

Filter Summary Report: TIA,simple,Z3,Z4

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**Contents**

1    Examined  $H(z)$  for TIA simple **Z3 Z4:**  $\frac{Z_3Z_4g_m}{2Z_3g_m+Z_4g_m}$

$$H(z) = \frac{Z_3Z_4g_m}{2Z_3g_m + Z_4g_m}$$

2    HP

3    BP

4    LP

5    BS

6    GE

7    AP

8    INVALID-NUMER

9    INVALID-WZ

10   INVALID-ORDER

10.1   INVALID-ORDER-1  $Z(s) = (\infty, \infty, R_3, R_4, \infty, \infty)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

10.2   INVALID-ORDER-2  $Z(s) = \left(\infty, \infty, R_3, \frac{1}{C_4s}, \infty, \infty\right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

10.3   INVALID-ORDER-3  $Z(s) = \left(\infty, \infty, R_3, \frac{R_4}{C_4R_4s+1}, \infty, \infty\right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

10.4   INVALID-ORDER-4  $Z(s) = \left(\infty, \infty, R_3, R_4 + \frac{1}{C_4s}, \infty, \infty\right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.5    INVALID-ORDER-5 } Z(s) = \left( \infty, \infty, R_3, L_4 s + \frac{1}{C_4 s}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.6    INVALID-ORDER-6 } Z(s) = \left( \infty, \infty, R_3, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.7    INVALID-ORDER-7 } Z(s) = \left( \infty, \infty, R_3, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.8    INVALID-ORDER-8 } Z(s) = \left( \infty, \infty, R_3, \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.9    INVALID-ORDER-9 } Z(s) = \left( \infty, \infty, R_3, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.10    INVALID-ORDER-10 } Z(s) = \left( \infty, \infty, R_3, \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.11    INVALID-ORDER-11 } Z(s) = \left( \infty, \infty, \frac{1}{C_3 s}, R_4, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.12    INVALID-ORDER-12 } Z(s) = \left( \infty, \infty, \frac{1}{C_3 s}, \frac{1}{C_4 s}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.13    INVALID-ORDER-13 } Z(s) = \left( \infty, \infty, \frac{1}{C_3 s}, \frac{R_4}{C_4 R_4 s + 1}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.14    INVALID-ORDER-14 } Z(s) = \left( \infty, \infty, \frac{1}{C_3 s}, R_4 + \frac{1}{C_4 s}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.15} \quad \textbf{INVALID-ORDER-15} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad L_4 s + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.16} \quad \textbf{INVALID-ORDER-16} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.17} \quad \textbf{INVALID-ORDER-17} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad L_4 s + R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.18} \quad \textbf{INVALID-ORDER-18} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.19} \quad \textbf{INVALID-ORDER-19} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.20} \quad \textbf{INVALID-ORDER-20} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.21} \quad \textbf{INVALID-ORDER-21} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.22} \quad \textbf{INVALID-ORDER-22} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.23} \quad \textbf{INVALID-ORDER-23} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \frac{R_4}{C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.24} \quad \textbf{INVALID-ORDER-24} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.25} \quad \textbf{INVALID-ORDER-25} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad L_4 s + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.26} \quad \textbf{INVALID-ORDER-26} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.27} \quad \textbf{INVALID-ORDER-27} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad L_4 s + R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.28} \quad \textbf{INVALID-ORDER-28} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.29} \quad \textbf{INVALID-ORDER-29} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.30} \quad \textbf{INVALID-ORDER-30} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.31} \quad \textbf{INVALID-ORDER-31} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.32} \quad \textbf{INVALID-ORDER-32} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.33} \quad \textbf{INVALID-ORDER-33} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \frac{R_4}{C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.34} \quad \textbf{INVALID-ORDER-34} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.35 \quad \text{INVALID-ORDER-35} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad L_4 s + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.36 \quad \text{INVALID-ORDER-36} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.37 \quad \text{INVALID-ORDER-37} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad L_4 s + R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.38 \quad \text{INVALID-ORDER-38} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.39 \quad \text{INVALID-ORDER-39} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.40 \quad \text{INVALID-ORDER-40} \quad Z(s) = \left( \infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.41 \quad \text{INVALID-ORDER-41} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + \frac{1}{C_3 s}, \quad R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.42 \quad \text{INVALID-ORDER-42} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + \frac{1}{C_3 s}, \quad \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.43 \quad \text{INVALID-ORDER-43} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + \frac{1}{C_3 s}, \quad \frac{R_4}{C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.44 \quad \text{INVALID-ORDER-44} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + \frac{1}{C_3 s}, \quad R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

**10.45    INVALID-ORDER-45**  $Z(s) = \left( \infty, \infty, L_3s + \frac{1}{C_3s}, L_4s + \frac{1}{C_4s}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.46    INVALID-ORDER-46**  $Z(s) = \left( \infty, \infty, L_3s + \frac{1}{C_3s}, \frac{L_4s}{C_4L_4s^2+1}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.47    INVALID-ORDER-47**  $Z(s) = \left( \infty, \infty, L_3s + \frac{1}{C_3s}, L_4s + R_4 + \frac{1}{C_4s}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.48    INVALID-ORDER-48**  $Z(s) = \left( \infty, \infty, L_3s + \frac{1}{C_3s}, \frac{L_4R_4s}{C_4L_4R_4s^2+L_4s+R_4}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.49    INVALID-ORDER-49**  $Z(s) = \left( \infty, \infty, L_3s + \frac{1}{C_3s}, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.50    INVALID-ORDER-50**  $Z(s) = \left( \infty, \infty, L_3s + \frac{1}{C_3s}, \frac{R_4(C_4L_4s^2+1)}{C_4L_4s^2+C_4R_4s+1}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.51    INVALID-ORDER-51**  $Z(s) = \left( \infty, \infty, \frac{L_3s}{C_3L_3s^2+1}, R_4, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.52    INVALID-ORDER-52**  $Z(s) = \left( \infty, \infty, \frac{L_3s}{C_3L_3s^2+1}, \frac{1}{C_4s}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.53    INVALID-ORDER-53**  $Z(s) = \left( \infty, \infty, \frac{L_3s}{C_3L_3s^2+1}, \frac{R_4}{C_4R_4s+1}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

**10.54    INVALID-ORDER-54**  $Z(s) = \left( \infty, \infty, \frac{L_3s}{C_3L_3s^2+1}, R_4 + \frac{1}{C_4s}, \infty, \infty \right)$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.55} \quad \textbf{INVALID-ORDER-55} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad L_4 s + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.56} \quad \textbf{INVALID-ORDER-56} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.57} \quad \textbf{INVALID-ORDER-57} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad L_4 s + R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.58} \quad \textbf{INVALID-ORDER-58} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.59} \quad \textbf{INVALID-ORDER-59} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.60} \quad \textbf{INVALID-ORDER-60} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.61} \quad \textbf{INVALID-ORDER-61} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.62} \quad \textbf{INVALID-ORDER-62} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.63} \quad \textbf{INVALID-ORDER-63} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \frac{R_4}{C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\textbf{10.64} \quad \textbf{INVALID-ORDER-64} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$



$$10.65 \quad \text{INVALID-ORDER-65} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad L_4 s + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.66 \quad \text{INVALID-ORDER-66} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.67 \quad \text{INVALID-ORDER-67} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad L_4 s + R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.68 \quad \text{INVALID-ORDER-68} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.69 \quad \text{INVALID-ORDER-69} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.70 \quad \text{INVALID-ORDER-70} \quad Z(s) = \left( \infty, \quad \infty, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.71 \quad \text{INVALID-ORDER-71} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.72 \quad \text{INVALID-ORDER-72} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.73 \quad \text{INVALID-ORDER-73} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \frac{R_4}{C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.74 \quad \text{INVALID-ORDER-74} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.75 \quad \text{INVALID-ORDER-75} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad L_4 s + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.76 \quad \text{INVALID-ORDER-76} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.77 \quad \text{INVALID-ORDER-77} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad L_4 s + R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.78 \quad \text{INVALID-ORDER-78} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.79 \quad \text{INVALID-ORDER-79} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.80 \quad \text{INVALID-ORDER-80} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + L_3 s + R_3}, \quad \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.81 \quad \text{INVALID-ORDER-81} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \quad R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.82 \quad \text{INVALID-ORDER-82} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \quad \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.83 \quad \text{INVALID-ORDER-83} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \quad \frac{R_4}{C_4 R_4 s + 1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.84 \quad \text{INVALID-ORDER-84} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \quad R_4 + \frac{1}{C_4 s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.85 \quad \text{INVALID-ORDER-85} \quad Z(s) = \left( \infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, L_4 s + \frac{1}{C_4 s}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.86 \quad \text{INVALID-ORDER-86} \quad Z(s) = \left( \infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.87 \quad \text{INVALID-ORDER-87} \quad Z(s) = \left( \infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.88 \quad \text{INVALID-ORDER-88} \quad Z(s) = \left( \infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \frac{L_4 R_4 s}{C_4 L_4 R_4 s^2 + L_4 s + R_4}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.89 \quad \text{INVALID-ORDER-89} \quad Z(s) = \left( \infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.90 \quad \text{INVALID-ORDER-90} \quad Z(s) = \left( \infty, \infty, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 1}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.91 \quad \text{INVALID-ORDER-91} \quad Z(s) = \left( \infty, \infty, \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, R_4, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.92 \quad \text{INVALID-ORDER-92} \quad Z(s) = \left( \infty, \infty, \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \frac{1}{C_4 s}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$10.93 \quad \text{INVALID-ORDER-93} \quad Z(s) = \left( \infty, \infty, \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_3 s + 1}, \frac{R_4}{C_4 R_4 s + 1}, \infty, \infty \right)$$

$$H(s) = \frac{Z_3 Z_4}{2Z_3 + Z_4}$$

$$\mathbf{10.94 \quad INVALID-ORDER-94} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \quad R_4 + \frac{1}{C_4s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\mathbf{10.95 \quad INVALID-ORDER-95} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \quad L_4s + \frac{1}{C_4s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\mathbf{10.96 \quad INVALID-ORDER-96} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \quad \frac{L_4s}{C_4L_4s^2+1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\mathbf{10.97 \quad INVALID-ORDER-97} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \quad L_4s + R_4 + \frac{1}{C_4s}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\mathbf{10.98 \quad INVALID-ORDER-98} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \quad \frac{L_4R_4s}{C_4L_4R_4s^2+L_4s+R_4}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\mathbf{10.99 \quad INVALID-ORDER-99} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \quad \frac{L_4s}{C_4L_4s^2+1} + R_4, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$

$$\mathbf{10.100 \quad INVALID-ORDER-100} \quad Z(s) = \left( \infty, \quad \infty, \quad \frac{R_3(C_3L_3s^2+1)}{C_3L_3s^2+C_3R_3s+1}, \quad \frac{R_4(C_4L_4s^2+1)}{C_4L_4s^2+C_4R_4s+1}, \quad \infty, \quad \infty \right)$$

$$H(s) = \frac{Z_3Z_4}{2Z_3 + Z_4}$$