

Filter Summary Report: VLSI,CMMF,Automated,NA,Z3,Z5,Z6

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Contents

1 Examined $H(z)$ for VLSI CMMF Automated NA Z3 Z5 Z6: $\infty \operatorname{sign}\left(\frac{Z_6}{Z_5}\right)$

$H(z) = \infty \operatorname{sign}\left(\frac{Z_6}{Z_5}\right)$

2 AP

3 BP

4 BP-UNSTABLE-ZERO

5 BS

6 GE

7 HP

8 LP

9 X-INVALID-NUMER

10 X-INVALID-ORDER

10.1 X-INVALID-ORDER-1 $Z(s) = (\infty, \infty, R_3, \infty, R_5, R_6)$

$H(s) = \infty$

10.2 X-INVALID-ORDER-2 $Z(s) = \left(\infty, \infty, R_3, \infty, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$

$H(s) = \infty$

10.3 X-INVALID-ORDER-3 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s}, \infty, R_5, R_6\right)$

$H(s) = \infty$

10.4 X-INVALID-ORDER-4 $Z(s) = \left(\infty, \infty, \frac{1}{C_3s}, \infty, \frac{1}{C_5s}, \frac{1}{C_6s}\right)$

$H(s) = \infty$

10.5

X-INVALID-ORDER-5

$$Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, R_5, R_6 \right)$$

$$H(s) = \infty$$

10.6

X-INVALID-ORDER-6

$$Z(s) = \left(\infty, \infty, R_3 + \frac{1}{C_3 s}, \infty, \frac{1}{C_5 s}, \frac{1}{C_6 s} \right)$$

$$H(s) = \infty$$

10.7

X-INVALID-ORDER-7

$$Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, R_5, R_6 \right)$$

$$H(s) = \infty$$

10.8

X-INVALID-ORDER-8

$$Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \frac{1}{C_5 s}, \frac{1}{C_6 s} \right)$$

$$H(s) = \infty$$

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X-INVALID-WZ

12

X-PolynomialError

12.1

X-PolynomialError-1

$$Z(s) = \left(\infty, \infty, R_3, \infty, R_5, \frac{1}{C_6 s} \right)$$

$$H(s) = \frac{\infty |s|}{s}$$

12.2

X-PolynomialError-2

$$Z(s) = \left(\infty, \infty, R_3, \infty, R_5, R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_6 R_6 + \frac{1}{s} = 0 \\ \frac{\infty (s+1) \left| \frac{s}{C_6 R_6 s + 1} \right|}{s} & \text{otherwise} \end{cases}$$

12.3

X-PolynomialError-3

$$Z(s) = \left(\infty, \infty, R_3, \infty, R_5, \frac{R_6}{C_6 R_6 s + 1} \right)$$

$$H(s) = \frac{\infty |C_6 R_6 s + 1|}{C_6 R_6 s + 1}$$

12.4

X-PolynomialError-4

$$Z(s) = \left(\infty, \infty, R_3, \infty, \frac{1}{C_5 s}, R_6 \right)$$

$$H(s) = \frac{\infty s}{|s|}$$

12.5

X-PolynomialError-5

$$Z(s) = \left(\infty, \infty, R_3, \infty, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_6 R_6 s = -1 \\ \frac{\infty (s+1)}{|C_6 R_6 s + 1|} & \text{otherwise} \end{cases}$$

12.6 X-PolynomialError-6 $Z(s) = \left(\infty, \infty, R_3, \infty, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{s}{C_6 R_6 s + 1} = 0 \\ \frac{\infty s}{(C_6 R_6 s + 1) \left| \frac{s}{C_6 R_6 s + 1} \right|} & \text{otherwise} \end{cases}$$

12.7 X-PolynomialError-7 $Z(s) = \left(\infty, \infty, R_3, \infty, R_5 + \frac{1}{C_5 s}, R_6 \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{s}{C_5 R_5 s + 1} = 0 \\ \frac{\infty s}{(C_5 R_5 s + 1) \left| \frac{s}{C_5 R_5 s + 1} \right|} & \text{otherwise} \end{cases}$$

12.8 X-PolynomialError-8 $Z(s) = \left(\infty, \infty, R_3, \infty, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s} \right)$

$$H(s) = \frac{\infty |C_5 R_5 s + 1|}{C_5 R_5 s + 1}$$

12.9 X-PolynomialError-9 $Z(s) = \left(\infty, \infty, R_3, \infty, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{C_6 R_6 s + 1}{C_5 R_5 s + 1} = 0 \\ \frac{\infty (s+1)}{(C_5 R_5 s + 1) \left| \frac{C_6 R_6 s + 1}{C_5 R_5 s + 1} \right|} & \text{otherwise} \end{cases}$$

12.10 X-PolynomialError-10 $Z(s) = \left(\infty, \infty, R_3, \infty, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1)} = 0 \\ \frac{\infty s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1) \left| \frac{s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1)} \right|} & \text{otherwise} \end{cases}$$

12.11 X-PolynomialError-11 $Z(s) = \left(\infty, \infty, R_3, \infty, \frac{R_5}{C_5 R_5 s + 1}, R_6 \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_5 R_5 s = -1 \\ \frac{\infty (s+1)}{|C_5 R_5 s + 1|} & \text{otherwise} \end{cases}$$

12.12 X-PolynomialError-12 $Z(s) = \left(\infty, \infty, R_3, \infty, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_5 R_5 + \frac{1}{s} = 0 \\ \frac{\infty (s+1) \left| \frac{s}{C_5 R_5 s + 1} \right|}{s} & \text{otherwise} \end{cases}$$

12.13 X-PolynomialError-13 $Z(s) = \left(\infty, \infty, R_3, \infty, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{(C_5 R_5 s + 1)(C_6 R_6 s + 1)}{s} = 0 \\ \frac{\infty (s^2 + s + 1)}{s |C_5 C_6 R_5 R_6 s + C_5 R_5 + C_6 R_6 + \frac{1}{s}|} & \text{otherwise} \end{cases}$$

12.14 X-PolynomialError-14 $Z(s) = \left(\infty, \infty, R_3, \infty, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} = 0 \\ \frac{\infty (s+1)}{(C_6 R_6 s + 1) \left| \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} \right|} & \text{otherwise} \end{cases}$$

12.15 X-PolynomialError-15 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, R_5, \frac{1}{C_6 s} \right)$

$$H(s) = \frac{\infty |s|}{s}$$

12.16 X-PolynomialError-16 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, R_5, R_6 + \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_6 R_6 + \frac{1}{s} = 0 \\ \frac{\infty(s+1) \left| \frac{s}{C_6 R_6 s + 1} \right|}{s} & \text{otherwise} \end{cases}$$

12.17 X-PolynomialError-17 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, R_5, \frac{R_6}{C_6 R_6 s + 1} \right)$

$$H(s) = \frac{\infty |C_6 R_6 s + 1|}{C_6 R_6 s + 1}$$

12.18 X-PolynomialError-18 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \frac{1}{C_5 s}, R_6 \right)$

$$H(s) = \frac{\infty s}{|s|}$$

12.19 X-PolynomialError-19 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_6 R_6 s = -1 \\ \frac{\infty(s+1)}{|C_6 R_6 s + 1|} & \text{otherwise} \end{cases}$$

12.20 X-PolynomialError-20 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1} \right)$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{s}{C_6 R_6 s + 1} = 0 \\ \frac{\infty s}{(C_6 R_6 s + 1) \left| \frac{s}{C_6 R_6 s + 1} \right|} & \text{otherwise} \end{cases}$$

12.21 X-PolynomialError-21 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, R_5 + \frac{1}{C_5 s}, R_6 \right)$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{s}{C_5 R_5 s + 1} = 0 \\ \frac{\infty s}{(C_5 R_5 s + 1) \left| \frac{s}{C_5 R_5 s + 1} \right|} & \text{otherwise} \end{cases}$$

12.22 X-PolynomialError-22 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, R_5 + \frac{1}{C_5 s}, \frac{1}{C_6 s} \right)$

$$H(s) = \frac{\infty |C_5 R_5 s + 1|}{C_5 R_5 s + 1}$$

12.23 X-PolynomialError-23 $Z(s) = \left(\infty, \infty, \frac{1}{C_3 s}, \infty, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{C_6 R_6 s + 1}{C_5 R_5 s + 1} = 0 \\ \frac{\infty(s+1)}{(C_5 R_5 s + 1) \left| \frac{C_6 R_6 s + 1}{C_5 R_5 s + 1} \right|} & \text{otherwise} \end{cases}$$

$$12.24 \quad \mathbf{X}\text{-PolynomialError-24} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \infty, \quad R_5 + \frac{1}{C_5 s}, \quad \frac{R_6}{C_6 R_6 s + 1} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{\infty s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1)} = 0 \\ \frac{\infty s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1) \left| \frac{s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1)} \right|} & \text{otherwise} \end{cases}$$

$$12.25 \quad \mathbf{X}\text{-PolynomialError-25} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s + 1}, \quad R_6 \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_5 R_5 s = -1 \\ \frac{\infty(s+1)}{|C_5 R_5 s + 1|} & \text{otherwise} \end{cases}$$

$$12.26 \quad \mathbf{X}\text{-PolynomialError-26} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s + 1}, \quad \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_5 R_5 + \frac{1}{s} = 0 \\ \frac{\infty(s+1) \left| \frac{s}{C_5 R_5 s + 1} \right|}{s} & \text{otherwise} \end{cases}$$

$$12.27 \quad \mathbf{X}\text{-PolynomialError-27} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s + 1}, \quad R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{(C_5 R_5 s + 1)(C_6 R_6 s + 1)}{s} = 0 \\ \frac{\infty(s^2 + s + 1)}{s |C_5 C_6 R_5 R_6 s + C_5 R_5 + C_6 R_6 + \frac{1}{s}|} & \text{otherwise} \end{cases}$$

$$12.28 \quad \mathbf{X}\text{-PolynomialError-28} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s + 1}, \quad \frac{R_6}{C_6 R_6 s + 1} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} = 0 \\ \frac{\infty(s+1)}{(C_6 R_6 s + 1) \left| \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} \right|} & \text{otherwise} \end{cases}$$

$$12.29 \quad \mathbf{X}\text{-PolynomialError-29} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad R_5, \quad \frac{1}{C_6 s} \right)$$

$$H(s) = \frac{\infty |s|}{s}$$

$$12.30 \quad \mathbf{X}\text{-PolynomialError-30} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad R_5, \quad R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_6 R_6 + \frac{1}{s} = 0 \\ \frac{\infty(s+1) \left| \frac{s}{C_6 R_6 s + 1} \right|}{s} & \text{otherwise} \end{cases}$$

$$12.31 \quad \mathbf{X}\text{-PolynomialError-31} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad R_5, \quad \frac{R_6}{C_6 R_6 s + 1} \right)$$

$$H(s) = \frac{\infty |C_6 R_6 s + 1|}{C_6 R_6 s + 1}$$

$$12.32 \quad \mathbf{X}\text{-PolynomialError-32} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \frac{1}{C_5 s}, \quad R_6 \right)$$

$$H(s) = \frac{\infty s}{|s|}$$

$$12.33 \quad \mathbf{X}\text{-PolynomialError-33} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \frac{1}{C_5 s}, \quad R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_6 R_6 s = -1 \\ \frac{\infty(s+1)}{|C_6 R_6 s+1|} & \text{otherwise} \end{cases}$$

$$12.34 \quad \mathbf{X}\text{-PolynomialError-34} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \frac{1}{C_5 s}, \quad \frac{R_6}{C_6 R_6 s+1} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{s}{C_6 R_6 s+1} = 0 \\ \frac{\infty s}{(C_6 R_6 s+1) \left| \frac{s}{C_6 R_6 s+1} \right|} & \text{otherwise} \end{cases}$$

$$12.35 \quad \mathbf{X}\text{-PolynomialError-35} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad R_5 + \frac{1}{C_5 s}, \quad R_6 \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{s}{C_5 R_5 s+1} = 0 \\ \frac{\infty s}{(C_5 R_5 s+1) \left| \frac{s}{C_5 R_5 s+1} \right|} & \text{otherwise} \end{cases}$$

$$12.36 \quad \mathbf{X}\text{-PolynomialError-36} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad R_5 + \frac{1}{C_5 s}, \quad \frac{1}{C_6 s} \right)$$

$$H(s) = \frac{\infty |C_5 R_5 s + 1|}{C_5 R_5 s + 1}$$

$$12.37 \quad \mathbf{X}\text{-PolynomialError-37} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad R_5 + \frac{1}{C_5 s}, \quad R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{C_6 R_6 s+1}{C_5 R_5 s+1} = 0 \\ \frac{\infty(s+1)}{(C_5 R_5 s+1) \left| \frac{C_6 R_6 s+1}{C_5 R_5 s+1} \right|} & \text{otherwise} \end{cases}$$

$$12.38 \quad \mathbf{X}\text{-PolynomialError-38} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad R_5 + \frac{1}{C_5 s}, \quad \frac{R_6}{C_6 R_6 s+1} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{s}{(C_5 R_5 s+1)(C_6 R_6 s+1)} = 0 \\ \frac{\infty s}{(C_5 R_5 s+1)(C_6 R_6 s+1) \left| \frac{s}{(C_5 R_5 s+1)(C_6 R_6 s+1)} \right|} & \text{otherwise} \end{cases}$$

$$12.39 \quad \mathbf{X}\text{-PolynomialError-39} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s+1}, \quad R_6 \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_5 R_5 s = -1 \\ \frac{\infty(s+1)}{|C_5 R_5 s+1|} & \text{otherwise} \end{cases}$$

$$12.40 \quad \mathbf{X}\text{-PolynomialError-40} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s+1}, \quad \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } C_5 R_5 + \frac{1}{s} = 0 \\ \frac{\infty(s+1) \left| \frac{s}{C_5 R_5 s+1} \right|}{s} & \text{otherwise} \end{cases}$$

$$12.41 \quad \mathbf{X}\text{-PolynomialError-41} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s+1}, \quad R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \mathbf{NaN} & \text{for } \frac{(C_5 R_5 s+1)(C_6 R_6 s+1)}{s} = 0 \\ \frac{\infty(s^2+s+1)}{s |C_5 C_6 R_5 R_6 s + C_5 R_5 + C_6 R_6 + \frac{1}{s}|} & \text{otherwise} \end{cases}$$

$$12.42 \quad \text{X-PolynomialError-42} \quad Z(s) = \left(\infty, \quad \infty, \quad R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \frac{R_5}{C_5 R_5 s + 1}, \quad \frac{R_6}{C_6 R_6 s + 1} \right)$$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} = 0 \\ \frac{\infty(s+1)}{(C_6 R_6 s + 1) \left| \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} \right|} & \text{otherwise} \end{cases}$$

$$12.43 \quad \text{X-PolynomialError-43} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad R_5, \quad \frac{1}{C_6 s} \right)$$

$$H(s) = \frac{\infty |s|}{s}$$

$$12.44 \quad \text{X-PolynomialError-44} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad R_5, \quad R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_6 R_6 + \frac{1}{s} = 0 \\ \frac{\infty(s+1) \left| \frac{s}{C_6 R_6 s + 1} \right|}{s} & \text{otherwise} \end{cases}$$

$$12.45 \quad \text{X-PolynomialError-45} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad R_5, \quad \frac{R_6}{C_6 R_6 s + 1} \right)$$

$$H(s) = \frac{\infty |C_6 R_6 s + 1|}{C_6 R_6 s + 1}$$

$$12.46 \quad \text{X-PolynomialError-46} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad \frac{1}{C_5 s}, \quad R_6 \right)$$

$$H(s) = \frac{\infty s}{|s|}$$

$$12.47 \quad \text{X-PolynomialError-47} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad \frac{1}{C_5 s}, \quad R_6 + \frac{1}{C_6 s} \right)$$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_6 R_6 s = -1 \\ \frac{\infty(s+1)}{|C_6 R_6 s + 1|} & \text{otherwise} \end{cases}$$

$$12.48 \quad \text{X-PolynomialError-48} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad \frac{1}{C_5 s}, \quad \frac{R_6}{C_6 R_6 s + 1} \right)$$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{s}{C_6 R_6 s + 1} = 0 \\ \frac{\infty s}{(C_6 R_6 s + 1) \left| \frac{s}{C_6 R_6 s + 1} \right|} & \text{otherwise} \end{cases}$$

$$12.49 \quad \text{X-PolynomialError-49} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad R_5 + \frac{1}{C_5 s}, \quad R_6 \right)$$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{s}{C_5 R_5 s + 1} = 0 \\ \frac{\infty s}{(C_5 R_5 s + 1) \left| \frac{s}{C_5 R_5 s + 1} \right|} & \text{otherwise} \end{cases}$$

$$12.50 \quad \text{X-PolynomialError-50} \quad Z(s) = \left(\infty, \quad \infty, \quad \frac{R_3}{C_3 R_3 s + 1}, \quad \infty, \quad R_5 + \frac{1}{C_5 s}, \quad \frac{1}{C_6 s} \right)$$

$$H(s) = \frac{\infty |C_5 R_5 s + 1|}{C_5 R_5 s + 1}$$

12.51 X-PolynomialError-51 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, R_5 + \frac{1}{C_5 s}, R_6 + \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{C_6 R_6 s + 1}{C_5 R_5 s + 1} = 0 \\ \frac{\infty(s+1)}{(C_5 R_5 s + 1) \left| \frac{C_6 R_6 s + 1}{C_5 R_5 s + 1} \right|} & \text{otherwise} \end{cases}$$

12.52 X-PolynomialError-52 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, R_5 + \frac{1}{C_5 s}, \frac{R_6}{C_6 R_6 s + 1} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1)} = 0 \\ \frac{\infty s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1) \left| \frac{s}{(C_5 R_5 s + 1)(C_6 R_6 s + 1)} \right|} & \text{otherwise} \end{cases}$$

12.53 X-PolynomialError-53 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \frac{R_5}{C_5 R_5 s + 1}, R_6 \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_5 R_5 s = -1 \\ \frac{\infty(s+1)}{|C_5 R_5 s + 1|} & \text{otherwise} \end{cases}$$

12.54 X-PolynomialError-54 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \frac{R_5}{C_5 R_5 s + 1}, \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } C_5 R_5 + \frac{1}{s} = 0 \\ \frac{\infty(s+1) \left| \frac{s}{C_5 R_5 s + 1} \right|}{s} & \text{otherwise} \end{cases}$$

12.55 X-PolynomialError-55 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \frac{R_5}{C_5 R_5 s + 1}, R_6 + \frac{1}{C_6 s} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{(C_5 R_5 s + 1)(C_6 R_6 s + 1)}{s} = 0 \\ \frac{\infty(s^2 + s + 1)}{s |C_5 C_6 R_5 R_6 s + C_5 R_5 + C_6 R_6 + \frac{1}{s}|} & \text{otherwise} \end{cases}$$

12.56 X-PolynomialError-56 $Z(s) = \left(\infty, \infty, \frac{R_3}{C_3 R_3 s + 1}, \infty, \frac{R_5}{C_5 R_5 s + 1}, \frac{R_6}{C_6 R_6 s + 1} \right)$

$$H(s) = \begin{cases} \text{NaN} & \text{for } \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} = 0 \\ \frac{\infty(s+1)}{(C_6 R_6 s + 1) \left| \frac{C_5 R_5 s + 1}{C_6 R_6 s + 1} \right|} & \text{otherwise} \end{cases}$$