# Filter Summary Report: TIA,simple,Z2,Z3

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## Contents

# 1 Examined $H(z)$ for TIA simple Z2 Z3: $Z_3$

$$H(z) = Z_3$$

# 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 $Z(s) = (\infty,\ R_2,\ R_3,\ \infty,\ \infty,\ \infty)$

$$H(s) = Z_3$$

## 10.2 INVALID-ORDER-2 $Z(s) = \left(\infty,\ R_2,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

## 10.3 INVALID-ORDER-3 $Z(s) = \left(\infty,\ R_2,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

## 10.4 INVALID-ORDER-4 $Z(s) = \left(\infty,\ R_2,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.5 INVALID-ORDER-5** $Z(s) = \left(\infty,\ R_2,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.6 INVALID-ORDER-6** $Z(s) = \left(\infty,\ R_2,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.7 INVALID-ORDER-7** $Z(s) = \left(\infty,\ R_2,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.8 INVALID-ORDER-8** $Z(s) = \left(\infty,\ R_2,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.9 INVALID-ORDER-9** $Z(s) = \left(\infty,\ R_2,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.10 INVALID-ORDER-10** $Z(s) = \left(\infty,\ R_2,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.11 INVALID-ORDER-11** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.12 INVALID-ORDER-12** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.13 INVALID-ORDER-13** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.14 INVALID-ORDER-14** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.15 INVALID-ORDER-15** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.16 INVALID-ORDER-16** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.17 INVALID-ORDER-17** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.18 INVALID-ORDER-18** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.19 INVALID-ORDER-19** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.20 INVALID-ORDER-20** $Z(s) = \left(\infty,\ \frac{1}{C_2 s},\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.21 INVALID-ORDER-21** $Z(s) = \left(\infty,\ \frac{R_2}{C_2 R_2 s+1},\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.22 INVALID-ORDER-22** $Z(s) = \left(\infty,\ \frac{R_2}{C_2 R_2 s+1},\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.23 INVALID-ORDER-23** $Z(s) = \left(\infty,\ \frac{R_2}{C_2 R_2 s+1},\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.24 INVALID-ORDER-24** $Z(s) = \left(\infty,\ \frac{R_2}{C_2 R_2 s+1},\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.25 INVALID-ORDER-25** $Z(s) = \left(\infty,\ \frac{R_2}{C_2R_2s+1},\ L_3s + \frac{1}{C_3s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.26 INVALID-ORDER-26** $Z(s) = \left(\infty,\ \frac{R_2}{C_2R_2s+1},\ \frac{L_3s}{C_3L_3s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.27 INVALID-ORDER-27** $Z(s) = \left(\infty,\ \frac{R_2}{C_2R_2s+1},\ L_3s + R_3 + \frac{1}{C_3s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.28 INVALID-ORDER-28** $Z(s) = \left(\infty,\ \frac{R_2}{C_2R_2s+1},\ \frac{L_3R_3s}{C_3L_3R_3s^2+L_3s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.29 INVALID-ORDER-29** $Z(s) = \left(\infty,\ \frac{R_2}{C_2R_2s+1},\ \frac{L_3s}{C_3L_3s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.30 INVALID-ORDER-30** $Z(s) = \left(\infty,\ \frac{R_2}{C_2R_2s+1},\ \frac{R_3\left(C_3L_3s^2+1\right)}{C_3L_3s^2+C_3R_3s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.31 INVALID-ORDER-31** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2s},\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.32 INVALID-ORDER-32** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2s},\ \frac{1}{C_3s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.33 INVALID-ORDER-33** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2s},\ \frac{R_3}{C_3R_3s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.34 INVALID-ORDER-34** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2s},\ R_3 + \frac{1}{C_3s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.35 INVALID-ORDER-35** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2 s},\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.36 INVALID-ORDER-36** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.37 INVALID-ORDER-37** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2 s},\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.38 INVALID-ORDER-38** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2 s},\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.39 INVALID-ORDER-39** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.40 INVALID-ORDER-40** $Z(s) = \left(\infty,\ R_2 + \frac{1}{C_2 s},\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.41 INVALID-ORDER-41** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ R_3,\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.42 INVALID-ORDER-42** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.43 INVALID-ORDER-43** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.44 INVALID-ORDER-44** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.45 INVALID-ORDER-45** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.46 INVALID-ORDER-46** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.47 INVALID-ORDER-47** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.48 INVALID-ORDER-48** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.49 INVALID-ORDER-49** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.50 INVALID-ORDER-50** $Z(s) = \left(\infty,\ L_2 s + \frac{1}{C_2 s},\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.51 INVALID-ORDER-51** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ R_3,\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.52 INVALID-ORDER-52** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.53 INVALID-ORDER-53** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.54 INVALID-ORDER-54** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$H(s) = Z_3$

**10.55 INVALID-ORDER-55** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.56 INVALID-ORDER-56** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.57 INVALID-ORDER-57** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.58 INVALID-ORDER-58** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.59 INVALID-ORDER-59** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.60 INVALID-ORDER-60** $Z(s) = \left(\infty,\ L_2 s + R_2 + \frac{1}{C_2 s},\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.61 INVALID-ORDER-61** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.62 INVALID-ORDER-62** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.63 INVALID-ORDER-63** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.64 INVALID-ORDER-64** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.65 INVALID-ORDER-65** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ L_3 s + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.66 INVALID-ORDER-66** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ \frac{L_3 s}{C_3 L_3 s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.67 INVALID-ORDER-67** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ L_3 s + R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.68 INVALID-ORDER-68** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2+L_3 s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.69 INVALID-ORDER-69** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ \frac{L_3 s}{C_3 L_3 s^2+1} + R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.70 INVALID-ORDER-70** $Z(s) = \left(\infty,\ \frac{L_2 s}{C_2 L_2 s^2+1} + R_2,\ \frac{R_3\left(C_3 L_3 s^2+1\right)}{C_3 L_3 s^2+C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.71 INVALID-ORDER-71** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2 L_2 s^2+1\right)}{C_2 L_2 s^2+C_2 R_2 s+1},\ R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.72 INVALID-ORDER-72** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2 L_2 s^2+1\right)}{C_2 L_2 s^2+C_2 R_2 s+1},\ \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.73 INVALID-ORDER-73** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2 L_2 s^2+1\right)}{C_2 L_2 s^2+C_2 R_2 s+1},\ \frac{R_3}{C_3 R_3 s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.74 INVALID-ORDER-74** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2 L_2 s^2+1\right)}{C_2 L_2 s^2+C_2 R_2 s+1},\ R_3 + \frac{1}{C_3 s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.75 INVALID-ORDER-75** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2L_2s^2+1\right)}{C_2L_2s^2+C_2R_2s+1},\ L_3s+\frac{1}{C_3s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.76 INVALID-ORDER-76** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2L_2s^2+1\right)}{C_2L_2s^2+C_2R_2s+1},\ \frac{L_3s}{C_3L_3s^2+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.77 INVALID-ORDER-77** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2L_2s^2+1\right)}{C_2L_2s^2+C_2R_2s+1},\ L_3s+R_3+\frac{1}{C_3s},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.78 INVALID-ORDER-78** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2L_2s^2+1\right)}{C_2L_2s^2+C_2R_2s+1},\ \frac{L_3R_3s}{C_3L_3R_3s^2+L_3s+R_3},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.79 INVALID-ORDER-79** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2L_2s^2+1\right)}{C_2L_2s^2+C_2R_2s+1},\ \frac{L_3s}{C_3L_3s^2+1}+R_3,\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$

**10.80 INVALID-ORDER-80** $Z(s) = \left(\infty,\ \frac{R_2\left(C_2L_2s^2+1\right)}{C_2L_2s^2+C_2R_2s+1},\ \frac{R_3\left(C_3L_3s^2+1\right)}{C_3L_3s^2+C_3R_3s+1},\ \infty,\ \infty,\ \infty\right)$

$$H(s) = Z_3$$