 + C_1 C_L C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^3 + C_1 C_L C_{gd}^2 R_L r_o s^3 \right)}$$

10.48 INVALID-ORDER-48 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{1}{C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o^2 s^5 + C_1 C_L C_{gd} L_L R_1 R_L g_m r_o^2 s^4 + 2C_1 C_L C_{gd} L_L R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_L R_1 R_L r_o s^4 + 2C_1 C_L C_{gd} L_L R_1 R_L s^4 + C_1 C_L C_{gd} L_L R_L r_o s^4 + C_1 C_L C_{gs} L_L R_1 g_m r_o s^4 + C_1 C_L C_{gs} L_L R_1 r_o^2 s^3}$$

10.49 INVALID-ORDER-49 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_1 C_L C_{qd}^2 C_{gs} L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{qd}^2 L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{qd}^2 L_L R_1 R_L r_o s^5 + C_1 C_L C_{qd}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5}{C_1 C_L C_{qd}^2 C_{gs} L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{qd}^2 L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{qd}^2 L_L R_1 R_L r_o s^5 + C_1 C_L C_{qd}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5}$$

10.50 INVALID-ORDER-50 $Z(s) = \left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{ad}^2 C_{gs} L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{ad}^2 L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{ad}^2 L_L R_1 R_L r_o s^5 + C_1 C_L C_{ad}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5}{C_1 C_L C_{ad}^2 C_{gs} L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{ad}^2 L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{ad}^2 L_L R_1 R_L r_o s^5 + C_1 C_L C_{ad}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_L R_1 R_L r_o s^5}$$

10.51 INVALID-ORDER-51 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{C_1 C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^5 + C_1 C_{gd}^2 L_1 R_L g_m r_o^2 s^4 + C_1 C_{gd}^2 L_1 R_L r_o s^4 + C_1 C_{gd}^2 R_L r_o s^3 - C_1 C_{gd} C_{gs} L_1 R_L g_m r_o^2 s^4 + C_1 C_{gd} C_{gs} L_1 R_L r_o s^4 + C_1 C_{gd} C_{gs} L_1 r_o^2 s^4 - C_1 C_{gd} L_1 R_L g_m^2 r_o^2 s^3 -$$

10.52 INVALID-ORDER-52 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s \left(C_1 C_L C_{gd} C_{gs} L_1 r_o^2 s^4 + C_1 C_L C_{gd} L_1 g_m r_o^2 s^3 + 2 C_1 C_L C_{gd} L_1 g_m r_o s^3 + C_1 C_L C_{gd} L_1 r_o s^3 + 2 C_1 C_L C_{gd} L_1 s^3 + C_1 C_L C_{gd} r_o s^2 + C_1 C_L C_{gs} L_1 g_m r_o s^3 + C_1 C_L C_{gs} L_1 r_o s^3 + C_1 C_L \right)}$$

10.53 INVALID-ORDER-53 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 R_L r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_L g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_L r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_L s^4 + C_1 C_L C_{gd} R_L r_o s^3 + C_1 C_L C_{gs} L_1 R_L g_m r_o s^4 + C_1 C_L$$

10.54 INVALID-ORDER-54 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{1}{s \left(C_1C_LC_{gd}^2C_{gs}L_1R_Lr_o^2s^5 + C_1C_LC_{gd}^2L_1R_Lg_mr_o^2s^4 + C_1C_LC_{gd}^2L_1R_Lr_os^4 + C_1C_LC_{gd}^2R_Lr_os^3 - C_1C_LC_{gd}C_{gs}L_1R_Lg_mr_o^2s^4 + C_1C_LC_{gd}C_{gs}L_1R_Lr_os^4 + C_1C_LC_{gd}C_{gs}L_1r_o^2s^4 \right)}$$

10.55 INVALID-ORDER-55 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{1}{s \left(C_1C_LC_{gd}^2C_{gs}L_1L_Lr_o^2s^6 + C_1C_LC_{gd}^2L_1L_Lg_mr_o^2s^5 + C_1C_LC_{gd}^2L_1L_Lr_os^5 + C_1C_LC_{gd}^2L_Lr_os^4 - C_1C_LC_{gd}C_{gs}L_1L_Lg_mr_o^2s^5 + C_1C_LC_{gd}C_{gs}L_1L_Lr_os^5 + C_1C_LC_{gd}C_{gs}L_1r_o^2s^4 \right)}$$

10.56 INVALID-ORDER-56 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{1}{C_1C_LC_{gd}C_{gs}L_1L_Lr_o^2s^6 + C_1C_LC_{gd}L_1L_Lg_mr_o^2s^5 + 2C_1C_LC_{gd}L_1L_Lg_mr_os^5 + C_1C_LC_{gd}L_1L_Lr_os^5 + 2C_1C_LC_{gd}L_1L_Ls^5 + C_1C_LC_{gd}L_Lr_os^4 + C_1C_LC_{gs}L_1L_Lg_mr_os^5 + C_1C_LC_{gs}L_1L_Lr_os^4 + C_1C_LC_{gs}L_1r_o^2s^4}$$

10.57 INVALID-ORDER-57 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{1}{s \left(C_1C_LC_{gd}^2C_{gs}L_1L_Lr_o^2s^6 + C_1C_LC_{gd}^2C_{gs}L_1R_Lr_o^2s^5 + C_1C_LC_{gd}^2L_1L_Lg_mr_o^2s^5 + C_1C_LC_{gd}^2L_1L_Lr_os^5 + C_1C_LC_{gd}^2L_1R_Lg_mr_o^2s^4 + C_1C_LC_{gd}^2L_1R_Lr_os^4 + C_1C_LC_{gd}^2L_Lr_os^4 + C_1C_LC_{gd}C_{gs}L_1L_Lr_o^2s^5 + C_1C_LC_{gd}C_{gs}L_1L_Lr_os^5 + C_1C_LC_{gd}C_{gs}L_1r_o^2s^4 \right)}$$

10.58 INVALID-ORDER-58 $Z(s) = \left(L_1s + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{1}{C_1C_LC_{gd}C_{gs}L_1L_LR_Lr_o^2s^6 + C_1C_LC_{gd}L_1L_LR_Lg_mr_o^2s^5 + 2C_1C_LC_{gd}L_1L_LR_Lg_mr_os^5 + C_1C_LC_{gd}L_1L_LR_Lr_os^5 + 2C_1C_LC_{gd}L_1L_LR_Ls^5 + C_1C_LC_{gd}L_LR_Lr_os^4 + C_1C_LC_{gs}L_1L_LR_Lr_os^4 + C_1C_LC_{gs}L_1R_LR_Lr_os^4 + C_1C_LC_{gs}L_1r_o^2s^4}$$

10.59 INVALID-ORDER-59 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_1 C_L C_{qd}^2 C_{gs} L_1 L_L R_L r_o^2 s^7 + C_1 C_L C_{qd}^2 L_1 L_L R_L g_m r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_L r_o s^6 + C_1 C_L C_{qd}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_L g_m r_o^2 s^6 + C_1 C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^6 + C_1 C_L}{\dots}$$

10.60 INVALID-ORDER-60 $Z(s) = \left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{qd}^2 C_{gs} L_1 L_L R_L r_o^2 s^7 + C_1 C_L C_{qd}^2 L_1 L_L R_L g_m r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_L r_o s^6 + C_1 C_L C_{qd}^2 L_L R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_L g_m r_o^2 s^6 + C_1 C_L C_{gd} C_{gs} L_1 L_L R_L r_o s^6 + C_1 C_L}{\dots}$$

10.61 INVALID-ORDER-61 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{C_1 C_{gd}^2 L_1 R_L r_o s^4 - C_1 C_{gd} L_1 R_L g_m r_o s^3 + C_1 C_{gd} L_1 R_L s^3 + C_1 C_{gd} L_1 r_o s^3 - C_1 L_1 R_L g_m s^2 - C_1 L_1 g_m r_o s^2 + C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^4 + C_{gd}^2 L_1 R_L g_m r_o^2 s^3 + C_{gd}^2 L_1 R_L r_o s^3 + C_{gd}^2 R_L r_o s^2}{C_1 C_{gd}^2 L_1 R_L r_o s^4 - C_1 C_{gd} L_1 R_L g_m r_o s^3 + C_1 C_{gd} L_1 R_L s^3 + C_1 C_{gd} L_1 r_o s^3 - C_1 L_1 R_L g_m s^2 - C_1 L_1 g_m r_o s^2 + C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^4 + C_{gd}^2 L_1 R_L g_m r_o^2 s^3 + C_{gd}^2 L_1 R_L r_o s^3 + C_{gd}^2 R_L r_o s^2}$$

10.62 INVALID-ORDER-62 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} L_1 r_o s^4 - C_1 C_L L_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 r_o s^4 - C_1 C_{gd} L_1 g_m r_o s^3 + C_1 C_{gd} L_1 s^3 - C_1 L_1 g_m s^2 + C_L C_{gd} C_{gs} L_1 r_o^2 s^4 + C_L C_{gd} L_1 g_m r_o^2 s^3 + 2 C_L C_{gd} L_1 g_m r_o s^3 + C_L C_{gd} L_1 r_o}{\dots}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_1 R_L r_o s^4 - C_1 C_L L_1 R_L g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_L r_o s^4 - C_1 C_{gd} L_1 R_L g_m r_o s^3 + C_1 C_{gd} L_1 R_L s^3 + C_1 C_{gd} L_1 r_o s^3 - C_1 L_1 R_L g_m s^2 - C_1 L_1 g_m r_o s^2 + C_L C_{gd} C_{gs} L_1 R_L r_o^2 s^4}{C_1 C_L C_{gd} L_1 R_L r_o s^4 - C_1 C_L L_1 R_L g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_L r_o s^4 - C_1 C_{gd} L_1 R_L g_m r_o s^3 + C_1 C_{gd} L_1 R_L s^3 + C_1 C_{gd} L_1 r_o s^3 - C_1 L_1 R_L g_m s^2 - C_1 L_1 g_m r_o s^2 + C_L C_{gd} C_{gs} L_1 R_L r_o^2 s^4}$$

10.64 INVALID-ORDER-64 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 R_L r_o s^5 - C_1 C_L C_{gd} L_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_L s^4 + C_1 C_L C_{gd} L_1 r_o s^4 - C_1 C_L L_1 R_L g_m s^3 - C_1 C_L L_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 r_o s^4 - C_1 C_{gd} L_1 g_m r_o s^3 + C_1 C_{gd} L_1 s^3}{\dots}$$

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

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 L_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L s^5 + C_1 C_L C_{gd} L_1 r_o s^4 - C_1 C_L L_1 L_L g_m s^4 - C_1 C_L L_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 r_o s^4 - C_1 C_{gd} L_1 g_m r_o s^3 + C_1 C_{gd} L_1 s^3}{C_1 C_L C_{gd}^2 L_1 L_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L s^5 + C_1 C_L C_{gd} L_1 r_o s^4 - C_1 C_L L_1 L_L g_m s^4 - C_1 C_L L_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 r_o s^4 - C_1 C_{gd} L_1 g_m r_o s^3 + C_1 C_{gd} L_1 s^3}.$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_1 L_L r_o s^5 - C_1 C_L L_1 L_L g_m r_o s^4 + C_1 C_{gd}^2 L_1 L_L r_o s^5 - C_1 C_{gd} L_1 L_L g_m r_o s^4 + C_1 C_{gd} L_1 L_L s^4 + C_1 C_{gd} L_1 r_o s^3 - C_1 L_1 L_L g_m s^3 - C_1 L_1 g_m r_o s^2 + C_L C_{gd} C_{gs} L_1 L_L r_o^2 s^5 +$$

10.67 INVALID-ORDER-67 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{ad}^2 L_1 L_L r_o s^6 + C_1 C_L C_{ad}^2 L_1 R_L r_o s^5 - C_1 C_L C_{gd} L_1 L_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L s^5 - C_1 C_L C_{gd} L_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_L s^4 + C_1 C_L C_{gd} L_1 r_o s^4 - C_1 C_L L_1 L_L g_m s^4}{C_1 C_L C_{ad}^2 L_1 L_L r_o s^6 + C_1 C_L C_{ad}^2 L_1 R_L r_o s^5 - C_1 C_L C_{gd} L_1 L_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L s^5 - C_1 C_L C_{gd} L_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_L s^4 + C_1 C_L C_{gd} L_1 r_o s^4 - C_1 C_L L_1 L_L g_m s^4}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_1 L_L R_L r_o s^5 - C_1 C_L L_1 L_L R_L g_m r_o s^4 + C_1 C_{gd}^2 L_1 L_L R_L r_o s^5 - C_1 C_{gd} L_1 L_L R_L g_m r_o s^4 + C_1 C_{gd} L_1 L_L R_L s^4 + C_1 C_{gd} L_1 L_L r_o s^4 + C_1 C_{gd} L_1 R_L r_o s^3 - C_1 L_1 L_L R_L g_m s^3}{C_1 C_L C_{gd} L_1 L_L R_L r_o s^5 - C_1 C_L L_1 L_L R_L g_m r_o s^4 + C_1 C_{gd}^2 L_1 L_L R_L r_o s^5 - C_1 C_{gd} L_1 L_L R_L g_m r_o s^4 + C_1 C_{gd} L_1 L_L R_L s^4 + C_1 C_{gd} L_1 L_L r_o s^4 + C_1 C_{gd} L_1 R_L r_o s^3 - C_1 L_1 L_L R_L g_m s^3}$$

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

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_L s^5 + C_1 C_L C_{gd} L_1 L_L r_o s^5 - C_1 C_L L_1 L_L R_L g_m s^4 - C_1 C_L L_1 L_L g_m r_o s^4 + C_1 C_{gd}^2 L_1 L_L r_o s^5 + C_1 C_{gd}^2 L_1 L_L}{C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_L s^5 + C_1 C_L C_{gd} L_1 L_L r_o s^5 - C_1 C_L L_1 L_L R_L g_m s^4 - C_1 C_L L_1 L_L g_m r_o s^4 + C_1 C_{gd}^2 L_1 L_L r_o s^5 + C_1 C_{gd}^2 L_1 L_L}$$

10.70 INVALID-ORDER-70 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_L s^5 + C_1 C_L C_{gd} L_1 L_L r_o s^5 + C_1 C_L C_{gd} L_1 R_L r_o s^4 - C_1 C_L L_1 L_L R_L g_m s^4 - C_1 C_L L_1 L_L g_m r_o s^4 - C_1 C_L L_1}{C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_L s^5 + C_1 C_L C_{gd} L_1 L_L r_o s^5 + C_1 C_L C_{gd} L_1 R_L r_o s^4 - C_1 C_L L_1 L_L R_L g_m s^4 - C_1 C_L L_1 L_L g_m r_o s^4 - C_1 C_L L_1}$$

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

$$H(s) = \frac{C_1 C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^5 + C_1 C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_{gd}^2 L_1 R_L g_m r_o^2 s^4 + C_1 C_{gd}^2 L_1 R_L r_o s^4 + C_1 C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_1 C_{gd}^2 R_1 R_L r_o s^3 + C_1 C_{gd}^2 R_L r_o s^3 - C_1 C_{gd} C_{gs} L_1 R_L g_m r_o^2 s^4 +$$

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

$$H(s) = \frac{1}{s \left(C_1 C_L C_{gd} C_{gs} L_1 r_o^2 s^4 + C_1 C_L C_{gd} C_{gs} R_1 r_o^2 s^3 + C_1 C_L C_{gd} L_1 g_m r_o^2 s^3 + 2 C_1 C_L C_{gd} L_1 g_m r_o s^3 + C_1 C_L C_{gd} L_1 r_o s^3 + 2 C_1 C_L C_{gd} L_1 s^3 + C_1 C_L C_{gd} R_1 g_m r_o^2 s^2 + 2 C_1 C_L C_{gd} R_1 g_m r_o s^2 + C_1 C_L C_{gd} R_1 s^2 + C_1 C_L C_{gd} s^2 \right)}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 R_L r_o^2 s^5 + C_1 C_L C_{gd} C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_L C_{gd} L_1 R_L g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_L r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_L s^4 + C_1 C_L C_{gd} R_1 R_L g_m r_o^2 s^3 -$$

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

$$H(s) = \frac{C_1 C_L C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^5 + C_1 C_L C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_L C_{gd}^2 L_1 R_L g_m r_o^2 s^4 + C_1 C_L C_{gd}^2 L_1 R_L r_o s^4 + C_1 C_L C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^3 + C_1 C_L C_{gd}^2 R_L r_o s^3 - C_1 C_L C_{gd}^2 R_L r_o}{s^6 + C_1 C_L C_{gd}^2 C_{gs} L_1 R_L r_o^2 s^5 + C_1 C_L C_{gd}^2 C_{gs} R_1 R_L r_o^2 s^4 + C_1 C_L C_{gd}^2 L_1 R_L g_m r_o^2 s^4 + C_1 C_L C_{gd}^2 L_1 R_L r_o s^4 + C_1 C_L C_{gd}^2 R_1 R_L g_m r_o^2 s^3 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^3 + C_1 C_L C_{gd}^2 R_L r_o s^3 - C_1 C_L C_{gd}^2 R_L r_o}$$

10.75 INVALID-ORDER-75 $Z(s) = \left(L_1s + R_1 + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{1}{s \left(C_1C_LC_{gd}^2C_{gs}L_1L_Lr_o^2s^6 + C_1C_LC_{gd}^2C_{gs}L_LR_1r_o^2s^5 + C_1C_LC_{gd}^2L_1L_Lg_mr_o^2s^5 + C_1C_LC_{gd}^2L_1L_Lr_os^5 + C_1C_LC_{gd}^2L_LR_1g_mr_o^2s^4 + C_1C_LC_{gd}^2L_LR_1r_os^4 + C_1C_LC_{gd}^2L_Lr_os^4 - C_1C_LC_{gd}^2L_LR_1r_os^4 \right)}$$

10.76 INVALID-ORDER-76 $Z(s) = \left(L_1s + R_1 + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{1}{C_1C_LC_{gd}C_{gs}L_1L_Lr_o^2s^6 + C_1C_LC_{gd}C_{gs}L_LR_1r_o^2s^5 + C_1C_LC_{gd}L_1L_Lg_mr_o^2s^5 + 2C_1C_LC_{gd}L_1L_Lg_mr_os^5 + C_1C_LC_{gd}L_1L_Lr_os^5 + 2C_1C_LC_{gd}L_1L_Ls^5 + C_1C_LC_{gd}L_LR_1g_mr_o^2s^4 + C_1C_LC_{gd}L_LR_1r_os^4}$$

10.77 INVALID-ORDER-77 $Z(s) = \left(L_1s + R_1 + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{1}{s \left(C_1C_LC_{gd}^2C_{gs}L_1L_Lr_o^2s^6 + C_1C_LC_{gd}^2C_{gs}L_LR_1r_o^2s^5 + C_1C_LC_{gd}^2C_{gs}L_LR_1r_o^2s^5 + C_1C_LC_{gd}^2C_{gs}R_1R_Lr_o^2s^4 + C_1C_LC_{gd}^2L_1L_Lg_mr_o^2s^5 + C_1C_LC_{gd}^2L_1L_Lr_os^5 + C_1C_LC_{gd}^2L_1R_Lg_mr_o^2s^4 + C_1C_LC_{gd}^2L_1R_Lr_os^4 \right)}$$

10.78 INVALID-ORDER-78 $Z(s) = \left(L_1s + R_1 + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{1}{C_1C_LC_{gd}C_{gs}L_1L_LR_Lr_o^2s^6 + C_1C_LC_{gd}C_{gs}L_LR_1R_Lr_o^2s^5 + C_1C_LC_{gd}L_1L_LR_Lg_mr_o^2s^5 + 2C_1C_LC_{gd}L_1L_LR_Lg_mr_os^5 + C_1C_LC_{gd}L_1L_LR_Lr_os^5 + 2C_1C_LC_{gd}L_1L_LR_Ls^5 + C_1C_LC_{gd}L_LR_1g_mr_o^2s^4 + C_1C_LC_{gd}L_LR_1r_os^4}$$

10.79 INVALID-ORDER-79 $Z(s) = \left(L_1s + R_1 + \frac{1}{C_1s}, \infty, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{1}{C_1C_LC_{gd}^2C_{gs}L_1L_LR_Lr_o^2s^7 + C_1C_LC_{gd}^2C_{gs}L_LR_1R_Lr_o^2s^6 + C_1C_LC_{gd}^2L_1L_LR_Lg_mr_o^2s^6 + C_1C_LC_{gd}^2L_1L_LR_Lr_os^6 + C_1C_LC_{gd}^2L_LR_1R_Lg_mr_o^2s^5 + C_1C_LC_{gd}^2L_LR_1R_Lr_os^5 + C_1C_LC_{gd}^2L_LR_1r_os^5}$$

10.80 INVALID-ORDER-80 $Z(s) = \left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 C_{gs} L_1 L_L R_L r_o^2 s^7 + C_1 C_L C_{gd}^2 C_{gs} L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_L g_m r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 + C_1 C_L C_{gd}^2 L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^5 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^4 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^3 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^2 + C_1 C_L C_{gd}^2 L_L R_1 R_L s + C_1 C_L C_{gd}^2 L_L R_1 R_L}{C_1 C_L C_{gd}^2 C_{gs} L_1 L_L R_L r_o^2 s^7 + C_1 C_L C_{gd}^2 C_{gs} L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_L g_m r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 + C_1 C_L C_{gd}^2 L_L R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^5 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^4 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^3 + C_1 C_L C_{gd}^2 L_L R_1 R_L s^2 + C_1 C_L C_{gd}^2 L_L R_1 R_L s + C_1 C_L C_{gd}^2 L_L R_1 R_L}$$

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

$$H(s) = \frac{C_1 C_{gd}^2 L_1 R_1 R_L r_o s^4 - C_1 C_{gd} L_1 R_1 R_L g_m r_o s^3 + C_1 C_{gd} L_1 R_1 R_L s^3 + C_1 C_{gd} L_1 R_1 r_o s^3 - C_1 L_1 R_1 R_L g_m s^2 - C_1 L_1 R_1 g_m r_o s^2 + C_{gd}^2 C_{gs} L_1 R_1 R_L r_o^2 s^4 + C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^3 + C_{gd}^2 L_1 R_1 R_L r_o^2 s^2 + C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s + C_{gd}^2 L_1 R_1 R_L r_o^2}{C_1 C_{gd}^2 L_1 R_1 R_L r_o s^4 - C_1 C_{gd} L_1 R_1 R_L g_m r_o s^3 + C_1 C_{gd} L_1 R_1 R_L s^3 + C_1 C_{gd} L_1 R_1 r_o s^3 - C_1 L_1 R_1 R_L g_m s^2 - C_1 L_1 R_1 g_m r_o s^2 + C_{gd}^2 C_{gs} L_1 R_1 R_L r_o^2 s^4 + C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^3 + C_{gd}^2 L_1 R_1 R_L r_o^2 s^2 + C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s + C_{gd}^2 L_1 R_1 R_L r_o^2}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_1 R_1 r_o s^4 - C_1 C_L L_1 R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_1 r_o s^4 - C_1 C_{gd} L_1 R_1 g_m r_o s^3 + C_1 C_{gd} L_1 R_1 s^3 - C_1 L_1 R_1 g_m s^2 + C_L C_{gd} C_{gs} L_1 R_1 r_o^2 s^4 + C_L C_{gd} L_1 R_1 g_m r_o^2 s^3 + 2 C_L C_{gd} L_1 R_1 g_m r_o s^2 + C_L C_{gd} L_1 R_1 s^2}{C_1 C_L C_{gd} L_1 R_1 r_o s^4 - C_1 C_L L_1 R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_1 r_o s^4 - C_1 C_{gd} L_1 R_1 g_m r_o s^3 + C_1 C_{gd} L_1 R_1 s^3 - C_1 L_1 R_1 g_m s^2 + C_L C_{gd} C_{gs} L_1 R_1 r_o^2 s^4 + C_L C_{gd} L_1 R_1 g_m r_o^2 s^3 + 2 C_L C_{gd} L_1 R_1 g_m r_o s^2 + C_L C_{gd} L_1 R_1 s^2}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_1 R_1 R_L r_o s^4 - C_1 C_L L_1 R_1 R_L g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_1 R_L r_o s^4 - C_1 C_{gd} L_1 R_1 R_L g_m r_o s^3 + C_1 C_{gd} L_1 R_1 R_L s^3 + C_1 C_{gd} L_1 R_1 r_o s^3 - C_1 L_1 R_1 R_L g_m s^2 - C_1 L_1 R_1 g_m r_o s^2 +$$

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

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 - C_1 C_L L_1 R_1 R_L g_m s^3 - C_1 C_L L_1 R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_1 r_o s^4 - C_1 C_{gd} L_1 R_1}{C_1 C_L C_{gd}^2 L_1 R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 - C_1 C_L L_1 R_1 R_L g_m s^3 - C_1 C_L L_1 R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_1 r_o s^4 - C_1 C_{gd} L_1 R_1}$$

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

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 L_L R_1 r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 s^5 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 - C_1 C_L L_1 L_L R_1 g_m s^4 - C_1 C_L L_1 R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_1 r_o s^4 - C_1 C_{gd} L_1 R_1}{C_1 C_L C_{gd}^2 L_1 L_L R_1 r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 s^5 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 - C_1 C_L L_1 L_L R_1 g_m s^4 - C_1 C_L L_1 R_1 g_m r_o s^3 + C_1 C_{gd}^2 L_1 R_1 r_o s^4 - C_1 C_{gd} L_1 R_1}$$

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

$$H(s) = \frac{C_1 C_L C_{gd} L_1 L_L R_1 r_o s^5 - C_1 C_L L_1 L_L R_1 g_m r_o s^4 + C_1 C_{gd}^2 L_1 L_L R_1 r_o s^5 - C_1 C_{gd} L_1 L_L R_1 g_m r_o s^4 + C_1 C_{gd} L_1 L_L R_1 s^4 + C_1 C_{gd} L_1 R_1 r_o s^3 - C_1 L_1 L_L R_1 g_m s^3 - C_1 L_1 R_1 g_m r_o s^2 +$$

10.87 INVALID-ORDER-87 $Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 L_L R_1 r_o s^6 + C_1 C_L C_{gd}^2 L_1 R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 s^5 - C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4}{C_1 C_L C_{gd}^2 L_1 L_L R_1 r_o s^6 + C_1 C_L C_{gd}^2 L_1 R_1 R_L r_o s^5 - C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 s^5 - C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4}$$

10.88 INVALID-ORDER-88 $Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} L_1 L_L R_1 R_L r_o s^5 - C_1 C_L L_1 L_L R_1 R_L g_m r_o s^4 + C_1 C_{ad}^2 L_1 L_L R_1 R_L r_o s^5 - C_1 C_{gd} L_1 L_L R_1 R_L g_m r_o s^4 + C_1 C_{gd} L_1 L_L R_1 R_L s^4 + C_1 C_{gd} L_1 L_L R_1 r_o s^4 + C_1 C_{gd} L_1 R_1 R_L r_o s^4}{C_1 C_L C_{gd} L_1 L_L R_1 R_L r_o s^5 - C_1 C_L L_1 L_L R_1 R_L g_m r_o s^4 + C_1 C_{ad}^2 L_1 L_L R_1 R_L r_o s^5 - C_1 C_{gd} L_1 L_L R_1 R_L g_m r_o s^4 + C_1 C_{gd} L_1 L_L R_1 R_L s^4 + C_1 C_{gd} L_1 L_L R_1 r_o s^4 + C_1 C_{gd} L_1 R_1 R_L r_o s^4}$$

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

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_1 R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 R_L s^5 + C_1 C_L C_{gd} L_1 L_L R_1 r_o s^5 - C_1 C_L L_1 L_L R_1 R_L g_m s^4 - C_1 C_L L_1 L_L R_1 g_m r_o s^4 + C_1 C_{gd}^2 L_1 L_L}{\dots}$$

10.90 INVALID-ORDER-90 $Z(s) = \left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_1 R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 R_L s^5 + C_1 C_L C_{gd} L_1 L_L R_1 r_o s^5 + C_1 C_L C_{gd} L_1 R_1 R_L r_o s^4 - C_1 C_L L_1 L_L R_1 R_L g_m s^4 - C_1 C_L L_1 L_L}{C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L r_o s^6 - C_1 C_L C_{gd} L_1 L_L R_1 R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 R_L s^5 + C_1 C_L C_{gd} L_1 L_L R_1 r_o s^5 + C_1 C_L C_{gd} L_1 R_1 R_L r_o s^4 - C_1 C_L L_1 L_L R_1 R_L g_m s^4 - C_1 C_L L_1 L_L}$$

10.91 INVALID-ORDER-91 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, R_L \right)$

$$H(s) = \frac{C_1 C_{gd}^2 C_{gs} L_1 R_1 R_L R_o^2 s^5 + C_1 C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^4 + C_1 C_{gd}^2 L_1 R_1 R_L R_o s^4 + C_1 C_{gd}^2 L_1 R_L R_o s^4 - C_1 C_{gd} C_{gs} L_1 R_1 R_L g_m r_o^2 s^4 + C_1 C_{gd} C_{gs} L_1 R_1 R_L R_o s^4 + C_1 C_{gd} C_{gs} L_1 R_1 r_o^2 s^4 - C_1$$

10.92 INVALID-ORDER-92 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 R_1 r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 s^4 + C_1 C_L C_{gd} L_1 r_o s^4 + C_1 C_L C_{gs} L_1 R_1 g_m r_o s^4 + C_1 C_L C_{gs} L_1 R_1 r_o s^4 + C_1 C_L C_{gs} L_1 R_1 s^4 + C_1 C_L C_{gs} L_1 s^4}{C_1 C_L C_{gd} C_{gs} L_1 R_1 r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 s^4 + C_1 C_L C_{gd} L_1 r_o s^4 + C_1 C_L C_{gs} L_1 R_1 g_m r_o s^4 + C_1 C_L C_{gs} L_1 R_1 r_o s^4 + C_1 C_L C_{gs} L_1 R_1 s^4 + C_1 C_L C_{gs} L_1 s^4}$$

10.93 INVALID-ORDER-93 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_L r_o s^4 + C_1 C_L C_{gs} L_1 R_1 R_L r_o s^4 + C_1 C_L C_{gs} L_1 R_1 R_L s^4}{C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_L r_o s^4 + C_1 C_L C_{gs} L_1 R_1 R_L r_o s^4 + C_1 C_L C_{gs} L_1 R_1 R_L s^4}$$

10.94 INVALID-ORDER-94 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 C_{gs} L_1 R_1 R_L r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd}^2 L_1 R_1 R_L r_o s^5 + C_1 C_L C_{gd}^2 L_1 R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L r_o s^5 + C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L r_o s^5}{\dots}$$

10.100 INVALID-ORDER-100 $Z(s) = \left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{qd}^2 C_{gs} L_1 L_L R_1 R_L r_o^2 s^7 + C_1 C_L C_{qd}^2 L_1 L_L R_1 R_L g_m r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_1 R_L r_o s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_L R_L r_o s^6 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L g_m r_o^2 s^6 + C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L R_L r_o s^6}{C_1 C_L C_{qd}^2 C_{gs} L_1 L_L R_1 R_L r_o^2 s^7 + C_1 C_L C_{qd}^2 L_1 L_L R_1 R_L g_m r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_1 R_L r_o s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_L R_L r_o s^6 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L g_m r_o^2 s^6 + C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L R_L r_o s^6}$$

$$\text{10.101 INVALID-ORDER-101 } Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, R_L \right)$$

$$H(s) = \frac{C_1 C_{gd}^2 C_{gs} L_1 R_1 R_L R_o r_o^2 s^5 + C_1 C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^4 + C_1 C_{gd}^2 L_1 R_1 R_L R_o s^4 + C_1 C_{gd}^2 L_1 R_L R_o s^4 + C_1 C_{gd}^2 R_1 R_L R_o s^3 - C_1 C_{gd} C_{gs} L_1 R_1 R_L g_m r_o^2 s^4 + C_1 C_{gd} C_{gs} L_1 R_1 R_L R_o s^4 + C_1 C_{gd} C_{gs} L_1 R_1 R_L R_o s^4}{C_1 C_{gd}^2 C_{gs} L_1 R_1 R_L R_o r_o^2 s^5 + C_1 C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^4 + C_1 C_{gd}^2 L_1 R_1 R_L R_o s^4 + C_1 C_{gd}^2 L_1 R_L R_o s^4 + C_1 C_{gd}^2 R_1 R_L R_o s^3 - C_1 C_{gd} C_{gs} L_1 R_1 R_L g_m r_o^2 s^4 + C_1 C_{gd} C_{gs} L_1 R_1 R_L R_o s^4 + C_1 C_{gd} C_{gs} L_1 R_1 R_L R_o s^4}$$

10.102 INVALID-ORDER-102 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 R_1 r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 s^4 + C_1 C_L C_{gd} L_1 r_o s^4 + C_1 C_L C_{gd} R_1 r_o s^3 + C_1 C_L C_{gs} L_1 R_1 s^3}{C_1 C_L C_{gd} C_{gs} L_1 R_1 r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 s^4 + C_1 C_L C_{gd} L_1 r_o s^4 + C_1 C_L C_{gd} R_1 r_o s^3 + C_1 C_L C_{gs} L_1 R_1 s^3}$$

10.103 INVALID-ORDER-103 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_L r_o s^4 + C_1 C_L C_{gd} R_1 R_L s^4}{C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L r_o^2 s^5 + C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o^2 s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L g_m r_o s^4 + C_1 C_L C_{gd} L_1 R_1 R_L r_o s^4 + 2 C_1 C_L C_{gd} L_1 R_1 R_L s^4 + C_1 C_L C_{gd} L_1 R_L r_o s^4 + C_1 C_L C_{gd} R_1 R_L s^4}$$

10.104 INVALID-ORDER-104 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 C_{gs} L_1 R_1 R_L r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd}^2 L_1 R_1 R_L r_o s^5 + C_1 C_L C_{gd}^2 L_1 R_L r_o s^5 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^4 - C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd} C_{gs}}{C_1 C_L C_{gd}^2 C_{gs} L_1 R_1 R_L r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd}^2 L_1 R_1 R_L r_o s^5 + C_1 C_L C_{gd}^2 L_1 R_L r_o s^5 + C_1 C_L C_{gd}^2 R_1 R_L r_o s^4 - C_1 C_L C_{gd} C_{gs} L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{gd} C_{gs}}$$

10.105 INVALID-ORDER-105 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 C_{gs} L_1 L_L R_1 r_o^2 s^7 + C_1 C_L C_{gd}^2 L_1 L_L R_1 g_m r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_1 r_o s^6 + C_1 C_L C_{gd}^2 L_1 L_L r_o s^6 + C_1 C_L C_{gd}^2 L_L R_1 r_o s^5 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 g_m r_o^2 s^6 + C_1 C_L C_{gd} C_{gs}}{...}$$

10.106 INVALID-ORDER-106 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 r_o^2 s^6 + C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o^2 s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 r_o s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 s^5 + C_1 C_L C_{gd} L_1 L_L r_o s^5 + C_1 C_L C_{gd} L_L R_1 s^5}{C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 r_o^2 s^6 + C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o^2 s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 r_o s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 s^5 + C_1 C_L C_{gd} L_1 L_L r_o s^5 + C_1 C_L C_{gd} L_L R_1 s^5 + C_1 C_L C_{gd} s^5}$$

10.107 INVALID-ORDER-107 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_1 C_L C_{qd}^2 C_{gs} L_1 L_L R_1 r_o^2 s^7 + C_1 C_L C_{qd}^2 C_{gs} L_1 R_1 R_L r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_1 g_m r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_1 r_o s^6 + C_1 C_L C_{qd}^2 L_1 L_L r_o s^6 + C_1 C_L C_{qd}^2 L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{qd}^2 L_1 R_1 R_L r_o s^5 + C_1 C_L C_{qd}^2 L_1 R_1 R_L s^5}{C_1 C_L C_{qd}^2 C_{gs} L_1 L_L R_1 R_L r_o^2 s^7 + C_1 C_L C_{qd}^2 C_{gs} L_1 R_1 R_L r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_1 g_m r_o^2 s^6 + C_1 C_L C_{qd}^2 L_1 L_L R_1 r_o s^6 + C_1 C_L C_{qd}^2 L_1 L_L r_o s^6 + C_1 C_L C_{qd}^2 L_1 R_1 R_L g_m r_o^2 s^5 + C_1 C_L C_{qd}^2 L_1 R_1 R_L r_o s^5 + C_1 C_L C_{qd}^2 L_1 R_1 R_L s^5}$$

10.108 INVALID-ORDER-108 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L + \frac{1}{L_L s}}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{gd} L_1 L_L R_1 R_L g_m r_o^2 s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 R_L r_o s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 R_L s^5 + C_1 C_L C_{gd} L_1 L_L R_L r_o s}{C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L r_o^2 s^6 + C_1 C_L C_{gd} L_1 L_L R_1 R_L g_m r_o^2 s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 R_L g_m r_o s^5 + C_1 C_L C_{gd} L_1 L_L R_1 R_L r_o s^5 + 2 C_1 C_L C_{gd} L_1 L_L R_1 R_L s^5 + C_1 C_L C_{gd} L_1 L_L R_L r_o s}$$

10.109 INVALID-ORDER-109 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 C_{gs} L_1 L_L R_1 R_L r_o^2 s^7 + C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L g_m r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L r_o s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 + C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L g_m r_o^2}{\dots}$$

10.110 INVALID-ORDER-110 $Z(s) = \left(\frac{R_1 \left(L_1 s + \frac{1}{C_1 s} \right)}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, \frac{R_L \left(L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{C_1 C_L C_{gd}^2 C_{gs} L_1 L_L R_1 R_L r_o^2 s^7 + C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L g_m r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L r_o s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 + C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L g_m r_o^2 s^4}{C_1 C_L C_{gd}^2 C_{gs} L_1 L_L R_1 R_L r_o^2 s^7 + C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L g_m r_o^2 s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_1 R_L r_o s^6 + C_1 C_L C_{gd}^2 L_1 L_L R_L r_o s^6 + C_1 C_L C_{gd}^2 L_L R_1 R_L r_o s^5 - C_1 C_L C_{gd} C_{gs} L_1 L_L R_1 R_L g_m r_o^2 s^4}$$